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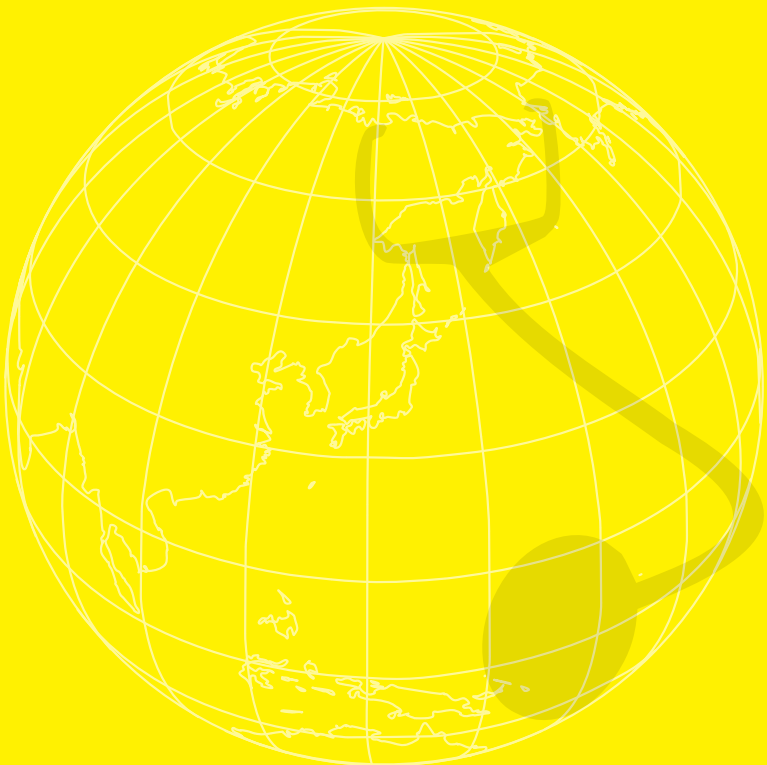

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Study of lipid profile changes in patients with carcinoma stomach

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Abstract

In the normal circumstances the proliferation of body cells is under strict control. The cells differentiate, divide and die on a sequential manner in a healthy organism. Cancer is characterized by loss of control of cellular growth and development leading to excessive proliferation and spread of cells. Cancer derived from a Latin word meaning crab. It is presumed that the word cancer originated from the character of cancerous cells which can migrate and adhere and cause pain (like a crab) to any part of the body.

Key words

Carcinoma, Age factor, Lipid profile.

Aim of stidy

a. Compare lipid profile changes on patients suffering from stomach cancer with age matched healthy controls.
b. Compare the changes in relation to age i.e. by dividing the study group into younger age group (<45 yrs) and older age group (>45yrs).
c. Compare the changes in relation to sex i.e. in males and females with sex-matched controls.

Meterials and methods

Sixteen diagnosed carcinoma stomach patients attending medical oncology out patient clinic of S.V. Institute of Medical Sciences, Tirupati were recruited in to the study (patient group) along with 25 healthy individuals (control group). The control groups were recruited from the people attending master health check up programme of the hospital and staff of the department. All of them had normal blood chemistry, ECG, Chest X-ray, Blood counts apart from a normal clinical examination. All the patients included in the study had so confirm histological diagnosis and where fresh untreated stage III / stage IV cases.

Conclusions

1. The levels of cholesterol, Triglycerides, low density lipoproteins, Very low density lipoproteins and albumin were found to the significantly decreased in case as compared to controls, where as the Lipid peroxide concentration was significantly increased. There was no significant change in high density lipoproteins between the two groups.
2. In younger age group i.e. Below 45 years no significant change in cholesterol, Triglycerides, low density lipoproteins, Very low density lipoproteins, high density lipoproteins, where as the albumin concentration was significantly decreased and the lipid peroxide concentration was significantly increased as compared to age matched controls.
3. Where as the older age group i.e. above 45 years the levels of cholesterol, low density lipoproteins and albumin were found to be significantly decreased in cases, as compared to controls. And the lipid peroxide concentration was found to significantly increase. There was no significant change in triglyceride, low density lipoproteins and high density lipoproteins concentrations between the two groups.
4. Total cholesterol, low density lipoproteins and albumin concentrations between were found to be significantly decreased in male cases, as compared to controls, where as the Lipid peroxide concentration was significantly increased. There was no significant change in triglyceride, Very low density lipoproteins and high density lipoprotein concentration between the two groups.
5. While in females no significant changes was observed in cholesterol, triglycerides, low density lipoproteins, very low density lipoproteins, high density lipoproteins. While the albumin concentration was significantly.
6. No correlation was observed between triglyceride and lipid peroxide levels.

Study findings thus show an inverse relationship between plasma lipids and cancer.

This along with the increase lipid peroxide levels in stomach cancer patients.

Discussion

In the present study, we have examined lipid profile in patients having carcinoma stomach and normal healthy age matched controls. Analysis of data revealed that total Cholesterol, HDL Cholesterol and Triglycerides levels are inversely associated with incidence of Cancer..

In the present study data analysis revealed that total cholesterol, low density lipoprotein cholesterol levels were lower in cases when compared to controls, similarly decrease was marked in younger age (< 45 years) group and in males. While in charge was observed in old age (> 45 years) group as well as in females.

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Comparative study of augmented local anaesthesia versus spinal anaesthesia in inguinal hernia repair: A prospective randomised analysis

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Abstract

Introduction

Inguinal hernia repair under local anaesthesia though cost effective as well as safe, but due to apprehension of intra operative pain, hinders its wide spread use. Probably ilioinguinal block along with local infiltrations and continuous intravenous ketorolac administration (augmented LA) can improve intra operative analgesia.

Methods

We performed a randomized study in 100 patients undergoing inguinal hernia mesh repair, divided into two equal groups of augmented local anaesthesia and spinal anaesthesia. Intra-operative pain and post operative complications were compared between these groups.

Results

Operative analgesia was equally satisfactory in both groups. Early ambulation and post operative analgesia were better as well as complications like nausea, vomiting, headache and urinary retention were not encountered in the augmented LA group.

Conclusion

This study demonstrates that the use of augmented LA results in increased day-care surgery rates, lower postoperative analgesic requirements and fewer urinary problems. The excellent results can be anticipated if it can be practiced routinely by district general hospitals.

Key words

Anaesthetic techniques, Augmented LA, Inguinal hernia repair

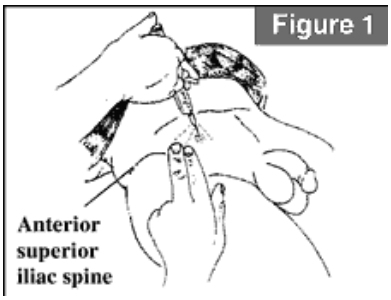
Introduction

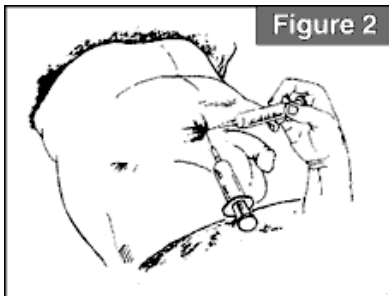
Repair of inguinal hernia is one of the most commonly performed surgery world-wide[1]. Its elective repair is usually performed either under general, spinal/epidural or local anaesthesia. However, there is no common consensus among surgeons regarding the best choice of anaesthesia. The choice of anaesthesia generally depends on patient's acceptance, surgeon's or anaesthesiologist's preference[2]. Even the advantages of local anaesthesia such as shorter recovery period, less incidence of urinary retention and cost effectiveness did not make it very much popular in surgical practice, except at some dedicated hernia centers.[3,4] Several retrospective and randomized controlled trials have shown that local anaesthesia provides the best clinical and economic benefits to patients[5,7]. The explanation of infrequent use of local infiltration anaesthesia may be intra operative patient discomfort and pain[8]. To improve the intra-operative analgesia we had added the Ketorolac infusion along with combined ilioinguinal and genitofemoral nerve blockade plus step-wise local infiltration in our present study. Our group of fortified form of local anaesthesia was compared with spinal anaesthesia group. The aim of this study was to (1) compare the intra-operative analgesia in both groups (2) analyse the outcomes of inguinal hernia repair under the present fortified local anaesthesia group and its feasibility in rural setups like primary health centers as well as district general hospitals of India.

Material & method

This prospective case controlled randomized study was performed in Saraswati Institute of Medical Sciences, Hapur, India on all adult inguinal hernia repairs performed from November 2009 to April 2010.The study was started only after taking permission from the institutional ethical committee. Patients planned for surgery for indirect inguinal hernias and symptomatic direct inguinal hernias in the age group 20 to 65 years were included in this study. Patients with bilateral inguinal hernias, recurrent inguinal hernia, irreducible, obstructed or strangulated inguinal hernia, huge hernia sac, sensitive to local anaesthetics and body weight more than 80 kg were excluded from this study. Informed consent was taken from all the patients and they were randomly divided into two groups of 50 patients, who received local and spinal anaesthesia alternately.

All patients received Alprazolam 0.5mg, and Ranitidine 150mg orally on the night previous to surgery. In the spinal anaesthesia group, an intravenous access was achieved in the pre operative room and all patients were pre loaded with 500 ml of Ringer's Lactate solution. Premedication with Ondensetron 4mg and Midazolam 1mg was given to all patients. In the operation theater, non invasive monitor was established in both groups. In the spinal group, patients were positioned in the right decubitus, a 25 G pencil point spinal needle was introduced into the subarachnoid space at the L^2-L^3 level and 3 ml hyperbaric





plain bupivacaine 0.5% was injected intrathecally, after confirming free flow of CSF. Patients were turned into supine position and the table was tilted into Trendelenburg position till the sensory block up to T^8 level was achieved.

The nerve supply to inguinal canal comes from the anterior branches of the six lower intercostal nerves which continue forward on to the anterior abdominal wall accompanied by the last thoracic (subcostal) nerve. The genitofemoral nerve ($L^{1,2}$) supplies inguinal cord structures and the anterior scrotum via its genital branch and supplies the skin and subcutaneous tissues of the femoral triangle via the femoral branch.

Local anaesthesia was given with 20-25 ml of 0.5% plain bupivicaine. The steps of illioinguinal and genito femoral nerve block were done in following way. Ilioinguinal nerve (T^{12}&L^1) supplies the lower abdominal wall and part of inguinal canal. To block the ilioinguinal nerve, we identified the anterior superior iliac spine of the affected side. From this point about 2 centimeters above and medial, we introduced the needle under the external oblique aponeurosis. The correct position of needle is the feeling of the 'click' sound. Now we injected 10 - 15mls of local anaesthetic in a fanwise fashion (figure-1). To block the genitofemoral nerve, we palpated the pubic tubercle of the affected site and injected 5mls of local anaesthetic directing the needle towards the umbilicus and 5 mls laterally (figure-2).

The ideal local anaesthesia is achieved when the skin in the line of the incision, the nerve supply to the deeper tissues and the parietal peritoneum of the hernia, especially the neck of the sac is anaesthesized.

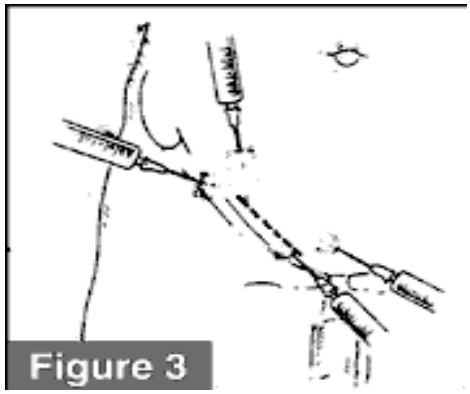
These blocks were given by the anaesthesiologist and surgery was allowed after 15-20 minutes of blocks. The surgeons infiltrated about 10 ml of 1% Xylocaine along the proposed incision line 5-10 minutes before commencement of surgery.(figure-3) All the patients received Injection Ketorolac (30 mg) as continuous drip at the rate of 10 drops per minute. 5-7ml of Xylocaine 1% was kept ready to inject into the sac when it was exposed, and to supplement any parts which were not adequately anaesthetized.

Post operative pain was treated by injection Diclofenac 75 mg IM in the patients of both groups on demand only. Post operative side effects including, nausea/vomiting, urinary retention and headache were noted. All the surgeons as well as patients were requested to level their satisfaction level regarding the anaesthesia. The data were expressed as mean and SD and comparison between groups were done using Chi-square test and p values of < 0.05 were taken as significant.

Observation

Both the groups were matched with each other with respect to age, body weight and duration of operation. Operative conditions were excellent or good in both the groups. Mild pain or discomfort was reported by 4 (8%) patients in local and 2 (4%) in spinal anaesthesia group (Table 1). None of the patients in both groups were converted to GA. Statistically there were no significant differences in between both groups in respect of Intraoperative comforts of patients as well as of surgeons. 6% of patients in spinal group had suffered from nausea and vomiting, where as 8% had post operative headache, might be due to PDPH and were managed by analgesics and I.V. fluids. None of the patients had either sedation, respiratory depression or sore throat.

The mean duration of analgesia (from beginning of surgery to first request for analgesic) varied among both groups (Table 2), being significantly longer in local anaesthesia group than spinal anaesthesia groups ($P<0.05$). There was no difference in the satisfaction rate for the both anaesthetic techniques among surgeons & patients (Table 2). Majority of the patients in local anaesthetic group were able to walk, take oral fluids and had passed urine within 6 hours of surgery (Table 2). Urinary retention requiring catheterization occurred in 12 (24%) patients in spinal anaesthesia group. All the patients were discharged in



between 24 to 48 hours after surgery. There was no morbidity or mortality in any patients. The patient's and surgeon's satisfaction remarks were reported in 84 % and 94% respectively in local anaesthesia group as compared to 90% and 96% in spinal group.

Discussion

Local infiltration anaesthesia is cost effective, and is useful particularly in cardiopulmonary compromised patients as it causes minimal physiological disturbance. It also provides no postoperative sedation, early ambulation, postoperative analgesia for early few hours. Although these are the added advantages over spinal anaesthesia, but in local anaesthesia surgeries are carried out in awake patients, even some traction on peritoneum makes patient uncomfortable. The patient should be explained in advance that some sensation may be experienced during the operation but the procedure will be painless. Many anaesthesiologist or surgeons usually add some sedation during operation especially in anxious patients to minimize this problem. Several anaesthetic agents, like Procaine, Prilocaine, Lignocaine, Bupivacaine and Ropivacaine had been used as local anaesthetics. Lignocaine acts more quickly than bupivacaine but wears off more rapidly; due to this property we had used bupivacaine for prolonged effect on nerve block in our study. To anaesthesized the incision line, we had used adrenaline mixed lignocaine as it provides prolonged anaesthesia with relatively bloodless field due to vasoconstriction property of adrenaline.

In our study there was no significant difference in the both groups regarding their satisfaction of anaesthesia. Some pain or discomfort during hernia repair is generally encountered in local anaesthesia. It becomes more severe during hernia sac dissection[9]. But in our study the discomfort encountered during surgery, in local anaesthesia group, were 8% of moderate and 4% of severe degree as opposed to 4% in spinal group. This might be because; we had added Ketorolac, a NSAID in continuous drip in all patients of local group. Some author had suggested that pain at the time of sac dissection could be minimized substantially by injecting local anaesthetic or supplementing sedation by either Propofol or Opioids[8,10,11].

In our study also patients of local anaesthesia group had significantly longer duration of postoperative analgesia & lesser need for supplemental analgesics in 24 hrs compared to spinal group. This might be possible because: Bupivacaine induced infiltration analgesia or peripheral nerve block analgesia persisted for longer period[12].

In this study we judged recovery on the basis of time of ambulation, oral intake, passing urine & discharge from recovery room. Majority of the patients in local anaesthesia group were able to walk, had oral fluids and had passed urine within six hours of operation. The commonest side effect after spinal anaesthesia was urinary retention, which is also reported in literatures[6,10,13]. Mortality after elective hernia repair is very low following any type of anaesthesia[6]; hence it is very difficult to claim that which anaesthetic technique is safer. But due to minimal disturbance in cardio-respiratory physiology of local anaesthesia; it is the choice of anaesthesia in even in ASA grade III and IV patients.

Conclusion

	Local Anaesthesia	**Spinal Anaesthesia**
Age(years) (mean ±SD)	46.7±9.447	45.72±8.841
Body weight(kg) (mean ±SD)	64.92±4.004	62.86±5.821
Operating time(minutes) (mean ±SD)	82.22±3.874	80.16±4.933
Intraoperative discomfort of patients (nil/moderate/severe)	44/4/2	48/2
Operating comforts of surgeons (excellent/good/poor)	46/2/2	49/1/0

	Local Anaesthesia	**Spinal Anaesthesia**
Nausea/vomiting	0	3(6%)
Headache	0	4(8%)
Urinary retention	0	12(24%)
Postoperative sedation duration	0	0
Ambulation within 3-4 hrs	48(96%)	33(66%)
Duration of postoperative analgesia	10.62±1.181	8.22±1.154
requirement(hours) (mean ±SD)		
Patient's satisfaction(Yes/No)	42/8	45/5
Surgeon's satisfaction(Yes/No)	47/3	48/2

Local anaesthesia augmented with intra venous NSAID infusion proves to be a safe and good substitute to spinal and general anaesthesia in non complicated inguinal hernia repair. It scores higher rating as it is safe, simple, effective, and economical, without postanesthesia side effects. There is a need to increase the use of such augmented local anaesthesia for inguinal hernia repair across the rural set up of India and other developing world to derive its maximum benefits.

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Isolation and Identification of non-tuberculous mycobacteria (NTM) from AIDS patients attending a rural hospital in central India

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Abstract

Objective

To isolate & speciate NTM from AIDS patients.

Materials and methods

A cross-sectional observational study was conducted in the Department of Microbiology, in a rural medical college. Adult patient of any sex, HIV seropositive, CD4 counts <200cells/cumm or active TB with CD4 counts>200cells/cumm were included in this study. Complete blood counts and CD4 counts were done. Blood, sputum, stool and other extra-pulmonary samples were processed for my cobacteria. BACTEC 13A medium for blood samples, Lowenstein Jensen and BACTEC 12B medium for other samples were used for processing. For isolation of NTM, a special medium using paraffin coated slides were used. ZN stained smears were examined for all samples other than blood. Identification of the isolates was done by standard techniques.

Results

65% patients were TB symptomatics with cough, fever, breathlessness and loss of weight. Chest X-rays finding were infiltration and air space consolidation and cavity in 3% cases. A total of 7 non mycobacterial isolates were isolated comprising of MAC (3), M. simiae (3) and unidentifiable mycobacterial species (1). Mycobacteria were isolated from various samples viz. stool samples (1 M. avium and 1 M. simiae) and blood (2 MAC, 2 M. simiae, and 1 unidentifiable mycobacterial species. In two patients same species was recovered from both blood and stool.

Conclusion

Mycobacteria other than Mycobacterium tuberculosis also cause disease in AIDS patients.

Key words

Mycobacteria identification, M. avium, M. simiae

Introduction

My cobacterial infections are commonly associated with HIV/AIDS. Non-tuberculous my cobacteremia (NTM) is found if CD4 counts fall below 200 cells/cumm. My cobacterial infections are the commonest opportunistic infections in HIV/AIDS patients. Human immunodeficiency virus (HIV) infection is a potent risk factor for tuberculosis (TB). Not only does HIV increase the risk of reactivating latent My cobacterium tuberculosis (M. tuberculosis) infection[1], it also increases the risk of rapid TB progression soon after infection or re-infection with M. tuberculosis[2-3]. India with its largest HIV positive population in the world (WHO 2006), is at the greatest risk of having cases with dual infection of HIV-TB. Such cases are to be treated for both TB and HIV. The non-tuberculous mycobacteria (NTM), also known as atypical my cobacteria or my cobacteria other than M. tuberculosis (MOTT) have been recognized since Koch's time but did not gain as much importance as M. tuberculosis. NTM infections are more common in developed countries[4] and have been documented in developing countries of Latin America, Africa, and Asia[4,5,6,7]. Clinically it is not possible to differentiate between tuberculosis and my cobacterioses and thus laboratory support is a must to diagnose the condition. Smear examination after staining with Ziehl Neelsen method is the mainstay of diagnosis under RNTCP in India[8]. The NTM disease is relatively a new entity in India and not much literature is available on the epidemiology of the disease. Moreover the scenario of AIDS patients in rural area is fast changing. It is again necessary to study some of the important epidemiological parameters that might contribute towards the natural history of the disease The Present study was undertaken to study the profile of these patients with respect to NTM infection and for the first time the CD4 counts were done. The patients with CD4 counts <200 with or without TB and with counts >200 cells/cumm with active TB were analyzed further.

Aims and objectives

1. To isolate and characterize NTM from clinical samples of AIDS patients.
2. To identify NTM to species level using phenotypic physiological ,biochemical tests and using DNA probes with the help of reference laboratory.

Material & method

Sample collections: Attempts were made to collect the following samples from all the AIDS patients with CD4 count <200cells/cumm

1. For mycobacterial culture: one blood sample, two stool samples, three sputum samples and any other extra pulmonary sample if available, viz. various tissues, fluids and aspirates
2. For CD4 counts- Blood sample. CD4 count testing was

performed on fully automated two laser BD FACS Calibur Flowcytometer USA using BD four colour CD45/CD3/CD4/CD8 reagents.

3. For complete blood count: Blood was tested using Coulter Counter

Mycobacterial culture: Blood samples were collected from all the subjects included in the study. Sputum, stool and other pulmonary and extra pulmonary samples were also collected depending upon symptoms of the subjects, therefore from one subject multiple specimen were obtained depending upon the clinical features.

X-ray chest was performed on all patients recruited in the study.

Collection and processing of blood samples: BACTEC™ 13A medium was used for isolation of mycobacteria from blood. The flip of cap was removed from the 13A vial top and was inspected for cracks, contamination, excessive cloudiness and bulging or indented septum. Five-milliliter venous blood was drawn from the patient under all aseptic precautions and was inoculated directly into a 13A vial after swabbing the septum with alcohol. The vial was immediately brought to the Microbiology department and 0.5 ml of enrichment (bovine serum albumin, 15.0 % w/v) was aseptically added to it. Inoculated vials were incubated at $37^0 + 1^0$C without shaking and tested next day onwards on BACTEC 460 TB instrument. The vials were tested every 2-3 days for first 2 weeks and weekly thereafter for a total period of 8 weeks. A growth index (GI) reading of 20 or more was considered positive for mycobacterial growth. Vials were reported negative if GI did not rise till the end of 8 weeks. Once the vial read positive, 0.5ml of the contents were aspirated using sterile 1cc syringe and 26G needle. The material obtained was stained by Ziehl-Neelsen (ZN) and Gram's staining techniques. If Acid Fast Bacilli (AFB) were observed on ZN staining, more material was aspirated from the vial and sub cultured onto 2 slopes of Lowenstein Jensen medium (LJ) and one in Czapek broth for paraffin baiting .One additional subculture was made into a fresh BACTEC 12 B vial to perform NAP test. Plates of Blood agar and Chocolate agar were also inoculated to rule out any contaminant along with mycobacteria. If in a positive vial no AFB were seen on ZN staining, Gram stained smear was examined for the Gram reaction of the contaminating microorganisms. The content were also sub cultured on blood agar and chocolate agar to isolate the organisms other than My cobacterium that might be present in the blood or may be present as contaminants and 0.4ml of PANTA plus (Becton and Dickinson), was added to the vial immediately after subculture. There after the incubation and taking BACTEC reading was continued.

Incubation of subcultures: The LJ subcultures were incubated at 37 ^{O}C and read daily for 1st week and weekly thereafter for a total of 12 weeks. The growth was used for identification and to stock the strains.

Paraffin slide culture (PSC): The paraffin coated slide or "slide culture" serves as the sole carbon source in the system. Non-motile organisms NTM are carried by Brownian movement to the paraffin sole carbon source. Most NTMs are paraffinophillic and grow well on the slides while ,M.tuberculosis is not paraphinophillic and hence does not grow. The paraffin slide cultures were incubated at 37^0C for a period of 30 days before declaring the sub-culture to be negative . For this before discarding one of the slides was stained with modified acid-fast (Kinyoun's method) staining to look for any in situ acid-fast organisms, confirmed the growth of be a paraffinophilic organism.

probably NTM. Sub culture: Once the slide showed presence of acid fast colonies and bacillary forms, the other unstained slide from the broth was taken out and with an inoculating loop the growth from surface of the paraffin wax slide was scraped off and sub culture was made on two fresh L.J. slopes for species identification.

NAP test: When the subculture in 12 B vial reached a GI above 50, the BACTEC NAP test was performed following the recommended procedure. This differentiated MTB from NTM. Continuous growth in the presence of NAP (p-nitro-alpha-acetylamino-beta hydroxypropiophenone) indicated NTM while inhibition of growth suggested M. tuberculosis. The NAP test could not be performed directly from the 13A vials because of the presence of blood in the medium.

Processing Sputum samples: Subjects included were chest symptomatic and asymptomatic AIDS patients. No samples could be collected from chest asymptomatic AIDS patients since they could not bring out any sputum. Efforts were made to collect three sputum samples from each chest symptomatic as per RNTCP.

1. Smears were prepared and stained with Zeil Neelsen method. Smear was graded as per RNTCP. Sputum samples were decontaminated by Modified Petroff's method
2. Culture was done on 2 slopes of Lowenstein-Jensen (LJ) medium and incubated at 37^0C and checked for growth daily for one week and then twice a week for 12 weeks after which they were discarded if no growth was seen .
3. Paraffin slide-culture: 500 microlitre of sputum was added to 4.5 ml of sterile Czapek broth, with BACTEC Panta plus (1:100) containing paraffin wax coated slides. Two such broth were inoculated for each specimen and incubated at 37^0C in an incubator with 5% CO_2. They were periodically checked for growth for 30 days before discarding them as negative.

Processing stool samples: Two stool samples were collected from every patient. From each specimen of stool two smears were made on new plain glass slides, air-dried and methanol fixed. The smears were stained with ZN staining for AFB. Stool samples were decontaminated with 3% oxalic acid for 60 minute (Tuberculosis bacteriology, Collin, Grange and Yates, 2nd edition). Stool sample after decontamination were cultured on 2 slopes of LJ medium and incubated at 37^0C. They were checked for growth twice

a week and discarded if no growth was seen after 10 wks.

Paraffin slide culture for stool specimen: Fresh fecal suspension was prepared from stools of HIV seropositive patients by inoculating a 4 mm loopful of samples into 5 ml sterile saline. Aliquots of 500 micro liters were added to 4.5 ml of sterile Czapek broth with BACTEC Panta plus (1:100) in a sterile Infectech Identikit tubes containing the paraffin wax coated slide. Two such tubes were inoculated and incubated at 37^0C with 5% CO_2 and periodically checked for growth for 30 days before discarding as negative.

Speciation for growth on LJ, media: The colour and colony characteristic of growth on LJ medium were recorded. Tests were performed as per TRC manual 1987, Tuberculosis Bacteriology-Organisation and Practice (Collins, Grange and Yates 1997), Practical Manual of Clinical Microbiology (Murray, 7thedition, 1999), Molecular Mycobacteriology manual and CDC manual 1975. in order to identify the NTM. . Standard NTM strains for various tests received from Dr. John Slanford's laboratory in Middlesex Hospital, London, U.K. and maintained in the department by regular subcultures were used as controls.

Initially three tests Niacin Test , Thermostable Catalase Test & growth on para-nitrobenzonic acid (PNB) incorporated in LJ media were performed and my cobacteria were broadly classified in to M. tuberculosis and non-tuberculous my cobacteria.

Growth on para-nitrobenzonic acid (PNB) incorporated in LJ media: positive control – M. chelonae, negative control – M. bovis .Paraffine baiting and NAP. The strains that were Niacin negative, catalase positive paraffiinophillic and showed growths on PNB media were considered as NTM. NTM were then subjected to a battery of tests for further identification up to species level. Growth at 37, 42 and 25^0C , Growth less than 7 days.

a) Nitrate reduction test: positive control – M. tuberculosis H37RV, negative control – reagent control without organism.
b) Semi quantitative catalase test at room temperature: positive control – M. fortuitum, negative control – uninoculated butt.
c) Stability of catalase at pH 7.0/68^0C: positive control – M. fortuitum, negative control – uninoculated buffer
d) Pigment production in dark, after 1 hr. exposure to light and in dark as well as in light.
e) Tween 80 hydrolysis test: positive control – M. kansasii, negative control – uninoculated substrate tube.
f) Tellurite reduction test: positive control – MAC, negative control – uninoculated medium and reagent
g) Growth on 5% NaCl: positive control – M. smegmatis
h) Growth on MacConkey media: positive control – M. chelonae.
i) Resistance to p-Nitrobenzoic acid.
j) Urease test: positive control – M. scrofulaceum, negative control – M. gordonae.

Identification : It was done in the laboratory of Dr. Soolingen in National Mycobacteria Reference Laboratory, Bilthoven, The Netherlands,. They used reversed line blot technology version -2 for identification of these isolates.

Results

65% patients were TB symptomatics with cough, fever, breathlessness and loss of weight . Chest X-rays finding were infiltration and air space consolidation. Cavity was found in only 3% cases.

Among the 7 mycobacterial isolates, 5 could be correctly identified in Medical College Laboratory , species identified were My cobacterium avium complex (3), M. simiae (1), three could not be identified.

Results of various phynotypic tests are mentioned in table 1. Three isolates remained unidentifiable. Investigations of the five patients from whom NTM isolated are given in table 2. After completion of phenotypic tests, the results were compared with those obtained by confirmatory tests. All these isolates were sent to Dr. Soolingen in My cobacteria Reference Laboratory, Bilthoven, The Netherlands, where they were genotypicaly identified using Reversed Line Blot Technology.

Comparison of the results obtained from the reference laboratory and our phenotypic methods is given in Table3 correlation between phenotypic and confirmatory tests with NTM was only 54%. Among NTM, correlation for My cobactrium avium complex, the commonest isolate from HIV/AIDS patients was however quite good 83%.

The main problem among NTM was in the identification of M.simiae and this was traced back to incorrect observation of the pigment either in dark or light as also probably lack of repetition of Niacin test.

Discussion

A total of 94 AIDS subjects were included in the study and amongst these were clinically suspected to be suffering from tuberculosis, 58.06% had only pulmonary disease, 27.42% had only extrapulmonary disease while 14.52% had both pulmonary as well as extrapulmonary TB. Similar distribution of disease pattern was found in a study from Vellore where pulmonary 31.26%, extrapulmonary 21.87% and both 46.87%[9]. The dual site of infection in Vellore study was very high.

A total of 7 mycobacterial isolates were obtained from different clinical samples of 5 patients. Amongst these 7 isolates, 5 were from blood samples and 2 were recovered from stool samples (Tables 2). Blood samples were positive for mycobacteria in five patients. The five NTM species included 2 M. avium complex, 2 M. simiae and one unidentifiable my cobacterial species. Non-tuberculous my cobacteremia was present in 5.3% AIDS patients. All my cobacterial isolates from blood were also from TB symptomatic AIDS patients. My cobacteremia suggests disseminated disease which was commonly observed in

developed countries before advent of HAART[10] . No NTM was found from sputum.

Thus blood is a very useful sample for establishing the diagnosis of NTM in AIDS patients but not many studies have mentioned isolation of non-tuberculous my cobacteria from blood. Narang et al. isolated and reported NTM from 6 cases (3 MAC and 3 M. simiae) with a positivity rate of 8.46% in a study on 71 HIV positive patientsx[11]. No M. tuberculosis was grown. Similarly in the present study MAC and M. simiae were isolated in addition to an unidentifiable my cobacterial species. Ramchandran etal. in TRC Chennai isolated one M. phlei from HIV positive patient[12]. MAC has also been isolated from blood and bone marrow[13]. Similarly M. simiae was another NTM that was isolated from blood in the previous study at MGIMS Sevagram[11]. as well as in the present study

Awareness of M. simiae and other SAV (M. simiae-M. avium complex) infection as potential causes of disseminated infection in patients with AIDS is important for several reasons. Because of the phenotypic similarity between SAV my cobacteria and other my cobacterial species, patients infected with SAV my cobacteria might go unrecognized and be presumed to be infected with other my cobacterium species (e.g., M. tuberculosis), particularly in resource-poor settings without access to adequate laboratory testing. This might lead to initiation of treatment which may prove ineffective, because not all species are susceptible to all agents. Also, if these isolates were assumed to be M. tuberculosis, they could be misclassified as MDR-TB.

Two isolates one each of MAC and M. simiae were isolated from stool samples of AIDS patients in the present study. The blood samples of these two patients were also positive for the same my cobacterial species as confirmed by genotyping from the reference laboratory In order to establish infection in other sites repeated isolation from multiple samples, at least two from stool and three from sputum is required before declaring an isolate as significant[14].

Speciation of mycobacteria is an important aspect in the laboratory diagnosis. In the developing countries like ours majority of the laboratories rely on phenotypic methods using morphological and biochemical characteristics[15,16]. Phenotypic methods though may be reliable, take long time for speciation. The methods like HPLC and those using

The phenotypic identification in our laboratory speciated the 7 isolates as MAC (3), M. simiae (1) and unidentifiable (3). The identification from the reference laboratory was MAC (3), M. simiae (3) and unidentifiable mycobacterial species (1). the correlation of phenotypic and genotypic method(table 3) for MAC which are the commonest isolates in HIV/AIDS patients was 100%. For M. simiae the correlation was just 33%. Two of our unidentified strains were reported as M. simiae by the reference laboratory on basis of genotyping. In our laboratory though these isolates were Photochromogens, they were niacin test negative and nitrate positive. Thus were kept as unidentifiable

Table 3: Comparison of results by phenotypic method and those obtained from reference laboratory

Isolate No.	Phenotypic results	Confirmatory results
1	MAC	M. avium
2	MAC	M. avium
3	Unidentifiable	M. simiae
4	Unidentifiable	M. simiae
5	M. simiae	M. simiae
6	Unidentifiable	Unidentifiable
7	MAC	M. avium

Table 1: Phenotypic identification of Mycobacterial isolates

Isolate No.	Temp Pref.	Pigment	*PNB*	Growth on Mac	5% NaCl	Paraffin slide	Nia -cin	SQ Cat	Catalase 68°C Alase	Nitrate	Tellurite	Tween 80	Aryl Sulphatase	Urease	Species
1	37°C	Scoto	Growth	NG	NG	Growth	Neg	<45	Pos	Neg	Pos	Neg	ND	Neg	MAC
2	37°C	Scoto	Growth	NG	NG	Growth	Neg	<45	Pos	Neg	Pos	Neg	ND	Neg	MAC
3	37°C	Photo	Growth	NG	NG	Growth	Neg	<45	Neg	Pos	Pos	Neg	ND	Neg	Unidentifiable
4	37°C	Photo	Growth	NG	NG	Growth	Neg	<45	Neg	Pos	Pos	Neg	ND	Neg	Unidentifiable
5	37°C	Photo	Growth	NG	NG	Growth	Neg	>45	Pos	Neg	Neg	Neg	ND	Pos	M. simiae
6	37°C	Scoto	Growth	NG	NG	Growth	Neg	<45	Neg	Pos	Neg	Neg	ND	Neg	Unidentifiable
7	37°C	Non	Growth	NG	NG	Growth	Neg	>45	Pos	Pos	Pos	Neg	ND	Pos	MAC

Pigment – ( )chromogen; NG= No growth; Neg=Negative; Pos=positive; ND=Not Done; MAC=Mycobacterium avium complex; M tb=Mycobacterium tuberculosis all 9 isolates. howedsimilar biochemical reactions

Table2: Results of various investigations of patients with NTM isolated from clinical samples

Investigations	Case1	Case2	Case3	Case4	Case5
CD4 count (Cells / cumm)	120	116	74	78	94
Sputum culture	NG	NG	NG	NG	NG
Blood culture Isolates	MAC	M.simiae	Unidentified	M.simiae	MAC
Stool culture isolates	MAC	M.simiae	NG	NG	NG
X-Ray	NAD	PleuralEffusion	HL	NAD	HL

Conclusions

M. tuberculosis and non-tuberculous mycobacteria, both caused disease in AIDS patients. Blood and stool were found to be important for isolation of NTM. Correlation between phenotypic and genotypic methods of identification was 100% for M. avium complex, the most important pathogens in AIDS patients. For M. simiae the correlation was only 33%. To conclude, the present study demonstrated the need for identification of NTM infection when the CD4 counts <200 as they were important pathgenes causing disseminated infection in AIDS patients.

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A study of spectrum of cervical lesions by papaniculaou staining in rural & sub urban population of National Capital Region

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Abstract

Cancer cervix is an important health problem among adult women in developing countries including India, is a well recognized fact. A cohort of 630 symptomatic women from Rural and Sub Urban area belonging to lower socio – economic status underwent visual inspection and conventional Pap test. A subset of hundred asymptomatic cases screened with liquid based cytology. Early marriage (76.5%) is prevalent in rural population thus youngest case registered was of 20 years. Parity more than five was present in 57.9%. Pap test was repeated in all cases of infections (72.85%) after four to six months of treatment. Cervical erosion (45%) was a frequent finding on examination, in study group. Cases with ASUS (14), AGUS (5), LSIL (67), are being followed & HSIL (6) were treated. Invasive carcinoma was seen in ten cases of study group. The higher detection rate of ASCUS (305.41) & HSIL (215.79) was observed in subset with liquid based cytology. Though conventional Pap test is an excellent test but there is need for opportunistic screening programme with more screening tools in rural population.

Key words

Cervix, cytology, vaginal smear, screening, Pap test, CIN, HPV, Cervical Cancer, Mass Screening , visual aid diagnosis, Polar probe, liquid based cytology.

Introduction

Cervical cancer is the second most common cancer effecting women globally[1]. In developing nations, it is a leading cause of death among middle aged women claiming three fourth of global burden[2]. As many as 5 – 13 million women have been found to have precancerous lesions[3]. India accounts for one fifth of total number of cervical cancer and many provincial states lack in high level opportunistic screening programmes. Although data indicate a slow decline from population based cancer registries however the rates are still to high in the rural areas – 4 due to dense population. Visual inspection based approach to cervical cancer have been extensively studied in India. A national workshop on control of cervical cancer considered both good quality conventional Pap cytology and VIA as suitable tests for early diagnose[4].

Pap smear is an excellent test and has been proved to be the best procedure for cancer detection[5,6]. In two third of patients diagnosis is made late (stage II b, III or IV), a feasible control strategy would be to encourage women to seek early detection of cervical intraepithelial Neoplasm (CIN)[7]. George Papanicolaou (1940) introduced cervical cytology, later (1945) Papanicolaou smear received the endorsement of the American cancer society as an effective method of cancer detection[8].

In present era liquid based cytology, aided visual inspection, screening Colposcopy, cervicography, polar probe and HPV testing are screening tool[9,10,11]. Good quality conventional cytology and VIA are considered suitable for early diagnosis of cervix cancer[12]. Cervical dysplasia is invisible to the unaided eyes[13,14,15,]. so attention was given to prepare good Pap smears & overcome laboratory errors. The present study was under taken in low income group of rural population with limited funds to evaluate precancerous cervical lesions with the visual aid and conventional Pap Test.

Material & methods

The study was conducted in the Dept. of Obstetrics & Gynecology in collaboration with Dept. of Pathology SIMS from Oct. 2008 and is going on. Patients (630) were registered on the basis of complaints (Mainly Discharge P/v, Pain Lower Abdomen, Post coital Bleeding, and Menstrual abnormality) and abnormal clinical findings on visual speculum examination. A detailed obstetric and menstrual history, age of marriage, use of hormones and oral contraceptive pills were taken. Pap smear was taken with Ayre's Spatula and Endocervical cytobrush. To obtain an optimal specimen, the sampling implement was firmly

Table I : Distribution of cases as per region & religion.

Area & Religion	No. of Patients	Percentage (%)	Subset	%
Sub Urban	228	36.19	62	62
Rural	402	63.80	38	38
Hindu	378	60.06	56	56
Muslims & Others	252	40	44	44
Total	630	100	100	100

swept 360^0 once around the entire cervix. A rapid stroking action was used. To prevent air drying and delay in placing on slides of specimen aerosol fixative sprayed promptly. All the unsatisfactory smears were repeated & samples were sent with a form with complete history clinical finding to help lab interpretations. Slides were stained by Papaniculaou methods and results were evaluated by Bethesda 2001. Patients with abnormal results were sampled again after four to six months of treatment. All the slides were rechecked by two cytologists to minimize detection errors. Subsets of 100 asymptomatic women from same area were screened with liquid based cytology to serve as control.

Results & discussion

A total of 630 symptomatic patients in study group were tested with visual aid and conventional pap test and 100 asymptomatic women were screened by liquid based cytology respectively. All unsatisfactory and abnormal smears were repeated after four to six months of treatment. In study group 402 (63.5%) cases belonged to rural background and maximum were Hindus. The subset group consists of 62 belonging to sub urban class. Maximum cases in both groups belonged to III & IV decade, 36.5%, 22.85% & 31%, 45% respectively.

As 482 (76.5) subjects had early marriage thus youngest case registered was of 20 years. Discharge per vaginum was chief symptom (83.5%). All post coital bleeding cases were subjected to Biopsy for confirmation. High Parity was observed (57.9%). Cervical erosion was main positive finding (41.4%) on visual inspection. 456 smears with infection agents were treated and sampled again. Validation of use of Pap staining for diagnosis of bacterial vaginosis is established[17]. A very high infection (72.83 %) was observed with 7.39% suggestive of HPV. All the cases with ASCUS, AGUS & LSIL are being followed, six cases of HSIL after confirmation were treated. All 10 cases with invasive carcinoma stage III & IV were seen in fifth decade. Detection of LSIL by liquid based cytology is 15% compared to 10.6% by conventional Pap test[17].

In subset group fifteen LSIL are being followed & in six HSIL biopsy was taken for conformation & cryocautery done. The higher detection rate of HSIL in subset was observed with liquid based cytology as compared to conventional Pap indicates need for Mass Screening with advanced test[18].

Table II : Age distribution in study group & subset.

Age	Study Group	Percentage (%)	Subset
20 -30	121	19.20	0
31 -35	230	36.50	31
36 -40	144	22.85	45
41 -45	55	8.7	12
46 – 50	50	7.9	9
> 50	30	4.76	3
	630		100

Table III : History & visual examination findings in study group.

Symptoms & History	Discharge	520 (82.5 %)
	Pain abdomen	365 (5.79 %)
	Post coital Bleeding	55 (8.73%)
	Early marriage	482 (76.5%)
	Parity > 5	365 (57.9%)
	Oral contraceptive Pills	126 (2%)
	Menopause	25 (3.9%)
Examination Findings	Increase size & congestion	266 (42.2%)
	Erosion	284 (45%)
	Growth	7 (1.13%)
	Polyp	9 1.4%)
	Ectropion	34 (5.3%)

Conclusion

Early marriages, high Parity, vaginal infections among low socio economic group of rural population are risk factors

Table IV : Analysis of infection agents in study group.

Infection Agent	Number	Percentage (%)
Candida	12	1.9
Bacterial Vaginosis	95	15.07
Trichomonas	40	6.34
Suggestive of HPV	50	7.93
Mixed Infection	24	3.80
Inflammatory	215	34.12
Senile Vaginitis	20	3.17
Total (630)	456	72.58

Table V : Cytogical diagnosis of conventional Pap smear & Liquid bases Cytology according to Bethesda nomenclature system 2001.

Diagnosis	Conventional Pap Smear (%)	Liquid Based Cytology (%)	Detection Rate% increase or (decrease)	P – Value
Negative	528 (83.81)	72 (72)	(-14.09)	< 0.5
ASCUS	14 (2.22)	9 (9)	305.41	< .00
AGUS	5(0.79)	1(1)	26.58	•
LSIL	67 (10.63)	15(15)	41.11	•
HSIL	6(0.95)	3(3)	215.79	•
Invasive Carcinoma	10(1.59)	0(0)	0(-100.00)	•

for cervical cancer. There is lack of awareness in population, symptomatic women were needed to council for the tests and ten cases were seen in advanced stage of disease. It is hoped that the study will provide precise information of screening programmes and Excellency of visual inspection and conventional Pap test for early detection of cervical cancer in developing countries with higher population load and limited economic resources. The treatment of infection can help in the prevention of disease, by building awareness & emphasizing the need for mass screening. Outcome of study can serve as a platform to plan a study in a selected group of patients requiring specific test to be performed (VIA, VIL, HPV), to avoid reporting advanced stages of deadening disease in females of low socio economic sub urban population.

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Cariogram model – a new approach for dental caries prediction

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Cariogram[1]

It is a graphical picture illustrating in an interactive way the individual's/patient's risk for developing new caries in the future, simultaneously expressing to what extent different etiological factors of caries affect the caries risk for that particular patient. However, the Cariogram does never specify a particular number of cavities that will or will not occur in the future. It rather illustrates a possible over-all risk scenario, based on what can. be expected depending on our interpretation of available information. Cariogram as an interactive PC-program has been developed for educational, preventive and clinical purposes.Professor D. Bratthall developed the concept and the formula for the Cariogram. The PC version was created in collaboration with Dr L. Allander and K-O. Lybegard B.Sc.

Introduction

Cariogram is a new way in which to illustrate the interaction between caries related factors. This educational interactive program has been developed for better understanding of the multifactorial aspects of dental caries and to act as a guide in the attempts to estimate the caries risk. The main purpose of the Cariogram is to demonstrate the caries risk graphically, expressed as the "Chance to avoid new caries" (i.e. to avoid getting new cavities or 'holes') in the near future. It also illustrates to what extent various factors affect this 'Chance'. A further purpose of this program is to encourage preventive measures to be introduced before new cavities could develop.

Aims of a cariogram

- Illustrates the interaction of caries related factors.
- Illustrates the chance to avoid caries.
- Expresses caries risk graphically.
- Recommends targeted preventive actions.
- Can be used in the clinic.
- Can be used as an educational programme.

It has to be kept in mind that this program cannot replace the personal and professional judgment of caries risk made by the examiner. However, it may give valuable hints and may even serve as a basis for discussions with the patient regarding various risk factors and preventive strategies. In other words, it does not take over the judgment or the responsibilities of the examiner, but may serve as a valuable tool in the clinical decision-making.

Caries risk

Caries risk is the probability that an individual will develop carious lesions, reaching a given stage of the disease in progression during a specified period of time, conditional that the exposure status for risk factors remains stable during the period in question. Thus, Caries risk relates to the likelihood of a person developing caries lesions or not. The need for predicting the caries risk accurately is obvious, as targeted preventive actions can be directed to those having a high caries risk, before cavities could develop. Naturally, if the main etiological factors could be identified, suitable treatment for that particular individual can be carried out with good results.

Factors to be considered in the estimation of caries risk

The factors are divided into two groups

- Factors immediately involved in the caries process, either as "attack" or "defence" mechanisms, at the site of the development of the lesion. To this group on the attack side, the dental plaque, the presence of various specific microorganisms in the plaque (including mutans streptococci) and the diet can be included. On the defence side, the salivary protective systems and the fluoride exposure can be incorporated. These are hence the key factors determining if a caries lesion will occur or not, at the specific tooth surface they are interacting.
- Factors related to the occurrence of caries, without actually participating in the development of the lesion. To this group comes the socio-economic factors and past caries experience. These factors can be designated as indicators of caries risk, but they do not participate actually in the "making" of a cavity.

Weights– the relative impact of factors

The factors included in the Cariogram have been given different "weights". This means that the key factors, which support the development of caries, or resist caries, have a stronger impact than the less important factors when the program calculates the "Chance to avoid new cavities". It is impossible to say with 100 per cent certainty that "this patient will definitely develop five cavities during the coming year". On the other hand, it is possible to say that "based on available information it seems very likely that this patient will develop several cavities during the coming

year - with this combination of caries related factors, cavities usually develop". The Cariogram concept is an attempt to illustrate how a large set of data can be evaluated - based on both science and art!

Cariogram – the five sectors

The Cariogram, a pie circle-diagram, as seen in the screen, is divided into five sectors, in the following colours : green, dark blue, red, light blue and yellow indicating the different groups of factors related to dental caries. An explanation of each sector follows below.

The green sector shows an estimation of the 'Actual chance to avoid new cavities'. The green sector is 'what is left' when the other factors have taken their share!
The dark blue sector 'Diet' is based on a combination of diet contents and diet frequency.

The red sector 'Bacteria' is based on a combination of amount of plaque and mutans streptococci.
The light blue sector 'Susceptibility' is based on a combination of fluoride program, saliva secretion and saliva buffer capacity.
The yellow sector 'Circumstances' is based on a combination of past caries experience and related diseases.

The bigger the green sector, the better from a dental health point of view. Small green sector means low chance of avoiding caries = high caries risk. For the other sectors, the smaller the sector, the better from a dental health point of view.

In summary, the Cariogram shows if the patient over all is at high, intermediate or at low risk for caries. It also shows for every individual examined, which etiological factors are considered responsible for the caries risk. The results also indicate where targeted actions to improve the situation will have the best effect. The Cariogram expresses caries risk only. It does not take into account problems such as fractures of teeth or fillings, discolorations etc that may make new fillings necessary.

Real implication of 'chance to avoid caries

The 'Chance to avoid caries' (green sector) and caries risk are explanations for the same process but expressed inversely. When the chance is high, the risk is small and vice versa, If the Cariogram shows for example that there was an 80 % chance to avoid caries, taking into account all the factors, it means an over all 80 % chance in avoiding new caries in the future. The caries activity will be low provided the patient does not change his/her behavior and biological factors on which the judgment was based on. The Cariogram gives the picture for the 'whole patient', but locally it may be different, for example nearby an overhanging filling, crown edge or around crowded teeth.

Process of using the Cariogram

Start program
The Cariogram program runs on PC Windows only. The computer should have a color screen. The program is started by clicking the 'Cariogram' symbol. If the program does not fill up the screen, the program is maximized in the usual way.

Hints-informative text
There are several 'hints', informative texts, in the program. We have to point at the related texts, figures or icons and if there are informative texts behind, they appear after a few seconds.
These hints are very useful, for example, in giving scores for the different factors when building a Cariogram.

Functions

By clicking at the icons in the upper left comer of the screen we get information about the following functions:

1. Exit - if we want to close the program.
2. New - if we want to get a new empty screen (for a new patient).
3. About - to get facts about the program.
4. Help - to get more information on how to run the program.
5. Notes - to register and write comments on our patient.
6. Preliminary interpretation and proposed measures - targeted preventive and clinical actions we could take, based on the scores we entered.
7. Print - to print the Cariogram or the recommendations.

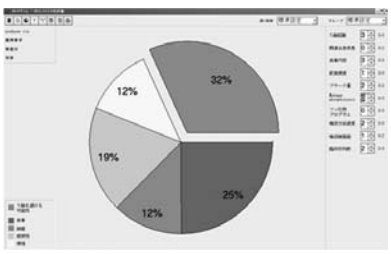
The last two functions do not get activated until a Cariogram appears on the screen.

Identifying (registering) our patient

Also shown in the upper left of the program, just below the icons, are the data needed (name, identification number, date of examination and name of the examiner) to register and identify our patient.

We have to click open the 'notes' icon above and enter the information for every patient we examine. We can also add our own observations in the space given under 'comments'. This is only necessary if we would like to maintain records of our patients and to avoid mix-up of patient records. Close notes by clicking 'OK'.

The details we just entered on the patient will appear on the upper left corner of the screen as shown below. This information cannot be saved in the program. It is hence



Caries Risk	Chance To Avoid Caries	Cariogram
High risk =	low chance =	small green sector
Low risk =	high chance =	large green sector

suggested that we print the patient information and maintain together with patient's records.

New screen

To get a fresh new screen after entering data for every patient, we have to click the 'New' icon, second, in the upper left corner of the screen.

Colours of the different sectors

To the left, at the bottom of the screen, we find the different sectors of the Cariogram. Each sector, as mentioned already, has its own color and represents a group of factors.

Hints appear if we move the cursor to the colored squares or to the accompanying text and will give us an explanation as to which factor represents which sector.

Settings for 'country/area

The impact of different caries related factors may differ between different countries/areas depending on several background information. 'Standard set' is most suitable for an industrialized country without water fluoridation.

The examiner may want the Cariogram to continuously express somewhat higher or lower 'Chances to avoid cavities' than the standard set and could choose for Country/Area 'Low risk' or 'High risk' accordingly. Thus, the 'Chance to avoid cavities' becomes bigger or smaller respectively, but the relationship between the factors Diet/ Bacteria/Susceptibility/Circumstances is not affected.

Settings for 'Group

A patient may belong to a 'group' with higher or lower caries risk compared to the general population in the area. Example: Elderly patients with exposed root surfaces have higher risk and the setting 'High risk' is appropriate.
If we use the Cariogram to investigate a special group or a population, we have to pre-set 'Group' to Standard set, Low risk or High risk according to the group we have in mind.

Giving scores for the different factors

To build a Cariogram, scores for the caries related factors are entered in the boxes on the right side of the screen. Again, hints appear when the cursor points at the text or the scores. We have to move the cursor to the respective ranges 0-3 or 0-2 and choose our score (0, 1, 2, or 3) most suitable for our patient. We then click on the 'arrow' to choose the right score (start with upward pointing arrow).

Caries related factors according to the program

Estimation of the caries risk. Building the Cariogram:

In order to see a Cariogram develop in the screen, the examiner must give a score for the different factors, shown in the right hand side of the screen. The examiner has to gather information accurately by talking with and by examining the patient. In certain components of the sectors, like saliva and bacteria, further standard diagnostic test results are needed to give the correct score to build the Cariogram in the screen. The examiner should have all the relevant information when using this program so as to get an accurate Cariogram reflecting the particular patient's caries profile.

The relevant scores are now entered in the boxes to the right by using 'up' or 'down' arrows (if no scores in the box, that is if the box is blank, we have to start with 'up' arrow). If we wish to check as to what exactly the scores mean for the appropriate factor, a quick reference is shown when we move the cursor to the respective ranges of 0--3 or 0-2. For all factors, '0' is the best value and '3' (or '2' where 2 is maximum) is the most unfavorable score. A Cariogram will appear in the middle of the screen when at least 7 scores have been entered in the boxes. There are 10 caries related factors and it is therefore possible to enter 10 scores in this program, but the Cariogram would already appear when only 7 scores have been entered.

The 'Chance to avoid cavities' - green sector- will appear as a value between 0 and 100 %. It cannot be negative or more than 100%. It is a favorable situation for the patient if the green sector (chance to avoid caries) is large. A green sector of 75% or more would indicate a very good chance to avoid new cavities in the coming year, if conditions are unchanged. A green sector of 25% or less indicates a very high caries risk.

Preliminary interpretation and proposed measures

A set of suggestions for targeted actions in the form of proposed measures can be found if we click on the icon 'Preliminary interpretation' in the upper left comer. It should be understood that these are some suggestions only and do not give a full picture of all possibilities. The responsible examiner must decide if suggested actions, or other actions, are to be carried out or not. It is important to note that the order of the points is not related to their order of importance.

The Cariogram also helps us to illustrate and explain the situation to the patient. For 'high risk' patients, we have to discuss which of the factors the patient is willing to change and what measures the dental team could consider. Our goal should be to try to use the Cariogram as an inspiration for the patient to make his/her own efforts. It is our duty to demonstrate to the patient how the caries risk can be reduced, that is to make the green sector bigger, by just changing scores (to the right) for the different factors.

Print out

The program has a print out function in black and white and color. We can choose to print:

- The Cariogram including our own notes.
- Preliminary interpretation and proposed measures.

While printing, we have to choose if both or only one of the two alternatives has to be printed out. The patient's registration data (if we have entered) will also be printed on the preliminary interpretations to avoid mix-up with other patients.

Cariogram: Explanation for the scores to be entered

Caries Experience (Caries Prevalence)

The examiner must have an opinion about the caries prevalence in the country/area where the patient lives to choose the right score. If there is no adequate actual epidemiological data, we can use the information from the Reference Values, which is discussed later.

Discussion

The 'Cariogram' is a new concept, conceived initially as an educational model, aiming at illustrating the multifactorial background of dental caries in a simple way. It has gradually evolved over a long period of time until it became a reality. Dental caries is a common, global disease. Although caused directly by bacteria on the teeth, it is generally accepted that a large number of different factors are involved in the process. The interactions of these factors determine if the disease - and cavities - will occur or not. This complex background may be subject for several long and interesting discussions among scientists. Nevertheless, caries has to be explained in a simple, comprehensive way to people and patients, often under time pressure for the dental professionals.

In 1981, the World Health Assembly of the WHO declared that the Global Goal for Oral Health by the year 2000 should

Score	Explanation
0 = Caries and No filling	Completely caries free, no previous fillings, no cavities or missing teeth due to caries
1= Better than Normal	Better status than normal, for that age group in that area
2 = Normal for that age group	Normal status for that age group
3 = Worse than Normal	Worse status than Normal for that age group, or several new caries lesion the last year

Factor	Comment	Info/data needed
Caries experience	Past caries experience, including cavities, fillings and missing teeth due to caries. Several new cavities definitely appearing during preceding year should score' 3' even if number of fillings is low.	DMFT, DMFS, new caries experience in the past one year.
Related general diseases	General disease or conditions associated with dental caries.	Medical history, medications.
Diet, contents	Estimation of the carcinogenicity of the food, in particular fermentable carbohydrate content.	Diet history, (lactobacillus test count).
Diet, frequency	Estimation of number of meals and snacks per day, mean for a normal day.	Questionnaire results (24-h recall or 3 days dietary recall).
Plaque amount	Estimation of hygiene, for example according to Silness-Loe Plaque Index (PI). Crowded teeth leading to difficulties in removing plaque interproximally should be taken into account.	Plaque index.
Mutans streptococci	Estimation of levels of mutans streptococci (Streptococcus mutans, Streptococcus sorbinus) in saliva, for example using Strip mutans test.	Strip mutans test or other similar test.
Fluoride programm	Estimation of as to what extent fluoride is available in the oral cavity over the coming period of time.	Fluoride exposure, interview the patient.
Saliva secretion	Estimation of amount of saliva, for example using paraffin-stimulated secretion and expressing results as ml saliva per minute.	Stimulated saliva test-secretion rate.
Saliva buffer capacity	Estimation of capacity of saliva to buffer acids, for example using the Dentobuff test.	Dentobuff test or other similar test.
Clinical judgment	Opinion of dental examiner, 'clinical feeling'. Examiners own clinical and personal score for the individual patient.	Opinion of dental examiner, 'clinical Feeling' . A pre-set score of 1 comes automatically.

be that the DMFT for the 12 – year olds should not exceed 3, in all countries. Over a period of twenty years, nearly 70% of the countries in the world have succeeded in achieving this goal, or have never exceeded this borderline value[2]. It has been well documented that dmft values are affected by age[3], gender[4], regular toothbrushing[5], and family income[6]. These facts certainly reflect a great achievement in the improvement of oral health.

In trying to make a comprehensive caries risk profile for an individual, one faces a situation that several factors need to be considered and weighted together. Summarizing these factors could be a complex process and to facilitate the practical application, a computer-based risk assessment model for caries, the Cariogram, was developed. The Cariogram program operates basically in such a way that information on a number of factors are collected about the patient, transferred to 'scores' and these scores then entered into the program. According to its built-in algorithm, the program evaluates the data and presents the summarized result expressed as one figure, a pie-diagram, illustrating the 'Chance of avoiding cavities' in the future. The present review article is an attempt to explore the concept of risk, the terminology and definitions related to risk, risk management and risk assessment in dentistry.

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Study of septocutaneous vessels in the leg

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Abstract

Traumatic skin loss in lower extremity is a taxing problem. Vascular supply to the skin and soft tissue of leg is such that standard rotation and advancement flaps used in other locations frequently fail. The lower third of the tibia, the Achilles tendon and the heel are still difficult areas to be resurfaced. A flap of acceptable proportions that easily survived elsewhere on the body soon became necrotic on the lower limb. Ponten (1981) first used the fasciocutaneous flap which includes skin, subcutaneous tissue and fascia but not muscles, in the area of leg below knee level. The evolution of fasciocutaneous flaps inspired our study on vascular anatomy of superficial planes of leg. After studying the specimens an account has been put forward of the fasciocutaneous arteries,musculocutaneous perforators and septocutaneous vessels.

Introduction

The fasciocutaneous system consists of perforators which pass up to the surface along the fascial septa between adjacent muscle bellies and then fan out at the level of deep fascia to form a plexus from which branches are given off to supply the overlying subcutaneous tissue and the dermis.

Fasciocutaneous flaps based on this system of vessels is a new concept largely attributed to Ponten. Other authors Haertsch (1981) and Barclay (1982) delineated the locations of the fasciocutaneous perforators. Haertsch also defined the surgical plane in the lower leg as lying beneath the deep fascia. The perforators in fascial plexus arise from the anterior tibial, posterior tibial and peroneal arteries. These perforators reach the deep fascia by passing from the anterior tibial artery along the anterior peroneal septum, from the peroneal artery along the posterior peroneal septum, and from the posterior tibial artery along the fascia between flexor digitorum longus and soleus. The basic pattern of coetaneous supply is augmented superomedially by the saphenous artery and posteriorly by superficial sural arteries and by musculocutaneous perforators from the gastronemius. The presence of the fascial plexus explains why a fasciocutaneous flap in the lower leg can be raised with greater safety and much greater area than an equivalent pure coetaneous flap. In this plexus the fasciocutaneous perforators pass obliquely through the fascia giving of branches both above and below the fascia.

On the basis of the pattern of vascularisation fasciocutaneous flaps are divided into 4 types-

Type A- it is based on multiple fasciocutaneous vessels entering its base and is oriented with the long axis of the flap lying parallel to the predominating direction of the arterial plexus at the level of deep fascia. Thus the greater length of this flap facilitates positioning and allows greater mobility between the legs.

Type B- it is based on the single fasciocutaneous perforator of moderate size, which is consistent both in its presence and its location. This flap may be used as a local pedicled flap or as a micro vascular free flap and incorporates the territory supplied by this perforator.

Type C- this is supported by multiple small perforators along its length which reach it from a deep artery by passing along a facial septum between the muscles. It is used as a free flap by removing the skin fascia and the supplying artery in continuity.

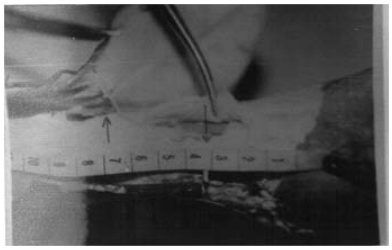
Type D- it is a osteomyofascocutaneous free tissue transfer. This is an elaboration to type c in which the fascial septum containing the fasciocutaneous perforators to the overlying skin is removed in continuity with the adjacent muscle and bone which derive their blood supply from the same artery.

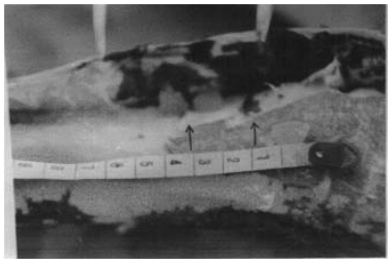
Septocutaneous vessels arise directly from posterior tibial, anterior tibial and peroneal arteries run along intermuscular septum pierces the crural fascia and ramify radially in subcutaneous tissue superficial to the fascia. Longitudinally oriented anastomotic arcade are formed along the leg between the branches of adjacent septocutaneous vessels. On the whole, they run deeper than the superficial venous system. Each septocutaneous vessel has one or two venae comitants. These veins directly join the deep trunks. Their diameters are slightly longer than those of arteries and can exaggerate under abnormal circumstances as chronic venous disease.

According to their origin septocutaneous vessels form 3 groups. Medial from posterior tibial vessels, anterotibial from anterior tibial vessels and posterolateral from peroneal vessels. We in our study injected metylene blue in these superficial vessels to study the course and distribution of these vessels.

Observation and discussion

The medial group is enclosed in deep transverse fascial septum of leg that separates soleus and gastronemius from deep muscular compartment of posterior leg. The





uppermost of these vessels pierces the fascia; passing through the tibial origin of the soleus just behind the medial border of tibia. The lowermost medial septocutaneous vessel becomes superficial after passing between the flexor digitorum longus and soleus muscle and Achilles tendon. Though the point of emergence of the vessels was very variable we always found a perforator at 9-12 cm and 21-24 cm from the medial malleolus. All the extremities had minimum of 4 and maximum of 6 perforators. Lowermost limit of vessel was 2.4 cm and uppermost was 24 cm from medial malleolus. Perforator vessels at 9-12 cm and 21-24 cm were found to be most constant and staining 16-20 cm of tissue vertically. Other perforator vessels were found to stain lesser area. Minimum area supplied was 6 cm and maximum 11 cm. overlapping of stained areas was found in all legs.

Anterotibial group vessels originate from anterior tibial vessels. These perforators were found emerging between extensor digitorum longus and peroneal compartment. In lower two third of the leg one or two perforators were displaced to lie between extensor digitorum longus tibialis anterior. The point of emergence of vessel was variable and it varied in all extremities. However we always found a minimum of 5 septocutaneous perforators. All the extremities had minimum of 5 perforators and maximum 6. Lowermost limit of vessels was 3.8 cm and uppermost 26 cm from lateral malleolus. Area stained by any of the perforator did not exceed more than 7 cm. Most stained an average of 5 cm area.

Posterolateral group originating from peroneal vessels. They pass between fibula and flexor digitorum longus and then soleus and peroneous longus. The point of emergence of vessels was very variable and no constant perforator was found. Minimum 3 to maximum 5 perforators were found in each extremity. Lowermost limit was 2.1 cm and uppermost 25.2 cm from lateral malleolus. Area stained by any individual perforator did not exceed more than 6 cm. However most of the perforators stained average of 4 cm area.

Further it was seen that selective injection of methylene blue in the septocutaneous arteries stained longitudinally oriented skin areas measuring an average of 14*10 cm. The largest area coloured by the injection of one septal vessel measured 18*14 cm. The territories of skin stained by the injection of adjacent septocutaneous arteries overlap to a certain extent at their ends. The medial skin between the anterior tibial border and the posterior mid line was stained after the injection of the medial septocutaneous vessels. The skin of the lateral aspect of the leg was stained by the injection of the posterlateral and anterolateral group of the vessels. The territory of the anterolateral group does not reach the posterior midline, and the territory of the posterolateral group does not uniformly reach the skin. Both territories extensively overlap the lateral side of the fibula. Carriquiry (1995) is of the view that these septocutaneous vessels are as important to cutaneous circulation of the leg as are the musculocutaneous and axial vessels. The same view has been expressed by Baek (1983) and Replogle (1983), who believe that the two principal sources of the skin blood supply are musculocutaneous perforators and few axial vessels. The terminal branches of the septocutaneous vessels follow a radial pattern without taking a definite axial disposition, which agrees with the findings of song and Carriquiry. For this reason, the vascular pedicle of a septocutaneous flap can be placed near the margins. Some branches from the adjacent septocutaneous vessels, however, form the anastomotic arcades along the leg with an axial disposition on the whole. These can be used when vertically oriented, narrow pedicles are planned, whether proximally or distally placed as described by Donski 1988. These kinds of flaps would be an example of "TYPE A" flaps explained previously. Septocutaneoous vessels can also supply transversely oriented flaps with a rich network of terminal branches. These flaps would be particularly sound when elevated from the posterior midline towards the medial border of the tibia or the intermuscular septum. It is likely that Thatte's turnover flaps are in fact, supplied by septocutaneous pedicles, because of the very close relation of the plexus formed by septal vessels and the fascia, they can supply purely fascial flaps as described by Thatte and laud an 1984.

So the conclusions drawn are-

1. Medial septocutaneous vessels are larger and prominent, so the medially placed flaps would be more dependable.
2. Medial septocutaneous perforators are most developed around 9-12 cm of leg from the medial malleolus. Therefore flaps based around 9-12 cm from the medial malleolus would be most versatile.
3. Lateral septocutaneous perforators are not much developed, and therefore are not much dependable for raising the flaps.
4. As there is rich network of communicating branches, transversely raised flaps can also be raised.

5. As the plexus is situated over the suprafascial region, fascial and turnover flaps can be raised.

Acknowledgement

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Ultrasonography of normal human placenta in different gestational ages

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Abstract

The biochemical and physical duet of the mother and the fetus in the formation of the placenta is one of the most carefully orchestrated phenomenons in the fetal development. A thorough examination of placenta is neglected and often under estimated by the physician gynecologist, pediatrician and pathologist inspire of its invaluable role in the fetal development. Ultrasonographic examination of placenta is a important part of obstetrical evaluation of pregnancy. With advent of ultrasonography antenatal evaluation of placenta have become essential in high risk pregnancy as fetal problems and neonatal outcome depends upon status, growth and abnormalities of placenta. With ultrasonography the obstetrician can quite clearly visualize and locate the placenta repetitively and presumptively with complete safety throughout the gestation. Here I am presenting ultrasonographic findings of 50 pregnant ladies in different gestational periods ranging from 9 weeks to full term were subjected for per abdominal ultrasonagraphy for placental parameters like location, thickness and echo texture of the placenta with relevance to grading. It is observed that the placental thickness increased from 17.3 mm in first trimester to 33.5mm at full term. The placental grading is recorded as grade-0 in first trimester, grade-I -II in second trimester and II-III in third trimester. Out of 9 in I trimester 6 are in anterior position and 3 are in posterior position. In II trimester out 30 cases 19 are anteriorly located, 8 are in posterior and 3 in fundal position. In all the 50 cases retro placental clots were not noticed.

Key words

Ultrasonograph, echotexture, retroplacental clots

Introduction

The normal placenta has been described extensively at various gestational ages first through x-ray films and later through sonographic studies. Placenta can be detected as an echogenic discoid mass that appears distinct from the hypo echoic adjacent myometrium. Margin of placenta with the myometrium is sharply defined by a network of vascular channels at placento-myometrial junction that is normally referred as sub placental complex. Recognition of interface between placenta and myometrium is important to avoid false localization of placenta Callen (1980) and Marx, M (1985). The continual upgrading in qualities of ultrasound image resolution brings new or refined observation regarding the development, growth and character of the placenta.

The aim of study is to carry out the ultrasonographic observations of placenta at different gestational periods to establish the incidence of normal placental ultrasonographic findings which form the guidance for the obstetrician for a better outcome of pregnancy.

Materials and methods

Study was conducted with Pregnant women of different gestational periods were identified at the outpatient block of Maternity hospital, Tirupathi and were subjected for transabdominal ultrasonographic scanning at the Radiology department, SVRRGG Hospital, Tirupathi, data like location, thickness, echo texture, grades of maturity of placenta were recorded. Prints of ultrasonographic data were obtained and analyzed.

50 Cases of antenatal mothers of different gestational periods ranging from 9 weeks to full term were subjected for per abdominal ultrasonagraphy for placental parameters like location, thickness and echo texture of the placenta with relevance to grading. It is observed that the placental thickness increased from 17.3 mm in first trimester to 33.5mm at full term. The placental grading is recorded as grade-0 in first trimester, grade-I -II in second trimester and II-III in third trimester. Out of 9 in I trimester 6 are in anterior position and 3 are in posterior position. In II trimester out 30 cases 19 are anteriorly located, 8 are in posterior and 3 in fundal position. In all the 50 cases retro placental clots were not noticed

Discussion

In the present study 50 antenatal cases of different gestational periods i.e., 9 cases between 9-12 weeks, 30 cases between 13-24weeks and 11 cases between 25 weeks full term were subjected for perabdominal ultrasonography and findings regarding placental thickness, position and the maturity grading were recorded Out of 9 cases in the gestational period of 9-12 weeks the placental position is 6 anterior and 3 posterior. Average thickness of placenta is 17.3mm and retro placental clots are not noticed. The echo texture of placenta showed grade-0 (Table-8A).

Out of 30 cases in the gestational period of 13 to 24 weeks 19 cases are of anterior, 3 are fundal and 8 are posterior in

Table 8a : Ultrasonagraphic observations 1st Trimester 9 – 12 weeks

Sl. No.	Gestational age in weeks	Location	Thickness(mm)	Echo texture (Grading)	Retro placental clots
1.	9	Anterior	6.9	Grade -0	Nil
2.	10	Anterior	10	Grade -0	Nil
3.	10	Posterior	20	Grade -0	Nil
4.	10	Anterior	22	Grade -0	Nil
5.	10	Fundal Anterior	23	Grade -0	Nil
6.	11	Posterior	10	Grade -0	Nil
7.	12	Fundal Anterior	16	Grade -0	Nil
8.	12	Posterior	25.2	Grade -0	Nil
9.	12	Anterior	23	Grade -0	Nil

First trimester Gestational age 10 weeks Thickness of placenta 23mm Grade-0 Anteriorly placed placenta

Table 8b : B. 2nd Trimester 13 – 24 weeks

S.No.	Gestational age in weeks	Location	Thickness(mm)	Echo texture (Grading)	Retro placental clots
1.	13	Anterior	16	Grade I	Nil
2.	14	Fundal Anterior	21	Grade I	Nil
3.	14	Fundal Anterior	21	Grade I	Nil
4.	15	Posterior	20	Grade I	Nil
5.	15	Fundal Posterior	20	Grade I	Nil
6.	15	Posterior	21	Grade I	Nil
7.	16	Anterior	22	Grade I	Nil
8.	16	Fundal	20	Grade I	Nil
9.	16	Fundal	20	Grade I	Nil
10.	17	Fundal Anterior	21	Grade I	Nil
11.	17	Anterior	23.4	Grade I	Nil
12.	17	Anterior	20	Grade I	Nil
13.	18	Posterior	30	Grade I	Nil
14.	18	Fundal Anterior	30	Grade I	Nil
15.	18	Anterior	25	Grade I	Nil
16.	18	Fundal	20	Grade I	Nil
17.	18	Posterior	21	Grade I	Nil
18.	18	Anterior	34.6	Grade II	Nil
19.	18	Posterior	32	Grade II	Nil
20.	19	Posterior	22.7	Grade I	Nil
21.	19	Fundal Anterior	21	Grade I	Nil
22.	19	Fundal Posterior	21	Grade I	Nil
23.	19	Anterior	21	Grade I	Nil
24.	19	Posterior	34.3	Grade I	Nil
25.	20	Anterior	27.1	Grade I	Nil
26.	20	Anterior	22	Grade I	Nil
27.	21	Anterior	30	Grade II	Nil
28.	21	Anterior	24.1	Grade II	Nil
29.	22	Anterior	26	Grade II	Nil
30.	24	Anterior	21	Grade II	Nil

position. The average placental thickness is recorded as 23.8mm. No retro placental clots were observed. The echo texture of the placenta is observed as Grade I -II (Table-8B).

Out of 11 cases in the gestational period of 25 weeks to full term 8 are posterior in position, 3 are anterior and 1 is in low lying position. The echotexture of placenta was graded as grade-II-III (Tabel-8C).

Tindall and Associates (1965) first described calcifications occurring in most placentas and their number gradually increased towards term. They also stated that calcifications occur in primi gravida than multigravida. The earliest reports of transabdominal ultrasonography regarding the placental localization were published by Donald (1968) and Kobayashi (1970).

Blecker et.al 1975 conducted serial sonographic studies. Winsburg 1973 described the placenta as rounded transonic area with white calcium containing echoes between the cotyledons in a case of 30 weeks gestation. Fisher et.al 1976 stated that the increased incidence of intrauterine growth retardation and preeclampsia are associated with reticular calcification and echo free spaces before 36 weeks of gestation in ultrasonographic observations. Spirit et.al. 1978 made observations of increased sonographic placental calcification with advancing gestational age. Grannum 1979 reported placental sonographic calcification in the form of four distinct grades. Grade-0 is present early in pregnancy Grade-I show homogeneous placental substance without calcification and indentations in the chorionic plate. Grade-II is diagnosed when chorionic plate has got more indentations but not reaching the basal plate. Grade-III is diagnosed when the chorionic plate indentation reach the basal plate with extensive echogenic areas representing calcification. Petrusa R.A and Platt L.D 1982 recorded observations in 934 patients observing the Grannum classification and found positive correlation between placental grade and gestational age. They also remarked that grade-0 is most common in the first trimester, Grade-I after 14 weeks gestation, Grade-II after 26weeks and

Second trimester gestational age 22 weeks anteriorly placed placenta
Thickness 26 mm Grade-II 3rd Trimester 25 – full term

S.No.	Gestational age in weeks	Location	Thickness(mm)	Echo texture (Grading)	Retro placental clots
1.	25	Fundal Posterior	26.2	Grade II	Nil
2.	25	Anterior	38.2	Grade II	Nil
3.	28	Fundal Posterior	23.8	Grade II	Nil
4.	29	Fundal Posterior	38.6	Grade II	Nil
5.	29	Fundal Posterior	27	Grade III	Nil
6.	32	Posterior	40	Grade III	Nil
7.	35	Posterior	28	Grade III	Nil
8.	35	Posterior	38	Grade III	Nil
9.	36	Fundal Anterior	33	Grade III	Nil
10.	36	Anterior	36	Grade III	Nil
11.	38	Fundal Posterior	40	Grade III	Nil

Third trimester gestational age 32 weeks anteriorly placed placenta
Thickness 40 Mm Grade-iii The summary of ultrasonagraphic data

Gestational age	No. of Cases in weeks	Echo texture	Placental Grading	Thickness(mm) position	Retroplacental clots
9-12	9	Grade-0	6 anterior3Posterior	17.3	Nil
13-24	30	Grade -I-II	19anterior8posterior3fundal	24.3	Nil
24-38	11	Grade - II-III	8Posterior3 anterior	33.5	Nil

Grade-III beyond 35 weeks gestation. Hoddick et.al 1985 evaluated placental thickness in 200 randomly selected singleton pregnancy and stated that rarely it exceeds 4cms. He also stated that the placental thickness in mm is equal to the menstrual age in weeks. Elchalal U 2000 in their study of 561 normal singleton pregnancies concluded that sonographically thick placenta is associated with increased mortality of the fetus.

Summary and conclusion

In the present study it is observed that the thickness of placenta increases proportionate to the period of gestation. Between the periods of 9 – 12 weeks average thickness is 17.3mm, between 13-24 weeks average thickness 24.3mm and between the 25-38 weeks the average thickness is recorded as 33.5mm.

Regarding the site of implantation in the gestational period 9-12 weeks, out of 9 cases 6 are anterior 3 are posterior. In the gestational periods 13-24 out of 30 cases 19 are anterior 8 posterior and 3 are fundal, between gestational ages of 25 -38 out of 11 cases 8 are posterior 3 are anterior because of less scope to have to follow up of the same case the placental migration theory analysis can not be applied.

In the present study the pattern of echo structure reveal grade-0 between 9 – 12 weeks, grade-I-II between gestational ages of 13-24 weeks and grade –II-III between gestational ages 25 – 38 weeks.

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Multiple supernumerary teeth: A review of literature and report of two cases

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Abstract

Supernumerary teeth are qualified as a disorder of odontogenesis characterized by an excess number of teeth possibly causing different dental and occlusal irregularities. These teeth may remain embedded in the alveolar bone or can erupt into the oral cavity. When it remains embedded, it may cause disturbance to the developing teeth. The erupted supernumerary tooth might cause aesthetic and/or functional problems especially if it is situated in the maxillary anterior region. It is rare to find multiple supernumerary teeth in individuals with no other associated diseases or syndromes. A review of the literature relating to supernumerary teeth is presented along with two case reports to illustrate some possible presentations, diagnostic features, and treatment options.

Key words

Non-syndrome, supernumerary teeth, supplemental teeth, impacted teeth.

Introduction

Teeth serve an important role in chewing, phonetics, & morphological make-up of the face[1]. Development of an increased number of teeth in primary/permanent dentition leads to supernumerary teeth.

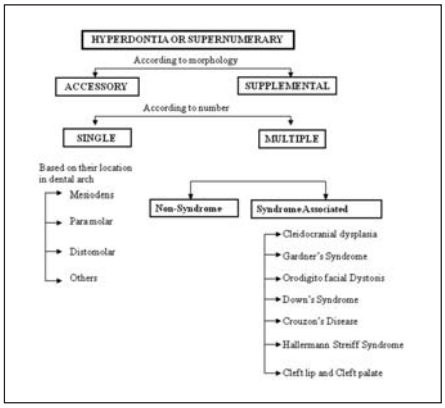
Supernumerary teeth are qualified as a disorder of odontogenesis characterized by an excess number of teeth possibly causing different dental and occlusal irregularities[2]. Supernumerary teeth result from disturbances during the initiation and proliferation stages in dental development[3-5].

Supernumerary teeth have been reported in the literature over the years as a well-recognized clinical phenomenon. Multiple supernumerary teeth are associated with cleidocranial dysplasia and Gardner syndrome. However, it is rare to find multiple supernumeraries in individuals with no other associated disease or syndrome. In such cases the maxillary anterior region is the common site of occurence.

Complications

- Local disorders: impaction, delayed eruption, displacement of permanent incisors, development of dentigerous cyst, resorption of adjacent roots, or the supernumerary teeth may fail to erupt or erupt into the nasal cavity[9,18].
- Other disorders: root dilaceration, or delayed root formation[12,14].
- Present cases describe another risk factor associated with delayed removal of supernumerary teeth such as malocclusion of teeth.

Classification[6]



Prevalence of supernumerary teeth varies between 0.1% and 3.6% of populations[7]. Supernumeraries are encountered more frequently in male than females in ratio of 2:1[8].

Case reports

The following two cases were referred to the oral and maxillofacial surgery department (Career PGI Dental Sciences and Hospital, Lucknow) for routine control and represent some of the possible presentations of a non syndrome male patient with multiple impacted supernumerary teeth.

Case 1: (fig 1,2)

A 14-year-old non-syndrome male presented with a chief complaint of crowding in upper front teeth. Family medical history was non-contributory. Two visible and one impacted supernumerary teeth were diagnosed in area of maxillary permanent central incisors causing crowding and malocclusion. Panoramic radiograph and occlusal radiograph were taken to confirm initial diagnosis and to find out the precise location and anatomical feature. The position of two visible supernumerary teeth were in between 11 and 21 and the impacted tooth was at mesial angulation in between right supernumerary teeth and 11, and dentigerous cyst in relation to impacted super-

Fig. 1: Occlusal radiograph showing Supernumerary teeth & cystic lesion (Case1)

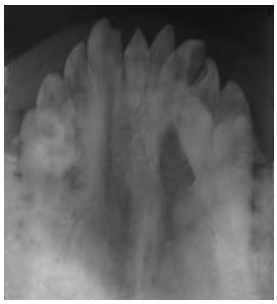


Fig. 2: Panoramic radiograph showing Supernumerary teeth.(Case 1)

numerary tooth. The visible supernumerary teeth were peg shaped with complete crown and root formation.
Treatment plan called for extraction of all the supernumerary teeth and enucleation of the dentigerous cyst then followed by orthodontic correction.

Case 2:- (fig 3,4)

A 24-year-old male non-syndrome patient reported to the department with a chief complaint of crowding in right upper front teeth. Family medical history was non-contributory. One impacted supernumerary teeth were diagnosed in between of right maxillary central and lateral permanent incisors and one impacted supernumerary teeth were diagnosed palatally in left premolar region causing crowding and malocclusion. IOPA and occlusal radiograph were taken to confirm initial diagnosis and to find out the precise location and anatomical feature, thus the position of one impacted tooth in between right maxillary central and lateral permanent incisors and one impacted supernumerary teeth was at palatally diagnosed in left premolar region.

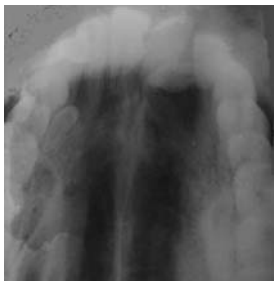
Treatment plan called for extraction of all the impacted supernumerary teeth then followed by orthodontic correction.

Discussion

It is rare to find multiple supernumerary teeth with no associated diseases or syndromes[7]. The few studies have found the prevalence of supernumerary teeth in permanent dentition to range from 0.15% to 3.8%.[19] Scheiner[20] reported an occurrence of 11.1% for multiple supernumerary teeth, while Asaumi[21] found the prevalence

Fig.3: IOPA radiograph showing supernumerary teeth (Case 2)

Fig.4: Occlusal radiograph showing supernumerary teeth. (Case 2)



for multiple supernumerary teeth to be 1%, and Arx[22] found it to be 2%. However, where 'multiple supernumerary teeth' is taken to mean five or more supernumerary teeth, the prevalence has been reported as less than 1%[23].
The exact etiology of supernumerary teeth is still unknown although many theories have been suggested[24].

Two popularly accepted theories are as follows:-

- The dichotomy theory of tooth germs is a concept in which the tooth bud is thought to split into two or different sized parts, resulting in two teeth of equal size or one normal and one dismorphic tooth, respectively. This hypothesis is supported by animal experiments in which split germs have been cultivated in vitro[25].
- The other theory suggests supernumerary teeth are formed as a result of local, independent, or conditioned hyperactivity of dental lamina[25].

Supernumerary teeth may occur singly, multiply, unilaterally or bilaterally in the maxilla, mandible or both[26]. Supernumerary teeth in the premaxillary region have been divided into two main classes: one containing teeth of normal morphology known as supplemental teeth and the other abnormal shape. The later class has been further categorized into the conical type (peg-shaped) and the tuberculate type.
Matching the above characteristics with the cases presented, the supernumerary teeth in Case 1 showed the features of the two supernumerary teeth peg shaped type and one impacted supernumerary supplemental tooth type while those in Case 2 exhibited the features of impacted supernumerary supplemental tooth type were

found. The peg shaped Supernumerary teeth does not usually affect the eruption of adjacent permanent incisor but may cause there displacement[27]. This displacement may involve the crown, the root or the whole tooth[28].

It has been stated development of supernumerary teeth may cause various pathologies. Approximately 75% of supernumerary teeth are impacted and asymptomatic, and most of these teeth are diagnosed coincidentally during radiographic examination. Early diagnosis is important in order to minimize the risk of complications resulting from supernumerary teeth. If they have caused delay or non-eruption of permanent teeth, displacement of permanent teeth, root resorption of adjacent teeth due to the pressure and cystic formations, then extraction is recommended. However, extraction of asymptomatic supernumerary teeth that do not affect the dentition may not always be necessary, but they should be followed through periodic examinations. Since there is a risk of tooth bud recurrence, extraction in these patients is still a remote possibility and follow-up on these patients is recommended[24].

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The healing effect of hyperbaric oxygen therapy- a review

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Abstract

Hyperbaric oxygen therapy (HBOT), is basically 100% oxygen inhalation, at a pressure greater than that of sea level, it being 2.4 absolute atmospheres (i.e. ATA; where 1 ATA = 760 mmHg). When oxygen is used as a drug, the doze is controlled by technologically operated oxygen chamber, which sets the dosage at 100% oxygen and controls its absorption by pressure. Molecular oxygen has a central role in repair, collagen synthesis, matrix formation, angiogenesis, epithelialization and bacterial killing.

Key words

Hyperbaric oxygen therapy, absolute atmospheres, Hyperbaric chambers, decompression sickness.

Introduction

Although using pressurized air goes back in history to 300 years, the scientific basis was laid for HBOT in 1960 when Brummelkamp, Hogendijk and Boerema reported its use for gas gangerene treatment. Not only non–healing ulcers, chronic wounds and refractory osteomyelitis are the few conditions for which HBOT has been extensively used, but nowadays dental implants and periodontitis are also reverting to this treatment modality for successful results. Over the last two decades, animal studies and clinical trials have produced reasonable scientific evidence of the benefits of hyperbaric oxygen therapy[1].

History

Oxygen was discovered independently by the Swedish apothecary, Karl W. Scheele, in 1772 and by the English chemist, Joseph Priestly, in August 1774. In 1783, a French physician, Caillens, was the first to report oxygen therapy as a remedy for disease. Gabb and Robin, in the "CHEST", have documented 132 past and present indications of hyperbaric oxygen therapy[2].

Hyperbaric oxygen physiology

At sea level, alveolar and arterial PO_2 are approximately 100 mm Hg. Haemoglobin is approximately 97% oxygen saturated hence leading to 20 volume% oxygen content in arterial blood. In the plasma, oxygen is physically dissolved to the extent of 0.31 volume% per 100 mm Hg. PO_2. With increased pressure, increased levels of oxygen dissolve physically into the plasma. Thus, at 3 ATA, with 100% oxygen being inhaled, about 6 volume% of oxygen physically gets dissolved.

A steep tissue gradient is established between the capillaries and the surrounding tissue, allowing diffusion towards the poorly perfuse tissue – the phenomenon being demonstrated by Sheffield and Dunn. This additional oxygen meets tissue needs and produces benefits[1,3,4]. HBOT increases tissue oxygen tension and improves collagen synthesis, angiogenesis, epithelialization and resistance to bacteria in the wounds.

On the other hand, three factors complicate evaluation of effect of therapy on cells and predict optimum oxygenation conditions, they being: lack of detailed mechanistic information, complex cell to cell interactions, activity of soluble factors in wound healing process.

Mechanism

High arterial oxygen drives angiogenesis into hypoxic spaces in co-ordination with fibroblast collagen production and release of angiogenic substance by macrophages. Neutrophils and macrophages phagocytose bacteria, but their bactericidal ability is impaired by hypoxia. Also, delivery of air from the cardiovascular system to the mitochondria, known as the "Oxygen Pathway" evidences the decrease of PO_2 at each step.

Under these conditions an 18 fold increase is seen in tissue PO_2, from 5 – 20mmHg breathed at 1ATA, to 800 – 1100mmHg breathed at 2.4ATA in HBOT. Therapy affects free radical formation, prostaglandin production, leucocyte adhesion to endothelium, nitric acid production, etc. Interestingly, 3-H labelled thymidine incorporation was seen 15 minutes after therapy; but not after 120 minutes, which actually benefitted in the form of fibroblast proliferation for 72 hours after exposure.

Inside the chamber, when 50% more air is breathed at 50% more pressure, for 60 minutes, 7 ½ times more oxygen is breathed; making up for the deficit and leading to the onset of revitalitizing process.

Hyperbaric chambers

The first pressurized room was built by Henshaw in 1662. 1834 onwards, till 40 years after, there was a Big Bang in the hyperbaric world. Dr. John S. Haldane came to be known as "Father of Hyperbaric oxygen Therapy" due to his contributions on this front.

The additional features of modern multiplace chambers

Chambers can be -

Monoplace	Multiplace
Claustrophobic	More room
Limited space for patient access	Adequate space for patient access.
Increased fire risk	Decreased fire risk
Portable	Non Portable
Oxygen delivered directly in the closed chamber.	Oxygen delivered via mask
Less comfortable	More comfortable
Low cost	Higher cost

include facilities like oxygen regulators, masks, digital monitoring, dual water deluge systems with alarms, seats with comfortable cushioned upholstery – all make it appealing to children as well.

Method of working

At normal pressure we breathe 20% oxygen and 80% nitrogen. During HBOT, the oxygen content goes upto 100%, which dissolves in blood and all the body tissues, which is actually 20 times the normal concentration.

Feeling experienced during therapy

"Fullness " in the ears is felt because eardrums respond to the pressure. Slight "warmth" may be felt, but that is temporary. Compression, too, lasts only 10 – 15 minutes, depending on the effectiveness with which a person cleans his ears. At the end of session, decompression occurs, causing a "popping" sound which also lasts for 10 – 15 minutes.

Negative after-effects/complications

- A "cracking sensation" in the ears is felt between the treatment, which is because oxygen behind the eardrums is dissolved in the blood stream.
- "Light headedness" a few minutes after therapy session.
- Visual impairment, convulsions and pulmonony intoxication occur in oxygen toxicity.

Preparations before HBOT

Medications: High dose of aspirin, prednisolone, morphine, or alcohol (within 8 hours of treatment) potentiate side effects of HBOT. Precautions are necessary for patients on insulin, pain killers, tranquilizers, cortisone – type drugs and anti coagulants. A good doze of vitamin E supplements and anti oxidants need to be prescribed during HBOT courses. Also a 100 mg tablet of alpha lipoid should be taken twice daily with meals.

Cold and other symptoms: HBOT should be postponed till symptoms of cold, flu, fever, sore throat, runny nose, cough, vomit, diarrhea, body ache etc subside; as HBOT does not help, these conditions withstanding.

Smoking: Nicotine too, is not compatible with HBOT[5].

Cosmetics: Cosmetics, hairspray, nail polish, perfume, shaving lotion with petroleum, alcohol etc are not allowed inside the chamber.

Clothing : 100% cotton gowns are worn during HBOT.

Hyperbaric oxygen for elective surgery

Damaged tissues with field defects, e.g. irradiated tissues, diabetic tissues, crush injuries, establish a sufficient oxygen gradient to revascularize the tissue and establish the healing process. Ideal dozage is 100% oxygen at 2.4 ATA for 90 minutes. Most therapies are given at 3 ATA for 60 – 90 minutes, which varies from 3 – 5 ATA in acute illness to 5-6 ATA in radiation illnesses.[6]

Applications in dentistry

In flaps: Twenty sessions prior to surgery and ten post surgery, with an interruption of not more than three days, is optimum for salvaging skin grafts and compromised flaps[7].

In chronic periodontitis: The number of subgingival anaerobes as well as the number of rods, fusoform and spirochete were remarkably reduced with HBOT. Best results are achieved if HBOT is combined with scaling and root planning[8].

In Dental implants: A protocol of twenty sessions prior to implant placement and ten sessions after placement is standard. HBOT reduces osteoradionecrosis, and also helps in osteointegration.

Therapeutic uses

Decompression sickness, arterial gas embolism, carbon monoxide inhalation, osteoradionecrosis, skin grafting, clostridial myonecrosis, refractory osteomyelitis, radiation induced injury (Greenwood , Gilchrist and Mainous et al)[9,10], acute traumatic ischaemic injury, prolonged failure of wound healing, anaemia from blood loss, non – healing ulcers.

Contra-indications of HBOT

Absolute contraindications –

- Optic neuritis: because exacerbation of retinal inflammation and hyperaemia is feared.
- Immunosuppressive disorders: because viral encephalitis is feared.

Relative contra-indications –

- COPD: bulbous lung changes and significant carbon dioxide leads to pneumothorax and air embolism[11,12].
- Claustrophobia: This can be overcome by counselling and sedation.

- Upper respiratory tract infections.
- Surgery: induced eustachian tube dysfunction – can cause aural barotraumas; though on the contrary, cochlear activity is sensitive to oxygen, hence HBOT comes in use for cure of sudden deafness[13].

A review of the studies done in the field of HBOT

- Cerebral Palsy is a form of Ischaemic Brain Injury where, Hypoxia causes leaking of blood vessels that eventually leads to Oedema, and Oedema further causes Hypoxia.

  HBOT interrupts this vicious cycle by providing an increased amount of Oxygen, which is necessary to heal these capillaries[14].
- From January 1978 through March 1984, 115 cases of Acute Carbon Monoxide Poisoning were treated with Hyperbaric Oxygen. Exposure resulted from accidental sources (n = 39), attempted suicide (n = 47), and smoke inhalation (n = 29). Hyperbaric oxygen therapy facilitates the rapid removal of carbon monoxide from the hemoglobin and cytochrome systems while reoxygenating compromised tissues, and it can be an effective treatment in reducing mortality and morbidity[15].
- Hyperbaric oxygen was used in the treatment of symptoms associated with Chronic Vertigo. Good results were obtained after therapy with oxygen at 2 atmospheres absolute[16].

A review of the case reports on HBOT[17]

- **A case report on: Radiation Enterits**

A 62 years old lady, a known case of Hypertension, coronary artery disease, Diabetes Mellitus and hyperthyroidism underwent hysterectomy for Cancer of endometrium in 1991. She also received radiotherapy.She was admitted with complaints of pain in lower abdomen and rectum with difficulty in passing stools. She was examined by Gastroenterologist. A colonoscopy was done which showed multiple telengiectatic spots on caecum and scattered all over colon. A lateral anal sphincterotomy was also done. She was referred to Departmentt of Hyperbaric Medicine where she received ten sessions of hyperbaric oxygen therapy at a pressure of 2.4 ATA for 90 minutes. Her symptoms related to radiation proctitis before and after HBOT showed significant improvement.

- **A case report on : Osteoradionecrosis of Mandible**

A 52 year old male with post surgical excision of cancer of the floor of the mouth followed by radiation therapy presented with osteoradionecrosis of the mandible and oral cutaneous fistula which failed to heal with conventional therapy. Complete resolution of the lesions with a total of 91 Hyperbaric treatments and two flap procedures was seen.

- **A case report on: Radiation Oral Mucositis with Osteoradionecrosis (Mandible)**

A 70 year old woman , with a history of cancer of tongue was treated with radiotherapy. Patient underwent HBOT for 25 days accompanied by simultaneous removal of teeth. The teeth stumps and the oral ulcers healed promptly with the therapy. The patient was now reported to have a proper taste for normal to spicy food.

Conclusion

Hyperbaric oxygen therapy is an adjunct to science and cannot substitute for standard time proven therapeutic measures. Carefully selected patients are testimony to this long- known but little-used form of treatment modality, one of its many patrons being the legend, Michael Jackson, himself.

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A tryst with the epidemiology of a re-emerging infection: clinical and socio-demographic profile of the Chikungunya epidemic of South India

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Abstract

Chikungunya is one of the emerging infectious diseases, which have been causing various epidemics across the world, and morbidity increases with every new outbreak. Now deaths have also been reported as Chikungunya being an exclusive cause. Re-emergence of Chikungunya in India in 2005, have taken a new turn with an explosive magnitude. Above million people were in waylay, in 2006 and the rampage is continuing. Our study is mainly conducted to weigh up the clinical scenario and various socio-demographic factor affecting the commencement and course of the disease.

It was a hospital based study in three states of India, Karnataka , Kerala and Tamilnadu during the Chikungunya epidemic . Total of 3676 patients were studied and 97% of them had fever. Other major symptoms were arthralgia (96.5%) and retro-orbital pain (70.4%). 20% -25% of patients suffered with myalgia and joint swelling. Around 12.7% people suffered from skin manifestations. Many socio-demographic factors were also studied which marked poverty as a big factor affecting the course of the disease. Poor living conditions and unavailable pure drinking water were major setback for the people in southern India. Considering all the mentioned facts, various vector control strategies and policies to improve the economic condition of the population can pave the way to a healthy third world.

Introduction

Archetype of arthropod borne diseases gaining globalization, an arboviral re-emergent epidemic [1,2] is a public heath predicament which is now of global concern.

First isolated in Newala district, Tanzania, from Aedes mosquito in 1952, Chikungunya virus (CHIKV) is a RNA virus, a member of Togaviridae family and genus alpha virus[3-7]. In the recent outbreaks, Aedes albopictus (also known as "Asian tiger mosquito") is supposedly the major vector (66.7%-86%), which is also a secondary vector for dengue (13-21.4%)[1,3,18].

Chikungunya means, "that which bends up" referring to the stooped posture of the patient due to arthralgia which is one of the commonest symptoms of the disease.[4,5] It presents with non-specific symptoms like arthralgia/ arthritis, myalgia, rash, headache and other less common symptoms like nausea, vomiting, hemorrhagic symptoms, in addition to neurological involvement rarely. Other diseases like Dengue hemorrhagic fever, Rubella, and Pyrexia of Unknown Origin (PUO) share this symptom complex making its detection a diagnosticians nightmare[10]. Patient recovers fast from the disease most of the times but they do suffer from the residual symptoms like arthralgia for months after resolution of the disease which mostly involves wrist, hands, and ankles[19].

Emergences and disappearances of Chikungunya disease is a major concern and it is very unpredictable. For instance, urban epidemic in Kinhasa, Democratic Republic of Congo, was after 39 yrs from the virus last detected[9]. Another example is the epidemic in Thailand in 1991 after 1960[10]. South east Asian epidemic in 2005-2007 also falls in the same category. This stands a reason for researchers to think that, though it follows a sylvatic cycle of transmission but it has a periodicity which alternates with the period of quiescence, which vary from months to years[4,6]. Since its isolation, it has been known to cause various epidemics. For instance, Kidougu, Senegal (1972-1986)[6], Nigeria (1960-1980)[7], Comoro Islands, Reunion Island, Southwest Indian ocean, Madagascar, Mauritius, Mayotte, Seychelles, Metropolitan France and Mediterranean France (2005-2006)[9], and Italy (2007)[14]. It is also found in Belgium, Bosnia, Herzegoven, Croatia, Greece, Serbia, Slovenia, and Switzerland[19]. CHIKV is also isolated in Australia, Spain, and Netherlands[11,12,15]. Travelers who are natives of Germany and United States have also shown positive CHIKV serology[16,17].

According to Indian Government's National Vector Borne Disease Control Programme (NVBDCP)[36] epidemiological profile for Chikungunya, 59,535 people in 2007, 95,091 people in 2008 and 21,977 people up to July 2009 affected in India. In 2006, this number was more than a million with an attack rate that varied from 0.7% to 60.2%. All above mentioned facts, brings "epidemic intelligence" in picture which deals with the early identification of health threats and their complete work up, so that the prevalent public health issue can be controlled[20].

The aim of this study was to stress upon the clinical picture, which may lead to an early diagnosis of the disease based on clinical criteria. In addition, the socio-demographic factors like housing conditions, stagnation, drinking water availability, household income and various other factors like age, sex, and weight, which can influence the emergence and course of the disease, were also studied.

Methodology

The present cross sectional study was conducted in state run tertiary care hospitals of three southern states of India, Andhra Pradesh (Srikalahasti), Karnataka (Mangalore), and Tamilnadu (Salem) during the chikungunya epidemic. Ethical clearance was obtained from K. S. Hegde Medical Academy, Deralakatte, Mangalore, India. A written informed consent was obtained from participating patients after explaining to them the objectives of the study.

Inpatients and outpatients were recruited from the department of internal medicine and special chikungunya clinics in above-mentioned tertiary care hospitals. Specific inclusion and exclusion criteria were followed and clinical diagnosis was arrived at based on the National Institute of Communicable diseases (NICD) case definition for chikungunya[37]. Of the 4000 patients screened for chikungunya 3676 were confirmed to be positive for the disease. Malaria and Dengue were categorically ruled out by confirmatory negative pathological tests. Trained medical students interviewed the patients. A closed ended objective questionnaire containing the name, age, sex, address, height, weight, occupation, nutritional status, monthly income, type of house, location of house, clinical symptoms, physical examination, number of persons infected in the family, morbidity period, adverse reactions to any drugs, previous history and special concern if any as narrated by the patient was completed for each patient. The main outcomes measured were relation between clinical symptoms and the socio-demographic factors (chi square test was used) and p value < 0.05 was considered significant.

Results

Age distribution curves showed that the maximum number of cases were reported form the age group 16-45 (nearly 40%) ($p<0.0001$) (Table 1). The number of females (54.3%) affected was more than the number of males (45.7%). One third of the patients who suffered from the illness were underweight for that age while one tenth of them were obese (Table 2). Taking in consideration the symptoms, beside fever, major symptoms were joint pain (96.5%) and retro-orbital pain (70.4%).Out of total patients studied, one fourth suffered from myalgia and almost one sixth suffered from joint swelling and skin manifestations. 3% of the patients were found not to have fever. Atypical symptoms like nightmares and facial swelling ($p <0.05$) were also noticed, but in very few patients.

Three fourth of the population studied was below poverty line as per International definition of poverty line (US $1 per day per person). 11% of the patients reported stagnant water source near their surroundings. Only one third of the suffered patients had accessibility to pure drinking water. Very few patients presented with any history of any viral or immune illness, the most being of typhoid (2.28%).

Discussion

This was the one of the largest of its kind hospital-based study to evaluate the clinical symptoms and socio-demographic risk factors, during a major epidemic in India in 2006.

While most of the subjects did have fever, cases that did not have fever (around 3%) but had other symptoms suggestive of chikungunya as per the suspect case definition, were marked as chikungunya like illnesses (CHIKLI) after other infections like malaria and dengue were ruled out by appropriate tests. Age seems to play an important role in the initial infection and course of the disease. It was observed that the maximum number of cases was reported from amongst the age group 16-55 than any other. The number of cases at the extremes of age groups showed a tapering trend with just 17% patients less than 15 years and another 12% patients more than 65 years of age. The duration of the disease period was lesser in younger age groups than older in both the sexes ($p<0.0001$).Similar results were also obtained from other studies conducted elsewhere in India[38, 39]. In the epidemic reported from Reunion Island as well, 74% victims were above 30 years of age which is consistent with our findings[40]. 15-55 years being the economically productive age group is the one that comes into contact with mosquitoes the most, and hence suffers from the disease the most.

It was observed that the duration of the disease was less in the younger age groups and increased as the age progressed, however the relationship was not linear but quadratic with the curve being sigmoid for both the sexes, more so in case of males (Figure 2). It means that elderly males had a longer duration of illness in comparison to younger males or females of the same age group. This can be interpreted as ability of the younger age groups to recover faster than the older age groups. Similar observations were obtained from Reunion Islands[21]. These findings can be attributed to the "immunosenescence" which means age related changes in the body leading to a badly regulated immune system, which further increases not only the susceptibility to the infection but also the duration of recovery[29].

It was noted that not just the number of females affected was more but that the duration of illness was shorter in males than in females. These findings are unlike findings given in other studies that say, no gender wise differences in the disease symptoms were observed[21]. Few studies have also shown that men have higher incidence than women which is totally inconsistent with our findings while reports from Comoro and Reunion Islands says that women are more prone to the disease[28, 40]. So, this variability can be endorsed to the local beliefs and different lifestyles of the people residing in the different parts of the world.

Uundernourished patients suffered for ($p<0.0001$) which can be well explained considering the fact that undernourished individuals have impaired immune

responses and nutritional deficiencies are wide spread in developing countries[26]. Generally, obesity is known as a pathological condition that associates with not only hypertension, high cholesterol and cardiovascular ailments but also known to decrease the immunocompetence of the body, which further leads to high susceptibility to infections[27].

Almost all the patients (97%) suffered from fever, so it can be marked as one of the major symptoms, as documented in other studies[21]. But it does not make Chikungunya a first diagnosis to be considered because other vector borne diseases like Dengue and Malaria also present with fever as a major symptom. However, febrile course of Chikungunya is shorter without any specific pattern unlike malaria, where fever is accompanied by chills and rigors[22,23] and Dengue which has a biphasic pattern of fever[24]. Also around 3% patients who did not give any history of fever, but nevertheless had other features suggestive of chikungunya. As per the NICD[37] guidelines for diagnosis of chikungunya, fever is an important diagnostic criteria and one of the main features of the illness. Perhaps there might be an evolving trend in the symptomatology of chikungunya. Besides fever, majority of the studied population suffered from joint pain which is steady with the finding from Reunion Islands where 96.1% of people suffered with the same[30]. Similar findings have also been reported from Tanzania[41]. In our study, majority of the patients complained of retro-orbital pain unlike outbreaks in other places like Malaysia[31]. Skin manifestations like itch/ rash were noticed only in one sixth of the studied population which goes with the finding in other outbreaks in Reunion Islands. However a few studies have reported a very high incidence of skin manifestations like in Malaysia (upto 50%)[21,31],and in Kerala itself where the figure went as high as 80%[21]. Surprisingly, myalgia which is exhibited by majority in viral diseases, only one fourth of the population suffered from it, unlike observations of studies obtained in Malaysia and Kerala[21,31]. Atypical symptoms like nightmares and facial swelling were presented by very few patients worldwide and we have similar results[21]. From the presenting symptoms of the patients in the study it may be concluded that while joint pain is a very important diagnostic and identification criteria, presence of joint

Figures and Tables

Table 1: Age distribution of the study population

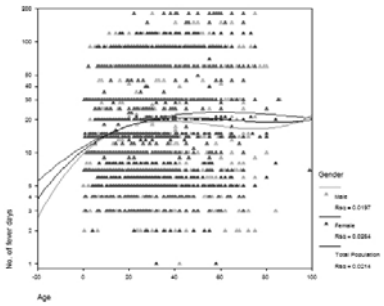
Age groups	Percentage of study population
≤15	16.8%
16-45	39.4%
46-55	18.4%
56-65	12.2%
>65	12.9%

Table 2: Percentage of study population in different weight categories

Weight	Percentage of study population
Normal	56.7%
Obese	8.7%
Under weight	34.4%

*p< 0.0001, ** the following is categorized with respect to wt for age, normal wt for age (+) 20% of normal is considered obese and(–) 20% of normal is undernourished.

Fig. 1: Graph showing relation between age and duration of illness for males , females, and total population.



(Appendix) Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
•Presence of three or more signs/symptoms of chikungunya infection(i.e., fever, polyarthralgia, rash, myalgia, retro-orbital pain) based on NICD suspect case definition. • All other blood, sputum and urine investigations for other infections like dengue, malaria, typhoid, leptospirosis, syphilis and tuberculosis should be negative. •They should not have medical/surgical conditions like osteoarthritis or rheumatoid disease that mimic chikungunya profile earlier to the onset of chikungunya infection.	•If they had, chronic debilitating conditions or mental disorders that would preclude informed consent.

swelling is not and hence should warrant examination of other systemic disease. At the same time, patients presenting with the less common symptoms like facial puffiness, neurological manifestations and skin symptoms should not be written off as they also might be suffering from chikungunya.

Socioeconomic status seems to play a very important role here, as majority of the population studied was below poverty line. Infectious diseases are one of the major causes of deaths worldwide and 95% of it, are in third world countries, where many people belong to low economic status[25]. It plays a significant role, either with respect to the poor living conditions due to low income or there reach to the medical aid. Overcrowding was another factor responsible for longer duration of the disease ($p<0.0001$). Poor living conditions like over crowding and poor availability of drinking water were highly associated with Chikungunya infection. These findings were consistent with the studies done in United States on Dengue[32,33].

A very few people confirmed history of any previous viral or immune disease which confirms that weak immune system is not a pre-requisite for CHIKV infection. Rather the disease can have overwhelming effects in immunocompromised patients. CHIKV is rather known to cause antigenic mimicry (viral antigens and normal or defected human proteins) which leads to immediate and late hypersensitivity that can lead to ocular involvements[34]. Although we ensured that the participating population is representative of the general population through the systemic random sampling from the patients attending the hospitals surveyed there is a possibility that economically privileged class of the suffering population may have presented to private hospitals for better access to health care. However, given that the participating hospitals had special clinics and counters for patients with chikungunya infections during the peak epidemic period and that the participating government hospitals have special wards for high-income patients besides functioning as teaching hospitals attached to reputed medical colleges in this part of the country.

Conclusion

To conclude, this epidemic of chikungunya has clearly outlined the need for a better health surveillance system and a review of the existing guidelines for the diagnosis of such viral fevers so that the long lasting morbidity and mortality from them may be prevented. Continuous sero surveillance may be one of the tools to monitor the impeding upsurge of the disease and immunity of the native population. Another look has to be taken on our understanding of the disease and its spread and perhaps the age old beliefs about its spread will have to be changed. There is only symptomatic treatment to offer for the disease, which include NSAIDs. No vaccine is available for CHIKV. The only means to prevent the disease is to minimize the exposure to mosquito bites and measures to prevent the breeding of mosquito in the locality.

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Undetected Ocular Morbidity-A cause of performance anxiety among school children

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Abstract

Background

Ocular Morbidity is one of the recognized causes of poor performance of a child. It may be a source of performance anxiety among school children.

Objectives

1. To determine the prevalence of undetected ocular morbidity.
2. To find out relationship between ocular morbidity and anxiety status.

Method

1154 students were screened of which 98 students had visual acuity of 6/18 or less. 38 students showed some level of anxiety on Hamilton scale. 35 students got the vision corrected and were followed for the period of 3 months after which they were screened for anxiety using Hamilton scale.

Result

The prevalence of ocular morbidity was8.4%. Both ocular morbidity and anxiety were common in female. After the visual correction significant improvement was noted in anxiety status.

Conclusion

There is a need for proper implementation of school Eye screening Program. There should be periodical evaluation of mental health of students.

Key Words

Ocular Morbidity, Low Vision, Anxiety, Hamilton Scale, Poor School Performance,

Introduction

Ocular morbidity is one of the recognized causes of poor performance of a child[1]. However its often a neglected aspect of a child health programs. Screening of children's under School eye screening programme in National Program for Control of Blindness is one of the activity to be undertaken[2]. However, its often not taken seriously. Poor school performance not only result in child having low self-esteem, but also causes significant anxiety among students[3] and there parent's. Undetected ocular morbidity among students often leads to mal understanding of a subject by students even after repeated efforts by teachers and parents leading to frustrations and violent behavior by teachers and parents toward children.

Children with undetected ocular morbidity are often a symptomatic. Some time they may present with headache or asthenopic syndromes, which are often, goes undetected[4]. It may be a reason for frequent absences of children from school. Timely detection of ocular morbidity leads to not only to improvement in school performances, it may also lead to improvement in anxiety status of students.

The present study was designed with objectives of

1. To determine the prevalence of undetected ocular morbidity among school children.
2. To find out the relationship between undetected ocular morbidity and anxiety status among school children.

Methodology

The present was a cross-sectional study, carried out at 6 Government schools of Etawah during the period of Aug 2008 to Jan 2009. Prior permission for carrying out the study was received from the Head of the school before the actual study is undertaken. A list of 1259 students was prepared from the school record. However, students of the Dept. of Community Medicine, UP Rural Institute of Medical Sciences & Research, Saifai, Etawah, screened only 1154 students for visual acuity using snellen's chart. Out of 105 students 78 students could not be screened because of different reasons at the time of screening. 27 students were excluded because they were already using spectacles. 98 students reported to have visual acuity of 6/18 or less (low vision). These students with low vision were screened for anxiety using Hamilton scale for anxiety. 38 students with low vision had some level of anxiety. All the students with low vision were advised for visual correction. Out of 38 students, 35 students got the vision corrected through spectacle correction. These students were followed for the period of 3 months after which they were again screened for the anxiety using the same Hamilton scale for anxiety.

Result

Out of 1154 students screened 604 students were male and 550 students were female. 98 students reported to have visual acuity of 6/18 or less. The visual acuity

calculated among students is given in table-I.
The socio- demographic profile of students with low vision is given in table-II

These 98 students were screened for presence of anxiety using Hamilton ruler scale for anxiety. Each student were rated on the scale and then categorized into No anxiety, mild anxiety & moderate anxiety. There were no students with severe anxiety. The result is given table- III & table- IV. Out of 38 students, 35 students got their vision corrected through spectacle correction. These students were followed for the period of 3 months and then again screened for presence of anxiety using same Hamilton ruler scale for anxiety. Statically significant differences were noted in both sexes on follow up after 3 month. The result is shown in table- V

Discussion

Ocular morbidity is quite prevalent among school children. Majority of time it goes undetected. The present study had calculated the prevalence of undetected ocular morbidity to be around 8.4%. It's similar to the rate calculated by Murthy G.V et al[5] (6.4%) in there study carried out among school children in urban population in N Delhi. However, the rates are much higher compared to the prevalence of ocular morbidity among children in rural population (2.7%) as calculated by Dandona R. et al[6]. Ocular morbidity was proportionately higher among female students (9.6%) compared to male students (7.6%). This difference is probably due to differential attitude of parents toward both the sexes. It was found that ocular morbidity was more common among students who had parents with higher level of education. The authors believed that since the majority of the students belong to literate families, a bigger study with higher sample size is required to commend on it. However, similar findings are reported by both Murthy G.V et al[4] and Dandona R. et al[5] in there respective studies.

It was observed during the study that as the vision deteriorates among students the, level of anxiety increases.

Table II: Socio- demographic Profile of students with low vision

	Male	Female
Age of Students		
10 Year	6(13%	9(17.3%)
11Year	8(17.4%)	6(11.5%)
12 Year	11(23.9%	9(17.3%)
13Year	9(12.5%)	11(21.15%)
14 Year	12(26.1%)	17(32.6%)
Total	46	52
Occupation of father		
No occupation	1(2.1%)	0
Shopkeeper	8(17.4%)	12(23.07%)
Skilled / unskilled labor	9(12.5%)	11(21.15%)
Service(Govt. & Pvt)	13(28.2%)	16(30.7%)
Drivers	12(26.1%)	12(23.07%)
others	3(6.5%)	1(1.9%)
Total	46	52
Occupation of Mother		
House wife	31(67.3%)	35(67.3%)
Skilled Labor/ Unskilled	11(23.9%)	9(17.3%)
Service(Govt & Pvt.)	4(8.6%)	7(13.4%)
Others	0	1(1.9%)
Total	46	52
Qualification of Father		
Illiterate	1(2.1%)	0
Up to 5th	2(4.3%)	4(7.6%)
Up to 10th	11(23.9%)	10(19.2%)
Up to 12th	14(30.4%)	19(36.5%)
Graduate	15(32.6%)	17(32.6%)
Post graduate	3(6.5%)	2(3.8%)
Total	46	52
Qualification of Mother		
Illiterate	2(4.3%)	1(1.9%)
Up to 5th	5(10.8%)	5(9.6%)
Up to 10th	12(26.08%)	11(21.15%)
Up to 12th	15(32.6%)	23(44.2%)
Graduate	11(23.9%)	12(23.07%)
Post graduate	1(2.17%)	0
Total	46	52

Table III: Anxiety status of students with low vision (Sex-wise)

	Male	Female
1. No anxiety	29(63.04%)	31(59.6%)
2. mild anxiety	11(23.9%)	12(23.07%)
3. Moderate anxiety	6(13.04%)	9(17.3%)
Total	46	52
	X^2 =0.34 P=0.8419 df=2	

Table IV: Anxiety status of students with low vision (Vision wise)

	6/18	Less than 6/18
1. No anxiety	39(65%)	21(55.2%)
2. mild anxiety	14(23.3%)	9(23.6%)
3. Moderate anxiety	7(11.6%)	8(21.0%)
Total	60	38
	X^2= 1.70 P=0.4272 df=2	

Table- I: Visual acuity calculated among student.

	Male		Female		Total	
	No.	%	No.	%	No.	%
1. Normal	558	92.3 %	498	90.5%	1056	91.5%
2. 18 vision	29	4.8%	31	5.63%	60	5.19%
3. less than 6/18	17	2.8%	21	3.81%	38	3.29%
Total		604		550		1154

Table V: Anxiety status of students before and after visual correction

		Male(16)		Female(19)	
		Pre- correction	**Post- Correction**	**Pre- correction**	**Post- Correction**
1.	No anxiety	-	5(31.2%)	-	7(36.8%)
2.	Mild Anxiety	11(68.75%)	9(56.2%)	11(57.8%)	9(47.3%)
3.	Moderate anxiety	5(31.2%)	2(12.5%)	8(42.1%)	3(15.7%)
P value		0.039(X^2-6.48 df=2)		0.008771(X^2-9.472 df=2)	

35% (21/60) of students had some anxiety at vision of 6/18 compared to 44.7% (17/38) of students with vision less than 6/18. It was probably due to increasing difficulty in noting down the words from distance leading to incorrect and incomplete work among the students. Similarly, anxiety was more common among female students with low vision (40.3%) compared to male students (36.9%).However the difference was statistically not significant.

In the present study, 35 students out of 38 students, took the advice seriously and got there vision corrected through spectacle correction. Those students who got the vision corrected showed statistically significant improvement in there anxiety status on follow up after 3 months. The improvement was noted among both the sexes. The authors believed that the improvement can be attributed to the fact that correction of visual acuity lead to correct and complete class work and increase understanding of the subject thereby increasing there school performances.

Conclusions

The present study concludes that the timely detection of uncorrected ocular morbidity may lead to improvement in performance anxiety among students. There should be proper implementation of School Eye Screening program for timely detection of uncorrected ocular morbidity. Schoolteachers should be properly trained to screen students with low vision.

The present study also concludes that there should be a periodical evaluation of mental health s of students. Any students who show deterioration of mental health should be properly screened including screening for change in visual acuity.

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Influence of drug promotion by medical representatives on physician's drug prescription pattern

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Abstract

Advertising is an art of arresting one's intelligence long enough to make money out of it. Doctors interact with the pharmaceutical industry in various ways. Most common are direct face-to-face visits from company representatives. The more a drug is promoted either through pharmaceutical sales representatives or journal advertisements, the more it may influence physician's prescribing habits. As the major source of information to a majority of doctors and pharmacists, MRs have a role in helping practitioners to know about the drugs available in the market and their costs. It is the practitioner's duty to use MRs while taking care not to be unduly influenced by their sales pitch. We planned to conduct this study to find out the influence of drug promotion by medical representatives on physician's drug prescription pattern. Two tools of research namely the questionnaire and the structured interviews were decided to be used. On the basis of exploratory research and theoretical perspectives gained, a questionnaire was developed and pretested for improvement and administered to the physicians. Majority of physicians mentioned MR as the commonest source of drug information. Because of drug promotion by MR, physicians changed their previously held opinion about the brand is of great concern. The fact that majority of the physicians admitted of getting influenced by the promotion by MR and some of the physician's decision making was compromised by the drug promotion by MR is a matter of enormous importance and worry. Majority of the physicians never changed their previously held opinion about the drug, but this finding indicated the possibility of such compromise and change in the decision by rest of the physicians and this is a matter of great concern. Providing continuing education through organization other than companies would decrease the dependency of physicians on drug companies' education programmes. Overall, the main objective would be to change the attitude of physicians and raise the ethical standards. Our primary interests in patients care require that we all practitioners, academia, industry and the government work together to improve the quality of information about prescribing drugs.

Keywords

Medical representatives, Drug promotion, prescribing pattern.

Introduction

Advertising is an art of arresting one's intelligence long enough to make money out of it. The pharmacological basis of therapeutics was a fairly simple and straightforward matter for the physician until 1940. With the advent of the miracle drug, things changed drastically. Pharmaceutical manufacturers moved from close-knit family enterprises to giant corporations with financial backing available for promotion and research.

As time passed, interest focused on the physician and his reactions to theses changes. Investigators tried to discover what it was that influenced the physician to specify the product, which is prescribed. The pharmaceutical industries throughout the world are heavily involved in aggressive drug promotions with a clear aim to change the prescribing habits of physicians and to encourage self medication by the patients. Doctors interact with the pharmaceutical industry in various ways. Most common are direct face-to-face visits from company representatives. The main promotional thrust of the pharmaceutical industry is through its medical representatives (MR).

As per WHO, broadly drug promotion refers to all the informational and persuasive activities of the pharmaceutical industries, the effect of which is to induce prescription, supply, purchases, and use of medicinal drugs. It includes activities of medical representatives, drug advertisement to the physicians, provision of gifts and samples, drug package inserts, direct to consumer advertisements, periodicals, holding of conferences, symposium, scientific meetings, and sponsoring of medical education[1]. Unfortunately, the guidelines led down by WHO are flouted in practice with impurity since there are no effective legislative measures to support them.

The pharmaceutical industries have the right to promote their product, but it should be done in a fair, accurate and ethical manner. The promotional claims need to be reliable, truthful, informative, balanced, up-to date, and capable of substantiation in good taste. However, now a day, whilst the promotional methods have become very sophisticated and effective, it was found that while promoting their products, the pharmaceutical companies do not adhere to these ethical principles leading to irrational use of drugs in most cases[2]. The more a drug is promoted either through pharmaceutical sales representatives or journal advertisements, the more it may influence physician's prescribing habits. The nature of drug advertisement is

such that physician often deny the relative importance of commercial sources in influencing their prescribing either because they are unaware of it or because they are reluctant to admit to being influenced by non specific sources[3].

As the major source of information to a majority of doctors and pharmacists, MRs have a role in helping practitioners to know about the drugs available in the market and their costs. It is the practitioner's duty to use MRs while taking care not to be unduly in fluenced by their sales pitch.

There is nothing inherently improper about any of these interactions, provided that the medical profession, collectively and individually, is fully and openly aware of the effect of the interactions and make sure that all such interactions are transparent to the community, and that doctors are capable of negating any undesirable effects on their prescribing habits. At present, none of these provisions are being met.

If drug promotion leads to better prescribing, more scientific use of medicines or improved cost-effectiveness then there would be no concern. But on the contrary heavy promotion of new drugs leads to widespread prescribing and use before the safety profile of these products is fully understood. Newer and more expensive medicines displace older, less costly ones without evidence of an improvement in outcome[4].

This has ethical implications for doctors, as it affects the trust required in the doctor–patient relationship. Doctors need to recognize they are affected by drug marketing, and take steps to maintain their independence from the pharmaceutical industry[3]. Whatever the fundamental causes for increasing drug promotion, it is largely regulated by the physicians, because they control the prescriptions. If doctors are in such a key position, it is worth studying influence of drug promotion on prescribing habits of the physicians.

With this background we planned to conduct this study to find out the influence of drug promotion by medical representatives on physician's drug prescription pattern

Aims and objectives

To assess the influence of drug promotion by medical representatives on physician's prescription pattern.

Table 1: Demographic Characteristics of Physicians

Characteristics of Physicians		Number of Physicians
Age Group	< 30 Years	25
	31 – 45 Years	42
	> 46 Years	23
	BAMS	20
Qualification	MBBS	20
	MD	20
	< 5 Years	21
Years of Practice	5-15 Years	48
	> 15 Years	21

Material and methods

After doing the exploratory research to identify the problem and a detailed study of drug promotion by medical representatives it became clear that three categories of physicians need to be interacted with.

Inclusion criteria

- BAMS doctors
- MBBS doctors
- MD doctors

Exclusion criteria

- Doctors doing the internship
- Doctors of other specialties

Study Procedure

To implement the study, two tools of research namely the questionnaire and the structured interviews were decided to be used to assess the influence of drug promotion.

On the basis of exploratory research and theoretical perspectives gained, a questionnaire was developed and pretested for improvement. A short presentation about the purpose of the study and its implication was delivered to the doctors practicing in the private setup in the territory of Nagpur through personal contact. Information sheet and the consent form were distributed to them prior to the start of study. Questionnaire was then administered to the physicians and asked to solve the questionnaire in 10 to 15 minutes. A separate set of short questionnaire was developed for conducting the structured interviews.

The questionnaire consisted of total 17 questions. The first part of the questionnaire included the personal information of physician, while in the second part, 17 questions were formulated to asses the influence of drug promotion by medical representatives.

The final part of the questionnaire was open ended questions asking the physician to describe their views about changing the drug time to time as influenced by the medical representatives and the gifts offered by them. Completed questionnaires were collected at the end of session and analysis was done.

Observations & results

Observations and results of the present study are as follows:

Table 2: Sources of Drug Information to Physicians

Sources of Drug Information	Number of Physicians
Medical representatives (MR)	59
Books, Articles, CIMS, MIMS	21
Medical Journals	9
Seminars / Conferences	11
Direct mails	3
Colleagues	8
Other Doctor's Prescription	6
Internet	3

CIMS: Current Index of Medical Specialties
MIMS: Monthly Index of Medical Specialties

Table 1 shows demographic characteristics of physicians. Altogether 60 physicians meeting the inclusion criteria were included in the study. The mean age was 30 years (age range 23-42 years). Out of 60 physicians, majority of the physicians had been prescribing since 5 to 15 years and were exposed to the drug promotion by medical representatives.

As shown in the table 2, physicians used multiple sources of drug information. To almost all the physician a common source of drug information was a Medical Representative. Books, Seminars, and colleagues also constituted as one of the important source of drug information to some of the physicians.

Table 3 shows that 72% of the physicians were visited by 4 to 8 MR every week. Also the time spent by maximum number of physicians (80%) with MR is 5 minutes, while very few physicians spent time more than 10 minutes with MR.

As shown in table 4, about 77% of the physicians mentioned that, verbal communication by MR is an effective way drug promotion as compared to the literature provided by them (23%). It also shows the responses of the physicians to the question "what attracted them towards drug promotion?" Out of 60 physicians, maximum number of physicians (62%) mentioned that it is the familiarity of the brand name that attracted them towards drug promotion, while only 15% of the physicians accepted novelty of the product and photographs as an attractive feature of drug promotion.

Only 4% of the physicians accepted that the drug promotion by MR do not serve any purpose. While majorities (70%) of the physicians were of the opinion that drug promotion tells them something new about the drug.

As shown in table 5, about 75% of the physicians were of the opinion that the drug promotion by MR never compromises their decision to prescribe the drugs and majority (65%) believes that the information provided by MR is sometimes reliable. About 69% physicians consider the information provided by MR as helpful only sometimes.

Table 6 shows the attitude and opinion of physicians regarding drug promotion. Out of 60 respondents, 64% physicians were influenced sometimes by drug promotion by MR and 77% physicians changed their previously held opinion about brand sometimes because of drug promotion by MR while only 13% of physicians changed their previously held opinion about drug sometimes. About 52% of physicians never confirmed the claims by MR.

Table 3: Characteristic of Visit by Medical Representatives (MR)

MR Visit		Number of Physicians
Number of MRs visiting per week	< 3	11
	4-8	43
	9-12	6
Time Spent with MRin each visit	5 minutes	48
	10 minutes	9
	> 10 minutes	3

Table 4: Characteristics of Drug Promotion and Its Effect on Physician

Characteristics of Drug Promotion		Number of Physicians
Effective Way of Drug promotion by MR	Verbal communication by MR	46
	Literature provided by MR	14
What attracts towards Drug promotion	Novelty of Product	9
	Photographs / Illustrations	9
	Name of Company	5
	Familiarity of Brand Name	37
Purposed Served by Drug promotion	Tells Something New	16
	Remind or Reinforce what is already known	42
	Do not serve any purpose	2

Table 5: Characteristics of Drug Promotion and Its Effect on Physician

Views of Physicians	Number of Physicians			
	Always	Sometimes	Rarely	Never
Do drug promotional offers compromise decision making	0	6	9	45
Information provided by MR is Reliable	6	39	6	9
Information provided by MR is Helpful for Prescribing	11	41	3	5

Table 6: Attitudes of Physicians towards Drug promotion by MR

Attitudes of Physicians	Number of Physicians			
	Always	Sometimes	Rarely	Never
Get Influenced by MR	0	38	11	11
Changed opinion about brand name	0	46	9	5
Changed opinion about Drug	0	8	3	49
Confirms Claims by MR	1	16	12	31

Discussion

For rational drug therapy, physicians need to have a thorough knowledge of drugs. Unfortunately, with few exceptions there is hardly any continuing medical education on therapeutics for physicians in India, although other sources of drug information exists. These sources include pharmacopeias, drug formulary and medical journals. But these are available only in the institutional libraries and or fail to provide adequate information and comparisons. Books on therapeutics are available but busy physicians have little time to read these.

It is expected that doctor should select drug on safety, tolerability, efficacy, and price and should not be influenced by promotional pressures. This study attempted to find out the influence of drug promotion by medical representatives on physician's prescribing.

The sources of drug information of greatest practical importance were those based on richest communication medium involving the information through the medium of personal contacts[5]. Majority of physicians mentioned medical representatives as the commonest source of drug information.

None of the participants in the study refused to receive MR. Majority of them were visited by 4-8 MR per week and they spent 5 minutes in each visit with MR. Verbal communication by MR was a very effective way of communication to most of the physicians and majority of physicians considered that the information provided by MR was sometimes helpful for prescribing the drug.

Majority of the physicians in our study were of the opinion that the drug promotion by MR reminded or re-enforced what was already known to them. This may be one of the causes of brand loyalties in prescriptions. Consequently when some indication appears, the drug and its positive associations will be among the first things to come in the mind of the physicians.

Because of drug promotion by MR, physicians changed their previously held opinion about the brand is of great concern. The fact that majority of the physicians admitted of getting influenced by the promotion by MR and some of the physician's decision making was compromised by the drug promotion by MR is a matter of enormous importance and worry. Majority of the physicians never changed their previously held opinion about the drug, but this finding indicated the possibility of such compromise and change in the decision by rest of the physicians and this is a matter of great concern. Physicians could be compromised by accepting gifts and such a compromise would be more likely if gifts are expensive[6, 7]. Because of the sensitivity of physicians about this issue, results may be disputable and underestimated.

The medical colleges and the continuing medical education programme should include training to the physicians, residents, and medical students regarding the critical evaluation of drug advertisements and the speech of MR on a more rational basis[8]. Medical colleges can greatly help physicians by incorporating course that teaches students to critically examine drug promotional information. Providing continuing education through organization other than companies would decrease the dependency of physicians on drug companies' education programmes. Overall, the main objective would be to change the attitude of physicians and raise the ethical standards[9].

Clinical pharmacologist could perform this assignment by training physicians, residents, and medical students. Patterns learned in medical colleges undoubtedly influence physician's future behavior.

This study does not imply that as a group, physicians are so uninformed and intellectually malleable that they can be manipulated fort prescribing inappropriate medications to the patients. Also it does not imply that the marketing departments of pharmaceutical manufacturers deliberately seek to misinform and mislead the physicians. In this study, 60 physicians of one city filled up the questionnaire. The external validity of result may be questioned as this study was conducted only in one city in India.

Conclusions

Medical representative were the commonest sources of drug information to the maximum number of physicians and consider the information provided by them as helpful for prescribing. More than 50% of physicians think that the drug promotion by MR tell them something new and remind and re-enforce physicians about what was known to them. Most of the physicians changed their previously held opinion about brand name after it has been promoted by MR. But most of the physicians never changed their previously held opinion about particular drug to be prescribed for particular disease indicating rest of the physicians changing their opinion. Drug promotion and expensive gifts could compromise physician's decision making. This could be of relevance to the educators and strategists promoting rational prescribing and quality use of medicines.

Such studies could assist professional bodies in the development of standards for the relationship between MR and physicians. Pharmacologists could do this assignment by training physicians, residents, and medical students. It is hoped that in future we shall have a new generation of doctors who all drug promotion be ethical. Our primary interests in patients care require that we all practitioners, academia, industry and the government work together to improve the quality of information about prescribing drugs.

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Effect of yoga and cognitive behavior in adjustment problems

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Introduction

The concept of stress is now widely recognized. Stress has always been an integral part of the human existence. Different period in history have been associated with different types of stress. These involve largely emotional factors such as uncertainty, insecurity, relation problem, and time pressure, fear of inadequacy, occupational problem and role of conflicts. These states of subjective distress and emotional disturbance usually interfere with social functioning and performance arising in the period of adaptation to a significant life changes or to the consequences of a stressful life event (including the presence or possibility of serious physical illness). The stressor may have affected the integrity of an individual's social network (through bereavement or separation experience) or the wider system of social supports and values (migration or refugee status). The stressor may involve only the individual or also the stressor may involve only the individual or also his\her group or community. Predisposition or vulnerability plays a great role in the risk of occurrence and the shaping and manifestation of adjustment disorder. The manifestations vary, and included depression, anxiety, worry (or a mixture of these) a feeling of inability to cope, plan in future, or continue with the present situation, and some degree of disability in the performance of daily routine, can be liable of dramatic behavior or out bursts of violence but these rarely occur. [ICD-10]

What is yoga therapy?

Yoga is one of the six schools of ancient Indian philosophy. It is a system of mental, spiritual and physical development which originated in our country. In Indian history there was discreet recognition of Yoga sutras of Patanjali (5th century BC) and the works of great Sage Nathamuni in his treatise "Yoga Rahasya" (6th century AD). In fact the Sutras depict a crystallized picture of what constitutes the mind, its functions and impediments. It has been explained by Patanjali that the mind performs five main functions cognition, misapprehension, imagination, deep sleep and memory. In addition to this, he also observed that the obstacles to developmental clarity are: illness, mental stagnation, lack of foresight, uncertainty, fatigue, indulgence of the senses, illusions about oneself, lack of perseverance and regression.

Asana

The word asana means posture, originates from the Sanskrit word which means 'to be', 'to stay, or 'to remain' in a particular position (Vaman Shivram Apte, 1979). Thus, the word asana refer to a physiological posture or a particular position, which may be performed in various ways, i.e., 1. Standing. 2. Supine (lying on back). 3. Prone (lying on the stomach). 4. Sitting. 5. Kneeling (Smith, 1980).

As per Desikachar (1982) there are two qualities of an asana:

+ The individual doing an asana should experience comfort (Sukh).
+ He should also maintain a certain amount of steadiness in a given posture without much effort or tension (Sthira).

To achieve both these qualities, a long period of practice is needed. The comfort and steadiness in a posture is most often achieved through total concentration of the mind on the posture. The practice of an asana must co-ordinate with breathing.

Pranayama

Pranayama means regulated breathing. Pranayama is an extremely important part of asana practice. In pranayama, the individual deliberately controls and directs his breathing in a planned way and is usually practiced in a comfortable sitting position (Swami Digambarji, 1970). There are certain principles, which must be observed at the time of pranayama (Desikachar, 1982).

Pranayama should be practiced over a period of time in order to do it in exactly the way it should be done. When the mind is fully focused on different parts of the breathing cycle then it is known as Pranayama.

Related studies

Many studies have been done in the field of Yoga and therapy. In a study find out Yoga is assuming importance in improving mental health and quality of life in the treatment of number of psychiatric and psychosomatic disorder[19]. and daily practice of Yoga reduced obesity and control dribbling, [23] improvements in appetite, sleep and health[18]. One another case has been found in the case of mental retardation. Yoga improves the aggression, appetite, and enhances the confidence in participation among the group. There is lack of studies in yoga on

adjustment problem, so the review on symptoms is described.

Materials and method

The study was based on the data collected on 30 female subject's age ranging from 20-45 years, who attended our integrated programmed, conducted in Marwari Hindu hospital, Varanasi. Although initially 50 subjects were recruited for the study, due to various reasons 20 subjects could not complete the study. The subjects were neurotic patients under psychiatric treatment for last 6 month. All patients were diagnosed as adjustment disorder according to ICD 10. But recovery was not as good as expected. The subjects having many symptoms like anxiety, agitation, depression, sleep disturbance, poor performance, appetite etc due to family stress. So the patient couldn't adjust. No strict inclusion and exclusion criteria were used, except that the subjects were attending the integrated program.

Tools

Structured Interview Performa was used. It was based on the adjustment problem symptoms. This Performa was divided in to four parts, biological, psychological, physiological, and social problem generally the symptoms were found out in individuals with family stress.

Study design

The Structured Interview Performa was assessed on the first day and last (day15) of the integrated Modification program. At the end of the study the results obtained were further analyzed.

Procedure

The program consisted of an integrated package comprised of theory and practice sessions. It was administered in the form of an outpatient course, 3-4 hours each day for 13 days, and was spread over 15 days, being interrupted by a weekend break for two days. They were advised to practice the same on their own on the two off days and a good compliance reported on the subsequent day. The course was given to a group of 10-15 patients at a time. A typical day in the course started with filling the Performa and introduction to one another and then started with a set of simple asanas (physiological postures) and pranayama (breathing exercises) for approximately one hour followed by a break. During the break subjects listened to instrumental music, interaction with each other and had breakfast. After this short interval the next activity was a lecture and introduced the principle of Yoga and yogic technique. Although group as well as individual nutrition education was imparted, providing meals was not a part of the program. One full session was devoted to principles and practice of meditation, second session was for stress management. The sessionincluded introduction of family structure, role of family member and the inter-relation. Questions and unstructured discussions were encouraged. During this session two psychodrama and two family counseling programs had been given. Each day's program ended with relaxation through either shavasana (a relaxation technique) or meditation. Autosuggestion and imagery were encouraged during relaxation to promote self-healing. The patients were given a few booklets and pen to reinforce what was discussed in the lectures. On one of the days, the patient received individualized advice in a one to one session. This session included advice on diet, physical activity, mental relaxation, and also provided a good listener to the patient for his or her personal problems. The spouse and other members of the patient's family were encouraged to attend the course to facilitate compliance. The protocol of the course is given in table -I, and the set of the assnas and pranayam included in the course in table -II.

At the end of the course structured interview Performa score were higher than at the beginning. The data show that non working, middle socio economic status with joint family with age group of 31-40 suffered higher family stress. But after the modification program of 15 days it was improved so coping strategies was good than the other group 20-25 age group gained well of integrated modification program. The age group of 41-45 was less improved than other age group. In the age group improvement was only 65%.

Discussion

The present study shows that measurable improvement in the structured interview Performa scores occurs within 15 days as the result of an intervention that combines daily practice of asanas, pranayama relaxation techniques (shavaasana and meditation), stress management program, cognitive behavior therapy, family counseling and role of drug therapy. The present study aims at finding out the combined effect of adjustment problem (family stress problem).

The intervention began each day with a set of asanas, yogic relaxation, and pranayam. Prior studies have also reported beneficial effects of yogasanas on various physiological and psychological parameters. At the end of the program all four factors positively improved. In biological factors sleep disturbance and appetite improved 80% & 90% respectively. National medical advisory committee report[5,8,14] show the muscles relaxation, breathing techniques, biofeedback modification and cognitive therapy to identify and challenge negative attitudes to the problem of sleep disturbance (Insomnia). This approach may also involve cognitive technique to reduce intrusive thoughts such as thought stopping and visualization.

Since structured interview Performa psychological factor also improved after integrated modification program nervousness, clenching of teeth, suicidal thought dramatically change. So yoga and cognitive behavior therapy and role of drug and other management were important for improvement in psychological health. The

Table I: Protocol of the Course.

Day	List of program
1-Monday	Filling up Performa, Introduction to one another Lecture - Introduction to Yoga Practice- Shavasana Individualized advised-(2 patients)
2	P- Asanas & Pranayam, Break L-Meditation P-Meditation I—(2 patients)
3	P- Assanas & Pranayam, Break L-Fundamental in family Structure P-Meditation/Shavasana I—(2 patients)
4	P- Assanas & Pranayam, Break L- Role and relation with family member P-Meditation I—(2 patients)
5	P- Assanas & Pranayam, Break L-Adjustment Problem P-Meditation/Shavasana Family Counseling
6-Sunday	**Holiday**
7	P- Assanas & Pranayam, Break L- Stress Management P-Meditation/Shavasana I—(2 patients)
8	P- Assanas & Pranayam, Break L&P-Psychodrama (poor family support) P-Meditation/Shavasana I—(2 patients)
9	P- Assanas & Pranayam, Break L-Yogic attitude in daily life L-About illness & management P-Shavasana
10	P- Assanas & Pranayam, Break L-Stress Management P-Meditation/Shavasana I—(2 patients)
11	P- Assanas & Pranayam, Break L- Story of unemployed person & discussion P-Meditation/Shavasana I—(2 patients)
12	P- Assanas & Pranayam, Break L-general discussion P-Meditation/Shavasana Family Counseling
13	P- Assanas & Pranayam, Break L- Stress Management P-Meditation/Shavasana I—(2 patients)
14-Sunday	**Holiday**
15	Filling up Performa P- Assanas & Pranayam, Break P-Meditation/Shavasana Family Counseling Closing Session

Results

The score of the structured interview Performa measured at the beginning (day 1) and end (day 15) given in fig. 1

Table 1: Types and No. of Patients.

Working	Non working	Total
10	20	30

Table 2: Socio Economic Status.

High	Middle	Low	Total
05	15	10	30

Table 3: Family Structure.

Joint	Nuclear	Total
25	05	30

Table 4: Age Group of Patients.

Age Group	No. of Patients
20-25	03
25-30	05
31-35	08
36-40	08
41-45	06
Total	30

Table 5: Structured Interview Performa.

Factors/Items	Day -1	Day-15	Improvement %
Biological Items			
Sleep Disturbance	25	05	80
Appetite problem	20	02	90
Decrease interest of sex	25	10	60
Psychological Items			
Nervousness	30	05	83
Irritability	28	10	64
Agitation	20	05	75
Restlessness	30	08	73
Lack of interest	22	07	68
Dizziness	05	02	60
Mood Unhappy	15	05	66
Clenching of teeth	14	01	92
Weeping	15	05	66
Suicidal thought	10	02	88
Coping Strategies	28	08	71
Physical Items			
Working performance poor/Laziness	28	08	71
Headache	20	10	50
Body ache	15	05	66
Social Items			
Family Cooperation poor	25	10	60
Relation with Child& Husband Poor	20	05	75
Social Participation poor	22	08	63

Table II: The set of asana and pranayam included in the program.

	Humming in meditative posture-Vajrasana(Thunderbolt Pose),Padmasana (Lotus Pose), Sukhasana (Easy Pose)
	Breathing Techniques-Dog breathing, Tiger breathing, Kept on chest stretching, in three positions, Ankle Stretching.
	Exercises For Loosening – Warm up: starting from Head ,working towards toe, arm rotation, Elbow movements Wrist movements Finger movements, Shoulder rotation, Waist movements, Knee rotation, Ankle rotation, Toe movements,
	Quick relaxation in shavasana
	Asanas: I-Standing- Ardhakatichakrasana(lateral arc pose), Padahastasana (forward bend pose), Ardhachandrasana (backward bend pose),Vrikshasana (tree pose) II-Sitting-Ardhamatsyendrasana (half-spinal twist pose), Paschimottanasana(back stretch pose), Konasana (angular pose) III-Lying on stomach- Makarasana (crocodile pose), Bhujangasana (serpent pose), Dhanurasana (bow pose) IV-Lying on back- Utthisthapadasana (straight leg rising), Sarvangasana (shoulder stand pose), Matsyasana (fish pose), Pavanmuktasana (wind relieving pose), Setubandhasana (bridge pose).
	Deep relaxation in shavasana
	Pranayama (breathing practices)-Bhastrika (rapid breathing), Bhramari (honeybee sound during expiration)
	Quick relaxation in shavasana
	Humming in meditative posture – Vajrasana(Thunderbolt Pose),Padmasana (Lotus Pose),Sukhasana(Easy Pose)

Table 6: Age vice Distribution of SIP Day-1 and Day -15.

Age group	Day -1	Day-15	Percentage %
20-25	28	06	78
26-30	75	22	69
31-35	112	26	76
36-40	110	39	71
41-45	92	27	65

improvements in the expectation of physical problem laziness show that there was an increase in feeling of success. The study shows (15, 17, and 18) that the therapeutic programmes on the cognitive behavior modification model have been found to be remarkably successful in 23.helping sufferers to cope positively with fatigue syndrome.

SpHeadache is mostly common in the stress problem individual. In the support=to support this previous study (2, 3, 4, and 11) find out that psychological treatment, cognitive therapy, biofeedback, and strelaxation have proved to be effective as a drug treatment. The cognitive model of headache acknowledges the integral role of psychological factors in the chronic headache, because who perceives events around them stnegatively will tend to react with more physiological arousal will consequently more likely to developed symptoms such as headache. So the negative thoughts are common in family stress problem individual that is stthe cause of headache. Present study highlight that body ache was improving the 66% by the combined therapy. Cognitive behavior therapy is an effective treatment for all kind of pain[5, 12,19] eg. back pain,

c- chronic neck pain, and maladaptive pain like pain=pain behavior include repetitive description/complaints of pain, reduced activity levels, avoidance of responsibility, reliance of pain medication and adaptation of body stpostures/ facial expression which draw attention to the pain egg. Griming, wincing, and groaning.

When the effect of intervention on subjects in different age groups was compared, subject in the 24.sprange of 20-25 and 31-35 years were found to benefit the least, these might be the woman who are least spadoptable to any change. In our study 25.social item was also improved, so this factor highlights there was a decrease in worry and concern about the relationship of the subjects with their spouse and children. And also change in the score for family cooperation and social participation. The present study suggested that the combined approaches of yoga and therapy have a favorable effect on Structured Interview Performa. And calso suggest this study demonstrates that a simple and inexpensive essentially educational intervention based on yoga and therapy improves the adjustment problem.

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Conflict of interest and ethical issues in research

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Introducion

"It would not be correct to say that every moral obligation involves a legal duty; but every legal duty is founded on a moral obligation".

- Lord Chief Justice Cole Ridge (1893)

Thus, comes the world of ethics. Ethics is a branch of philosophy, which deals with the examination of human conduct. Ethical issues are not new things to be talked about. They date back to the year 1947; when the first imported code of ethics was the Nuremberg code - where no research could proceed on human subjects without "voluntary consent"; and this has remained unchanged in subsequent codes.

Later on; The World Medical Association, assisted by WHO, developed, expanded and revised code of ethics to guide doctors in research involving human subjects called the Declaration of Helsinki. This was followed by a revised Declaration in 1975(Helsinki II)[1].

Ethical issues are one of the prime measures undertaken in any type of research.

Ethical theories

In such deliberations, particular decisions and actions may be justified by ethical theory or integrated body of rules and principles. Two theories have commonly been cited in public health research and practice - deontological and utilitarian theories.

Deontological theories hold that people should not be treated as means to an end and that some actions are right or wrong regardless of the consequences. Deontological theories provide strong support for protecting research participants and whole communities of people, even if protections for human subjects slow research or the acquisition of knowledge.

Utilitarian theories, on the other hand, strive to maximize beneficial consequences. The principle of utility requires aggregate or collective benefits to be minimized. From a utilitarian perspective, the principle of utility is the ultimate ethical principle from which all other principles are derived. Utilitarian theories provide strong justification for public health programs such as mandatory vaccination programs for children and the fluoridation of public water supplies[2].

Principles of ethics

There are three ethical principles that form the basis for health care practice and research. The rule of "Do No Harm" reflects the principle of beneficence. Adherence to this principle requires that good to be done, that harm be avoided or minimized, and that the benefits research justify any harm that may result. Autonomy, or respect for a person, is a principle that focuses on the free choice of individuals. It requires that this right of individual decision – making be honored and that protection be given to those of diminished autonomy (eg: youth, the mentally impaired, incarcerated individuals). In health care practice and research, this means that an individual has the right to consent or to refuse treatment. The last principle is that of justice or equity. It requires an equal distribution of benefits and burdens, except where an unequal distribution may be justified by merit or need[3].

While many general ethical questions have been answered on the basis of general principles and theories, the specific decisions that emerge in particular cases may remain unaddressed by the principles. For such purposes, case base methods such as casuistry are grounded in analogical reasoning, appeal to paradigmatic cases, and practical judgment.

Casuistry requires a clear exposition of the facts that surrounds a case. A decision must then be made about which maxim is the most appropriate to "rule" or govern the case. The descriptions of the case, including the circumstances, maxims and logical thought, constitute its basic structure or morphology. Judgment is necessary to determine which norm applies in a complicated or ambiguous case[2].

The primary professional roles of epidemiology are the design and conduct of scientific research and the public health application of scientific knowledge. This includes reporting research results and maintaining and promoting health in communities. In carrying out these professional roles; epidemiologists often encounter a number of ethical issues and concerns that require careful consideration.

Ethical issues in research

Specific ethical issues arising in epidemiology research and public health practice that have been highlighted in ethics guidelines include: 1. Minimizing risks and providing benefits, 2.Informed consent, 3.Avoiding and disclosing conflicts of interest, 4.Obligations to communities and 5. The institutional review board studies which were published by the Council of International Organizations of Medical Sciences[2].

1. Epidemiologists have ethical and professional obligations to maximize the potential benefits of studies to research participants and to the society and to minimize potential harms and risks. The risks of epidemiological studies and practice activities can be minimized by rigorously protecting the confidentiality of health information.

Although the risks posed by epidemiologic studies are often minor compared with those that may be associated with clinical trials and other experimental studies; participants in epidemiologic studies may be burdened by a loss of privacy, by time spent completing interviews and examinations, and by possible adverse psychological effects such as enhanced grief or anxiety. Such risks and potential harms can be minimized by careful attention to study procedures and questionnaire or by scheduling them on a date that is less likely to result in adverse psychological effects.

Minimizing risks and potential harms and maximizing potential benefits are particularly important in epidemiologic studies of children, prisoners, some elderly people and populations that are marginalized or socioeconomically disadvantaged.

2. The Nuremberg Code identifies four attributes of consent without which consent cannot be considered valid.

Consent must be "voluntary", "legally competent", "informed" and "comprehending". These four attributes stand essentially unchanged to this day[4].

The process of informed consent, designed to show respect for persons, fosters their interests by empowering them to pursue and protect their own interest. Consent should not be obtained with bribery, coercion or misinformation.

3. Other ethical issues that arise in the professional practice of epidemiology relate to how best to deal with potential conflicts of interest, in order to maintain public trust in epidemiology and sustain public support for health research.

Conflict of interest can be defined as "a situation in which a person, such as a public official, an employee, or a professional, has a private or personal interest sufficient to appear to influence the objective exercise elements in this definition. First, there is a private or personal interest. Often this is a financial interest, say, to provide a special advantage to a spouse or child. Taken by themselves, there is nothing wrong with pursuing private or personal interests, for instance, changing jobs for more pay or helping your daughter improve her golf stroke[5].

The problem comes when this private interest comes into conflict with the second feature of the definition, an "official duty" – quite literally the duty you have because you have an office or act in an official capacity. As a professional you take on certain official responsibilities, by which you acquire obligations to clients, employers, or others. These obligations are supposed to trump private or personal interests.

Third, conflicts of interest interfere with professional responsibilities in a specific way, namely, by interfering with objective professional judgment. A major reasons clients and employers value professionals is that they expect professionals to be objective and independent. Factors, like private and personal interests, that either interfere or appear likely to interfere with objectivity are then a matter of legitimate concern to those who rely on professionals – be the clients, employers, professional colleagues, or the general public.

So it is also important to avoid apparent and potential as well as actual conflicts of interests. An apparent conflict of interest is one which a reasonable person would think that the professional's judgment is likely to be compromised. A potential conflict of interest involves a situation that may develop into an actual conflict of interest.

With this in mind, consider the following types of typical conflict of interest listed by Canadian political scientists Ken Kernaghan and John Langford in their book, The Responsible Public Servant. They list seven categories:

1. **Self Dealing:** For example, you work for government and use your official position to secure a contract for a private consulting company you own. Another instance is using your government position to get a summer job for your daughter.
2. **Accepting benefits:** Bribery is one example; substantial (non token) gifts are another. For example, you are the purchasing agent for your department and you accept a case of liquor from a major supplier.
3. **Influence peddling:** Here, the professional solicits benefits in exchange for using her influence to unfairly advance the interests of a particular party.
4. **Using your employer's property for private advantage:** This could be as blatant as stealing office supplies for home use. Or it might be a bit more subtle, say, using software which is licensed to your employer for private consulting work of your own. In the first case, the employer's permission eliminates the conflict; while in the second, it doesn't.
5. **Using confidential information:** While working for a private client, you learn that the client is planning to buy a land in your region. You quickly rush out and buy the land in your wife's name.
6. **Outside employment or moonlighting:** An example would be setting up a business on the side that is in direct competition with your employer. Another case would be taking on so many outside clients that you don't have the time and energy to devote to your regular employer. In combination with influence peddling, it might be that a professional employed in the public service sells private consulting services to an individual with the assurance that they will secure benefits from government: "If you use my company, I am sure that you will pass the environmental review."

7. **Post – employment:** Here a dicey situation can be one in which a person who resigns from public or private employment and goes into business in the same area. For example, a former public servant sets up a practice lobbying the former department in which she was employed[6].

It is important to realize that avoiding conflicts of interest is only one part of being a conscientious professional. Another part is the difficult task of making choices when the ethics of the situation aren't clear or when there are good moral reasons for acting in diametrically opposing ways. This is typical in the case of whistle blowing, in which a duty of loyalty to a client or employer counsels confidentiality but this conflicts with a duty to warn the public of a serious harm or danger.

Conflicts of interests are very important to rule out in medical and dental profession because else the health of the patient can suffer to it.

One example is a woman who, upon switching cities and dentists, was surprised to learn that her hitherto problem-free mouth was suddenly a danger zone: several cavities required restorations, and two veneers needed replacement. Or so her dentist told her. In fact, though, this turned out to be just another case of overtreatment.

The problem here is conflicts of interests (COIs). These are instances when professionals are pulled in two directions, torn between personal gain and the good of the patient. And the sad news is that when faced with COIs dentists (or physicians or cardiologists or other MD) often ends up going the self-interest route, and this can have undesirable consequences for the patient.

4. Obligations to communities includes to communicate the results of the study to the subjects as earliest as possible to benefit them from the information and respect the cultural diversity of the community while carrying out the study.
5. Taking the Ethical issues into consideration there is regulatory approach to it. The Institutional Review Board System. The purpose of research ethics committees or Institutional Review Boards (IRBs) to ensure that studies involving human research participants are designed to conform with relevant ethical standards and that the rights and welfare of participants are protected.

Human – subjects review by such committees ensures that studies have a favorable balance of potential benefits and risks, that participants are selected equitably, and that procedures for obtaining informed consent are adequate. Despite the important role played by research ethics committees and IRBs, researchers have sometimes expressed concern about the obstacles that human – subjects review can create. In some countries, human subjects review has been streamlined with the use of standardized forms and review processes or by centralizing review by research ethics committees[2].

Conclusion

Ethics have a very important role in research. Ethics attempts to determine what conduct or what actions ought to be approved or disapproved in any type of research. It undertakes to furnish standards which distinguish between a better character or worse one. Ethics is not an object, it cannot be bought, sold, or bartered, but it can be shared.

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Unicystic ameloblastoma: A case report

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Abstract

Ameloblastoma the most common aggressive benign odontogenic tumor of the jaw is categorized broadly into three biologic variants: cystic (uni-cystic), solid, and peripheral. Although the histology suggests that cystic ameloblastoma follow a biologically low-grade course, recent evidence suggests that they may often behave clinically as biologically aggressive tumors. This is supported by the high incidence of cortical perforation, tooth resorption, lesion size, bony destruction, and a high rate of recurrence after simple enucleation. Few cases with malignant change & distant metastasis have been reported. It is seen in all age group but the lesion is mostly diagnosed in the third and fourth decades of life.

Keywords

Unicystic Ameloblastoma, Solid Ameloblastoma

Introduction

The ameloblastoma is a true neoplasm of enamel organ type which does not undergo differentiation to the point of enamel formation. It has been described by Robinson as a tumor that is usually unicentric, nonfunctional, anatomically benign and clinically persistent[3]. Hence consists of proliferating odontogenic epithelium, which has a follicular or plexiform pattern, lying in a fibrous stroma[4]. The WHO histological typing of odontogenic tumor classifies ameloblastoma as intraosseous, central , extra osseous and peripheral types[5]. The small number of ameloblastoma arising directly from the surface epithelium or from residues of the dental lamina lying outside the bone constitutes the peripheral type. The intraosseous ameloblastoma of the jaws occurs most often in the fourth and fifth decades of life. Its occurrence in children and adolescents younger than 18yrs is seen only in 14.6% of 206 cases of ameloblastomas so far. Within the central type, the unicystic variant is recognized as a clinically, radiographically and pathologically distinct entity with prognostic significance that warrants alternative management to the classical type. Unicystic ameloblastoma, a rarer variant was first described by Robinson and Martinez in 1977, which refers to those cystic lesions that show clinical and radiologic characteristics of an odontogenic cyst but histologically shows typical cystic epithelium, with or without luminal and/or mural proliferation[1,2]. The unicystic ameloblastoma is considered a variant of the solid or multicystic ameloblastoma, accounting for 6%to15% of all intraosseous ameloblastomas[5]. This lesion occurs in a younger age group, with slightly more than 50%of cases, occurring in patients in the second decade of life. In more than 90% of the cases, the unicystic ameloblastoma is located in the mandible, with 77% located in the molar region[6]. Various treatment modalities for UA have been us however, more conservative treatments have been reported frequently, including enucleation, curettage and marsupialization[7].

Case report

A 28 year old male patient reported to the Department of Oral Medicine and Radiology with a swelling for 2years on the left side of the jaw (fig1). The contra-lateral side was normal extra oral examination revealed a well defined solitary swelling arising from the lower jaw to the present size (fig1). Intraoral examination showed a large, hard and tender mass, smooth and glossy surface with no appreciable change in the color of the mucosa(fig2). Lymph nodes were enlarged, soft, tender and mobile. Past dental and medical history was unremarkable. Radiologically there was a well defined multi-locular radiolucency extending from right central to left molars with scalloped margins along with resorption of roots. Expansion of buccal cortical plates was also appreciated (fig3). Fine needle aspiration cytology (FNAC) revealed a straw colored fluid. Hence provisional diagnosis of odontogenic cyst was made. Enucleation was performed to completely extirpate the lesion and the specimen was sent for histo-pathological examination. The tissue was processed and multiple sections were stained with

Fig.1: Extraoral view with a well defined solitary swelling arising from left lower jaw.

Fig. 2: intraoral photograph showing large,hard & tender mass on the left side of the jaw.

Fig. 2: Show a well defined multilocular radiolucency from right central to left molars.

Hematoxyillin and Eosin. Microscopically, sections revealed a cystic capsule lined with reduced enamel epithelium with few areas showing odontogenic epithelial islands. Epithelium showed cuboidal to columnar basal cells with hyper chromatic nuclei, nuclear palisading with polarization, cytoplasmic vacuolization with intercellular spacing and sub epithelial hyalinization in few areas. At one end of the section, epithelium showed intra luminal proliferation(fig4). Intramural nodules were appreciated as free islands in few areas followed by cystic degeneration in other (fig 5). The histological examination confirmed the diagnosis of unicystic ameloblastoma.

Discussion

The unicystic ameloblastoma the cystic variant of ameloblastoma deserves separate consideration based on its clinical, radiographic and pathologic features and its response to treatment[8]. The second and far less growth pattern seen in the intraosseous ameloblastoma is the unicystic type. The growth pattern is seen in approximately 6% of ameloblastomas[9]. Unicystic ameloblastomas are most often seen in younger patients, with about 50% of all such tumors diagnosed during the second decade of life[5]. The average age is 23years which was is in accordance with our case.

The location of cystic ameloblastomas in the posterior mandible accounts for 86% of cases. The clinico pathologic features are benign with a slow growing pattern, but locally invasive. The lesion is often asymptomatic, although large lesions may cause painless swelling of the jaws[10]. The clinical behavior may be regarded as lying somewhere between benign and malignant[8]. Radiographically, appears as unilocular or multilocular pattern with clear predominance of the unilocular configuration in all studies where this feature was evaluated. More than 90% of UA

Fig. 4: intraluminal proliferation of odontogenic epithelium.

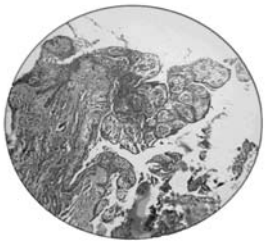
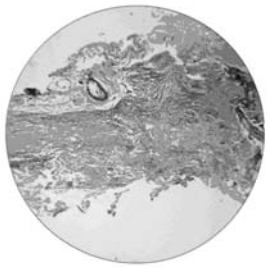


Fig. 5: Shows intramural nodules.



are found in the mandible, usually in the posterior region. UA is often misdiagnosed as an odontogenic keratocyst or a dentigerous cyst. Konouchi et al performed contrast enhanced CE-MRI to diagnose 13 cases of unilocular, round radiolucent lesions visualized by panoramic radiography and /or computed tomography. In the case of UA, low signal was observed on t1 weighted images and a markedly high SI was observed on T2WI; and relatively thick enhancement with/or without small intra luminal nodules was observed on CE-T1W1s. CE-MRI was considered to be useful in the diagnosis of UA[7]. The histologic features of UA have been established by several authors all of whom recognize various subtypes determined by the pattern and the extent of ameloblastomatous proliferation in relation to the cyst wall. The luminal type of tumor is called UA subgroup 1 and is defined as having an epithelial lining of which parts may show transformation from cuboidal to columnar basal cells with hyperchromatic nuclei, nuclear palisading with polarization, cytoplasmic vacuolization with intercellular spacing and subepithelial hyalinization. Subgroup1.2, shows simple and intraluminal features. UA subgroup1,2,3 covers cases where there is an occurrence of intramural ameloblastoma tissue as well as subgroup1,3 exhibits a cyst with a luminal lining in combination with intramural nodules of SMA tissue. Modified Ackerman et. al.[4] Unicystic ameloblastoma is less aggressive with a lower recurrence rate after conservative treatment.[11] Various treatment modalities for UA have been used, such as segmental or marginal resection as normally used for conventional ameloblastoma. However more conservative treatment has been reported frequently including enucleation, curettage and marsupialization[12]. Akasara et. al. investigated the immunohistochemical discrepancy between UAs and other types. Expression of PCNA was markedly observed in the tumor cells of other types of

ameloblastomas, whereas there was no expression of PCNA in the cells of any variants of UA. Moreover, b-catenin was characterized by a more positive marked expression in UA than in other types of ameloblastoma, and the cells that expressed this substance were not PCNA positive cells. For this reason mentioned above, UA should be treated with a conservative therapy. In the present case, we selected enucleation and the patient was able to avoid facial deformity and oral dysfunction[7].

Conclusion

The unicystic ameloblastoma deserves separate consideration based on its clinical, radiographic and pathologic features and its response to treatment. The second and far less frequent growth pattern seen in the intraosseous ameloblastoma is the unicystic type. This growth pattern is seen in approximately 6% of all ameloblastomas. It tends to occur in a younger population (average age in one large study, 22.1 years) compared with patient population with conventional ameloblastomas. A high percentage of these lesions are associated with an impacted tooth, and the most common cited provisional diagnosis is dentigerous cyst. Cystic areas nearly always are noted grossly at the time of surgery. Recognition of this growth pattern is important, because it is well accepted that the unicystic type has a considerably better overall prognosis and a much reduced incidence of recurrence compared with conventional ameloblastoma.

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Assessment of quality health services under National Rural Health Mission in Uttarakhand

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Abstract

The National Rural Health Mission (NRHM) is one of the largest global programmes for revitalizing primary health care systems in India. The thrust of the programme is on securing quality health services in remote rural areas that are accessible, affordable and accountable for safe motherhood and child survival through operationalisation of the Primary Health Centres to provide delivery and emergency obstetric and child health services on a 24X 7 basis. The focus of the RCH program will be on reducing the maternal mortality ratio, the infant Mortality rate and total fertility rate. The health infrastructure has grown at decent pace however till date is urban centric, rural areas are still sidelined. Mid and high Himalayan region which are difficult to reach areas have not been able to catch up the pace. This brief research has been taken up to evaluate gaps in functioning and infrastructure of health system.

Key words

Reproductive and Child health, MMR, IMR, Human Resource shortage, Quality Health services, NRHM Uttarakhand

Introduction

The Government of Uttarakhand is committed to improve the health status and quality of life of its people, by focusing on health issues with the objective of reducing disease burden, creating an enabling environment influencing direct and indirect health determinant such as nutrition, water, sanitation, the environment and other factors such as education and employment in the state. The state has a population of 8.5 million with average density of 159 persons per sq km which varies from as high as 612 in Haridwar and 414 in Dehradun districts to as low as 37 in Uttarkashi and 48 in Chamoli. The CHC/ Referral Hospital Network are virtually nonexistent within the state having only 55 CHC. The state has only 239 PHCs including additional PHCs. A similar situation prevails with regard to facilities at the Health Sub Centre level, where the state has 1765 Health Subentries'. The analyses of the CHCs & PHCs throw light on the reason behind such poor key performance indicators. MMR of uttarakhand is 440(SRS 2004-06) as compared to India is 254 (SRS 2004-06). IMR and TFR is 44 (SRS 2008), 2.62 (NFHS2) respectively as compared to country's 53 (SRS 2008) and 2.7 (SRS 2007). According to DLHS3 (2007-08) Mothers who received 3 or more antenatal care checkups (%) are 33.8%, 62.9% of Children aged 12-23 months are fully immunized (%) and 57.7% of usage of any modern contraceptive method. Annual expenditure under NRHM is only 24.6% of total release of funds by GOI.

Objective

1. To assess operational status of health facilities (CHC/ PHC) to meet the reproductive and Child health needs.
2. Identify gaps in operationalization, of those facilities (CHC/PHC), which do not qualify as functional facilities as per Govt. of Uttarakhand norms.
3. Verification & ensuring authenticity of the data collected from the centre.

Methodology

1. Demographical Analysis of Uttarakhand Health facilities.
2. Assessment of basic Health services essential to reduce MMR, IMR and to improve RCH status at each facility level as per govt. of uttarakhand norms.
3. Self prepared Questionnaire on the basis of assessment of above norms.
4. Questionnaire being filled by the District programme manager and Block programme manager of randomly selected facilities.
5. Analyzing the Questionnaire by using SPSS - statistical software.
6. Conducting the Gap analysis - regression study of basic health services.

Study Sample

Among total existing Health facilities i.e. 55 CHCs and 239 PHCs (Including APHC), only few random selections were made. Among total facilities 46 CHCs and 53 PHCs were assessed. All the BPM's and BLA's of respective block facility got interviewed and basic questionnaire was filled by them.

Situation Analysis

Uttarakhand has 13 districts, 49 tehsils, 95 blocks, and 16,414 villages. The population sex ratio of 964 females per 1,000 males is not only higher than both the all-India sex ratio (933) and the Uttar Pradesh sex ratio (898). The literacy rate for the population age 7 and above in Uttaranchal is 84 percent for males, 60 percent for females, and 72

percent for the total population. Mothers who had at least 3 antenatal care visits for their last birth (%) are 44.8% to improve the status of Reproductive Health. Among these Mothers who consumed IFA for 90 days or more when they were pregnant with their last child (%) is 26.2%. Mothers who received postnatal care from doctor/nurse/LHV/ANM/ other health personnel within 2 days of delivery for their last birth (%) are 30.2%. Knowledge of contraception is nearly universal: 98 percent of currently married women know at least one modern family planning method. Yet only 59.3 percent of married women in Uttaranchal are currently using some method of contraception. Contraceptive prevalence in Uttaranchal is considerably higher in urban areas (65.3 percent) than in rural areas (57.2 percent). Female sterilization is by far the most popular method: 32.1 percent of currently married women are sterilized. By contrast, only 1.8 percent of women report that their husbands are sterilized. Overall, sterilization accounts for 55.5 percent of total contraceptive use. Use rates for the pill (4.2 percent) and IUD (1.5 percent) remain very low, but condom use is somewhat higher (4.2 percent).

In Uttaranchal, Child Health includes only 60 percent of children age 12-23 months are fully vaccinated. One reason that only 60% of children have been fully immunized is that only 71.6 percent of children have been vaccinated against measles and only 67.1 percent have received all three doses of DPT vaccine. 80 percent received all three doses of polio vaccine. However, the effect of the Pulse Polio Immunization Campaign is quite evident. Although polio and DPT vaccinations are typically given at the same time as part of the routine immunization programme, the proportion of children receiving polio vaccinations is considerably higher than the proportion receiving DPT vaccinations due to the Pulse Polio Programme. NFHS collected information on the prevalence and treatment of three health problems that cause considerable mortality in young children, fever, acute respiratory infection (ARI), and diarrhoea. In Uttaranchal, 25 percent of children under age three were ill with fever during the two weeks preceding the survey, 17 percent were ill with ARI, and 35.4 percent had diarrhoea. Seventy-one percent of children who were ill with ARI were taken to a health facility.

Gap analysis

Public Health Infrastructure is lacking the basic minimum infrastructure needed for their optimal functioning. Uttarakhand have 3 Medical colleges, 18 District hospitals, 18 sub-district hospitals, 7 Ayurvedic hospitals, 467 Ayurvedic dispensaries, 5 Unani dispensaries and 96 homeopatheic dispensaries. Similar to the situation with physical infrastructure, districts face acute shortages in health personnel as well. As per the data available with the state, a large number of posts of Medical Officers and frontline health workers remain vacant. Specific personnel data indicate that against the sanctioned strength of 232MOs at PHCs there are only 182 medical officers that are working in the state, leaving close to 21.5% post vacant. Only 20.57% of PHCs and 52.56% of CHCs having LMOs in uttarakhand, with the main reason is doctors avoid staying in hilly regions. According to the IPHS standards uttarakhand needs 3418 staff nurses at PHCs, CHCs, SDH, DH combined together. Currently there are only 675 staff nurses and the shortfall is 2743 or 80%. In addition 166 staff nurses are required for the medical college hospitals that have 300 beds. The overall shortfall of staff nurse in the state is 2848 (79%). In case of frontline health workers such as ANM, LHV, MHWs, staff nurses and AWW, situation is almost similar or even worse. For example, in case of ANMs, against the sanctioned posts of 1997, the state has only 1785 ANMs (i.e. a shortage of about 11%), whereas there are only 656 MHWs against the sanctioned strength of 1765 (about 62.83% posts vacant) and159 LHVs against the sanctioned number of 239 (shortage of more than 33%). In case of Staff Nurses 195 out of 451 sanctioned posts are vacant. A detailed analysis on the functionality of the CHC and PHCs as per the survey undertaken on the various components gives an insight on the quality of the facilities as well as the services provided. Reproductive health includes Institutional Delivery rate is 36% and Births assisted by doctor/nurse/LHV/ANM/other health personnel is 41.5%. Home deliveries are highest in Uttarkashi (91.8%) and lowest in Pauri Garhwal i.e. 65.9%. depicts 20-60% of facilities in district are able to conduct the lowest level of lab test i.e Hb test for identification of anaemic pregnant women. Only three districts in which all the facilities can conduct Hb tests. – Haridwar, Uttarkashi and Dehradun. Only 52.55% of PHCs and 68.71% of CHCs can conduct haemoglobin test at their health facilities. Hypertension of pregnant women should be checked during ANC checkups. However in Uttarakhand it's not a regular practice at few facilities. As 20% of facilities in chamoli district which belong from the interiors of the hills, able to provide hypertension check services. For the remaining districts, this facility ranges from 70-90%. 60% of facilities are able to perform C-section in champawat district with the lowest percentage of facilities conduct C-section is Haridwar district i.e. 10%. Lack of availability of skilled staff at these institutions is the one of the important reason for non-functionality of these institutions, particularly in terms of Emergency Obstetric care services. Only 25.64% of CHCs and 6.04% of PHCs can manage complications during delivery. 60 percent of children age 12-23 months are fully vaccinated, 83 percent have received some but not all of the recommended vaccinations to improve the Child health. On an exceptional of Hb test only 55% of PHCs and 70.8% of CHCs can able to conduct malaria laboratory test. 5.3%, 20.4% of PHCs and 32.8%, 44% of CHCs can conduct VDRL and Widal test respectively. The major reasons for unavailability of laboratory test in all the health facilities are 36.7% of facilities don not have appointed lab technician, reagent kit is not available at 30% of facilities and scarcity of equipments in 22.45 of facilities. The standards for AYUSH component in the primary health network are being

finalized for facilitating uniformity in implementing the mainstreaming of AYUSH. 60-85% of facilities have AYUH wing functioning with services are provided there. Pithoragarh district have the 100% functioning of AYUSH wing in their health facilities.

Conclusion

Facility-based information tells us what is actually happening at the level of service delivery (input, process, costs, output, and quality). Availability of services is quite poor at PHCs and CHCs especially in Upper and Middle Himalayas regions due to the worse condition of Human resource.

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Nanotechnology – the flip side of the coin

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Abstract

Nanotechnology is the current boon of science to mankind. The enormous growth in nanotechnology has not spared any field and in particular it has engraved its success in the field of medicine. It is also important that one must be aware of the potential hazards of nanotechnology as it has grabbed a major position in the world of science and technology. The biological impacts of nanoparticles are dependent on size, chemical composition, surface structure, solubility, shape, and aggregation. These parameters can modify cellular uptake, protein binding, translocation from portal of entry to the target site, and the possibility of causing tissue injury. Effects of nanoparticles depend on the routes of exposure that include gastrointestinal tract, skin, lung, and systemic administration for diagnostic and therapeutic purposes. This review would talk in volumes about the potentially hazardous effects of nanotechnology.

Key words

Nanotechnology, Hazards, Nanoparticles

Introduction

Nanotechnology is the creation of useful materials, devices, and synthesis used to manipulate matter at an incredibly small scale—between 1 and 100 nm1. Nanotechnology is a multidisciplinary field, which covers a vast and diverse array of devices derived from engineering, biology, physics and chemistry[2]. Nanotechnology is the science of manipulating matter measured in the billionth of meters or nanometer, roughly the size of two or three atoms. The word nano is the greek word for dwarf[3]. Nanomedicine is the process of diagnosing, treating, and preventing disease and traumatic injury, of relieving pain, and of preserving and improving human health, using molecular tools and molecular knowledge of the human body by using nanoscale-structured materials and nanodevices including the interaction of nanostructured materials with biological systems[4].

Fundamental concepts in nanotechnology

There are basically 3 concepts in nanotechnology

- Top down approach
- Bottom up approach
- Molecular nanotechnology

Top down approach (materialistic perspective) suggests that physical phenomena become pronounced as the size of the system decreases[5]. Bottom up approach (a molecular perspective) of Nanotechnology offers science a way to build components from the "bottom up" by piecing them together from atoms and molecules directly[6]. Molecular nanotechnology, sometimes called molecular manufacturing, is a term given to the concept of engineered nanosystems (nanoscale machines) operating on the molecular scale[5].

Medical nanomaterials and nanodevices currently in use [4]

Currently used materials would include,
Nanopores
Molecular Imprinting
Quantum Dots
Nanocrystals
Fullerenes
Nanotubes
Nanoshells
Magnetic Nanoprobes
Targeted Nanoparticles
Dendrimers
Radio-Controlled Biomolecules

Applications of nanotechnology to medicine

Nanomedicine is the application of nanotechnology (the engineering of tiny machines) to the prevention and treatment of disease in the human body[7].

Nanomedicine refers to future developments in medicine that will be based on the ability to build nanorobots. In the future these nanorobots could actually be programmed to repair specific diseased cells, functioning in a similar way to antibodies in our natural healing processes[8].

Nanomedicine may be broadly categorized into three categories[9],

A. Nanotechnology based diagnostics and imaging

- In Vitro Imaging
- Optical, electron or X-ray microscopies
- Scanning probes/near field methods
- Hybrid microscopies
- In Vivo Imaging

B.targeted delivery

- Multi-Tasking Medicines
- Liposomes
- Micellular and micro-emulsion Systems
- Liquid crystal based formulations
- Nanocrystals
- Biodegradable nanoparticles/nanocapsules.
- Virus-like particles for gene delivery.
- Delivery Of Small Nucleic Acids Or Mimetics

C.regenerative medicine

- Intelligent biomaterials and smart implants
- Bioactive signalling molecules
- Cell-based therapies

Toxicity of nanoparticles

The biological impacts of nanoparticles are dependent on size, chemical composition, surface structure, solubility, shape, and aggregation. These parameters can modify cellular uptake, protein binding, translocation from portal of entry to the target site, and the possibility of causing tissue injury. Effects of nanoparticles depend on the routes of exposure that include gastrointestinal tract, skin, lung, and systemic administration for diagnostic and therapeutic purposes. Nanoparticles interactions with cells, body fluids, and proteins play a role in their biological effects and ability to distribute throughout the body[4].

Fate of nanoparticles in the human body

Following inhalation, ultrafine and fine particles can penetrate through the different tissue compartments of the lungs and eventually reach the capillaries and circulating cells or constituents, e.g., erythrocytes. These particles are then translocated by the circulation to other organs including the liver, spleen, kidneys, heart, and brain, where they may be deposited[4].

Smaller particles apparently circulate for much longer and in some cases can cross the blood-brain barrier (BBB) to lodge in the brain. They can leak out of capillaries and get into the fluids between cells[4].

Nanoparticles are different from most other industrial hazards, as they could gain access to biological systems by passing through barriers within the body generally impermeable to larger particles. In-vitro studies have suggested that they may then cause damage to membranes, cellular organelles and DNA through their ability to trigger the production of reactive oxygen species. Toxic chemicals adsorbed to their surface or entrained within their microstructure may be delivered intracellularly or react with cell surface receptors, initiating immune responses[10].

Pulmonary effects of nanoparticles

'Modern humans breathe in considerable numbers of nanoparticles on a daily basis in traffic fumes and even from cooking. Nanoparticles are used increasingly in industrial processes and have been hypothesized to be an important contributing factor in the toxicity and adverse health effects of particulate air pollution. Small size, a large surface area, and an ability to generate reactive oxygen species play a role in the ability of nanoparticles to induce lung injury. In some individuals they can trigger asthma by setting off an inflammatory response from the body's immune system[4]. Exposure to unrefined SWCNT can lead to an increase in pulmonary toxicity in exposed workers due to oxidative stress. the degree of toxicity is linked to this surface and to the surface properties of these nanoparticles, rather than their mass[11].

Blood compatibility of nanoparticles

Given that the majority of nanoparticles are intended to travel to tumors through the bloodstream, the effects of nanoparticles on blood cells are of particular concern to those developing nanoparticle-based therapeutic and imaging agents. The blood compatibility of nanoparticles depends on the material used[3].

Carbon nanoparticle-induced platelet aggregation

To determine the potential for blood platelet-nanoparticle interactions, the effects of engineered and combustion-derived carbon nanoparticles were studied on human platelet aggregation in vitro and rat vascular thrombosis in vivo (Radomski et al 2005). All particles resulted in upregulation of GPIIb/IIIa resulting in platelet induced aggregation[4].

Transfer of nanoparticles from mother to fetus

The toxicopathology research group at the University of Liverpool (Liverpool, United Kingdom) has investigated the fate of injected gold nanoparticles into pregnant rats to determine whether they can be transferred across the placenta to the fetus. This research on possible transfer of nanoparticles to the fetus could indicate a new, particular, hazard of nanoparticles that would be a cause for concern[3]. Delivery of inhaled materials can reach the central nervous system (CNS) by systemic delivery or via direct transport of materials from the nasal cavity to the brain via the olfactory nerve (olfactory transport)[12].

Cytotoxicity of nanoparticles

Cytotoxicity refers to toxic effects on individual cells[3]. The structure and function of an enzyme can be altered by nanoparticles (NPs). The interaction between enzyme and NPs is governed by the key properties of NPs, such as structure, size, surface chemistry, charge and surface shape[13].

Nanoparticle deposits in the brain

Passage of nanoparticles to cross the BBB to enter the brain has already been documented. There is a possible risk in inhaling nanoparticles that are so small that they can slip through membranes inside the lungs, enter systemic circulation, and lodge in the brain. There is the potential for neurodegenerative consequence of nanoparticle entry to the brain[4]. Delivery of inhaled materials can reach the central nervous system (CNS) by systemic delivery or via direct transport of materials from the nasal cavity to the brain via the olfactory nerve (olfactory transport)[14].

Fda regulation of nanobiotechnology products

The FDA regulates a wide range of products, including foods, cosmetics, drugs, devices, and veterinary products, some of which may utilize nanotechnology or contain nanomaterials. The first generation of nanomedicines (liposomal preparations) were approved more than a decade ago before a real awareness existed about a number of issues related to safety concerns of nanomaterials and with a demonstrable relative success, in terms of their clinical safety assessment and safe use in cancer. However, nanomaterials such as phospholipids or biodegradable/bioerodible polymers are of a completely different nature from other anticipated materials that will be produced in the near future from the research pipeline. CNTs, quantum dots, and other nonbiodegradable and potentially harmful materials should be given different and more closer attention, looking at their toxicological potential impact in a number of different applications. By the same standards and in the new context, already existing nanopharmaceuticals, when administered for the same or new therapeutic indications making use of different administration routes (e.g., pulmonary), should not be waived of a full assessment of their differential potential toxicology impact, particularly in the proinflammatory area (Gaspar 2007)[4].

Conclusion

This science might sound like a fiction now, but nanotechnology has strong potential to revolutionize the field of medicine in future. Nanotechnology will change health care and human life more profoundly. In the long run, perhaps 10–20 years from today, the nanorobots may join the medical armamentarium, finally giving physicians the most potent tools imaginable to conquer human disease, ill-health, and aging.

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Epidemiology of sickle cell disease in state of Chhattisgarh

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Abstract

Sickle cell disease (SCD) is the commonest abnormal hemoglobin in the world. The present study evaluated the SCD in state of Chhattisgarh. The study was conducted in Center for Genetic Diseases & Molecular Biology, Department of Biochemistry, Pt JNM Medical College & associated BRA Hospital , Raipur during the period of 4 years from May 2003 to April 2007. The screening was conducted on a total of 38472 individuals. We found that the prevalence of SCD in India is highest in the state of Chhattisgarh (23%). Though the prevalence is high for tribal and scheduled caste populations, the prevalence is highest for Kurmi (55%)and Teli (53%)caste which belong to backward castes. Solubility tests are highly sensitive and specific for detecting SCD & can easily be used for mass screening of SCD.

The term SCD in the present study includes both sickle cell trait and homozygous sickle cell anemia.

Introduction

Sickle cell disease (SCD) is the commonest abnormal hemoglobin in the world occurring in Equatorial Africa, Mediterranean countries, Middle East and various parts of India. It is well know that in some populations gene frequencies are high due to malarial selection. As a result sickle cell trait is very common in malarial areas. It is a structural variant of haemoglobin in which glutamtic acid, an amino acid, at position No.6 of â-globin chain of haemoglobin is replaced by valine.

The cumulative gene frequency of the three most predominant abnormal haemoglobins, i.e. sickle cell, haemoglobin D and haemoglobin E has been estimated to be 5.35% in India (Balgir RS, 2000). The disease is restricted not only to tribal belt but is widely prevalent and has penetrated different castes and communities in our country (Kar BC, 1987). The disease is widespread especially in the central parts of India(Negi RS, 1972). The highest frequency of sickle cell gene in India is reported in Orissa followed by Assam, MP, UP, Tamilnadu and Gujarat (Balgir RS, 1996). The present study evaluated the SCD in state of Chhattisgarh. We found that the prevalence of SCD in India is highest in the state of Chhattisgarh (23%). Though the prevalence is high for tribal and scheduled caste populations, the prevalence is highest for Kurmi (55%)and Teli (53%) castes which belong to backward castes. Solubility tests are highly sensitive and specific for detecting SCD & can easily be used for mass screening of SCD.

Subject & methods

The study was conducted in Center for Genetic Diseases & Molecular Biology, Department of Biochemistry, Pt JNM Medical College & associated BRA Hospital, Pt JNM Medical College, Raipur during the period of 3 years from May 2004 to April 2007. The screening was conducted on a total of 38472 individuals.

The population that was screened consisted of individual attending the outpatient departments as well as wards of Pt JNM Medical College and BRA hospital for all diseases including sickle cell disease, Raipur. Majority of individuals coming to our institution belong to Raipur district of Chhattisgarh. We also screened population from districts other than Raipur viz., Mahasamund, Rajanandgaon, Durg, Bilaspur, Dhamtari by conducting various camps for screening sickle cell disease. Camps were also organized in district of Raipur itself. These camps were organized by different NGOs, government agencies, Pt JNM Medical college, Raipur & various peripheral hospitals in the state of Chhattisgarh. During campaigning for camps, it was informed to general public that the camp was being conducted for screening sickle cell diseases.

5 ml of venous blood sample was collected in an EDTA vial. Anticoagulated blood was screened for HbS using dithionate tube test (Nalbandian MR, 1971). The hemoglobin electrophoresis was carried out on cellulose acetate membrane in Tris-EDTA-Borate buffer at pH 8.9. Homozygous sickle cell disease was confirmed by ion cation exchange HPLC (Biorad Variant hemoglobin testing system). Profile of all the individuals were entered in a structured proforma that included demographic & socioeconomic profile. An informed consent was taken from all the individuals screened. Data was analyzed using the software of statcalc & microsoft excel.

Results

The results of 38059 individuals (table 1) showed that 75.87% of individuals had normal Hb (HbAA) while 19.62% of individuals were sickle cell trait (HbAS) and 3.43% were homozygous for sickling gene (HbSS). The gender was known for 37756 individuals. Of them 45.94% were male and 54.05% female. When male and females were separately analyzed for SCD, 24.53% of males were

Fig. 1: State of Chhattisgarh and SCD belt in India.

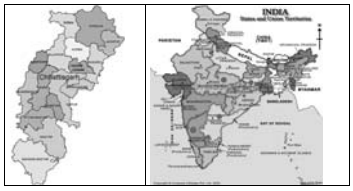

Fig. 1: Districtwise prevalence of SCD.

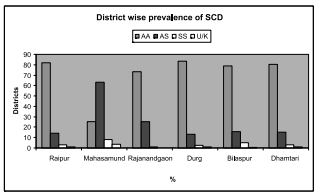

Table 1: Prevalance of normal, carrier and homozygous states.

	Total	AA	AS	SS	Status unknown*
ALL	38472	29189	7550	1320	413
%	100	75.87	19.62	3.43	
Mean Age (yrs)	-	30.06	24.72	16.72	-
Minimum Age (yrs)	-	0.0027	0.08	0.08	-
Maximum Age (yrs)	-	116	95	75	-
Solubility: +ve	-	272	7520	1317	462
Solubility: -ve	-	28877	21	3	
Male	17346	13090	3570	686	
%	100	75.46	20.58	3.95	
Female	20410	15918	3882	610	716
%	100	77.99	19.02	2.98	

*Records unavailable/untraceable

harboring SCD while 22 % of female had SCD. Mean age for normal individuals at the time of presentation was 30.06 years (ranging from 0.0027 yrs to 116 yrs). Mean age for HbAS subjects was 24.72 yrs (from 0.08 to 95 yrs) while that for HbSS subjects was 16.72 yrs (from 0.08 to 75 yrs). Solubility test showed a false positive tests for 272 individuals while false negative tests for 24 individuals with a sensitivity of 99.73% and a specificity of 99.06% and a positive and negative predictive value of 97.01% & 99.91% respectively.

The individuals under study belong to various districts of the state, predominantly from Raipur, Mahasamund, Rajanandgaon, Durg, Bilaspur, Dhamtari (table 2 & figure1) . Of the total 38472 individuals, status was not known for 3135 individuals. Prevalence of SCD was observed to be highest for Mahasamund (71.27%) and lowest for Durg (15.66%) while in Raipur, Rajanandgaon, Bilaspur, Dhamtari it was 17.29%, 26.28%, 20.63%, 18.59% respectively. In the districts of Mahasamund, Rajanandgaon, & Bilaspur SCD in females was higher than per 1000 males (1040, 1118, 1309 respectively) while in district of Raipur and Dhamtari SCD in females was lower than per 1000 males (830 & 947 respectively).

Over all prevalence for SCD was 23.08% for all religions, castes and subcastes taken together. The subjects were analyzed according to their castes (table 3, 4 & figure 2).

Fig. 2: Caste wise prevalence of SCD.

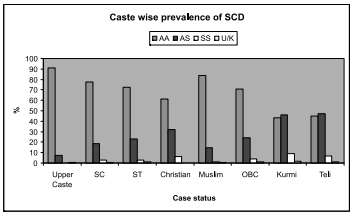

Table 2: Districtwise analysis of data.

		Raipur		Mahasamund		Rajanandgaon		Durg		Bilasp		Dhamtari	
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Total		26802	100	3249	100	2423	100	1595	100	741	100	527	100
CEP*	AA	21934	81.83	815	25.08	1781	73.5	1332	83.51	585	78.94	424	80.45
	AS	3828	14.28	2053	63.18	607	25.05	206	12.91	115	15.51	81	15.37
	SS	807	3.01	263	8.09	30	1.23	44	2.75	38	5.12	17	3.22
	Unknown	233	0.86	118	3.63	5	0.2	13	0.81	3	0.4	5	0.94
Total Male		11406	42.5	1514	46.59	1133	46.76	866	54.29	413	55.73	301	57.11
Total Female		15000	55.96	1575	48.47	1244	51.34	703	44.07	324	43.72	219	41.55
Gender unknown		396	1.47	44	1.35	46	1.89	26	1.63	4	0.53	7	1.32
Male	AA	9216	80.79	404	26.68	856	75.55	745	86.02	332	80.38	243	80.73
	AS	1781	15.61	965	63.73	265	23.38	100	11.54	62	15.01	44	14.61
	SS	409	7.07	145	9.57	12	1.05	21	2.42	19	4.6	14	4.65
Female	AA	12607	84.04	403	25.58	904	72.68	578	82.21	252	77.77	179	81.73
	AS	2016	13.44	1058	67.17	322	25.88	105	14.93	53	16.35	37	16.89
	SS	377	2.51	114	7.23	18	1.44	23	3.27	19	5.86	3	1.36
Female per 1000 males		830		1040		1118		1309		1132		947	

* Cellulose acetate electrophoresis

Out of total 38472 individuals screened caste was known for 31814 individuals. Upper caste population showed a lowest prevalence of SCD (7.31%). SCD prevalence was highest for two of the backward subcastes Kurmi subcaste (55.23%) followed by Teli subcaste (53.54%). Indigenous tribal population (Scheduled tribe or ST) had a high prevalence (26.74%) but this was much lower than that of Kurmi and Teli. The SCD prevalence for Scheduled caste (SC) population was infact lower (21.66%) than that of total SCD prevalence. For all the backward castes (OBC), the prevalence was 27.86%. While that for Christians and Muslim it was 38.70% and 16.06% respectively. When males and females were analyzed for SCD in various castes, subcastes, religion and tribes, SCD was observed to be higher in females per thousand males in ST, Christians, Kurmi, Teli (1098, 2216, 1274, 1158 respectively) while it was lower in general category, SC, Muslim, OBC (971, 953, 918, 947 respectively).

Discussion

Chhattisgarh has a total population of more than 20 million with 32.4% scheduled tribe and 12.4% scheduled caste. Though no official data is present SCD is traditionally believed to be present more in backward castes, scheduled castes and tribes. The present study is conducted on 38472 subjects which can be extrapolated to the general population. Half of the subjects were the patients who came to various hospitals of state for medical reasons while another half were from various camps held for mass screening of SCD. Sickle cell burden of state of Chhattisgarh was not know conclusively as no population based study was ever performed. The present study was a pilot study in that respect. Orissa has been most well studied state in India and the prevalence of SCD was found to be highest (13.2%) in Orissa (Ambedkar SS et al, 1978, Balgir RS, 1995 and Kate SL et al, 1978). In our study overall prevalence of

Table 3: Caste wise analysis of data.

		General		SC		ST		Christian	
		Number	%	Number	%	Number	%	Number	%
Total		6831	100	3461	100	2840	100	31	100
EP	AA	6232	91.23	2688	77.66	2057	72.42	19	61.29
	AS	492	7.2	649	18.75	661	23.27	10	32.25
	SS	76	0.11	101	2.91	86	3.02	2	6.45
	U/K	31	0.45	11	0.31	34	1.19	-	-
Total Male		2589	38.12	1600	46.2	1362	47.95	19	61.29
Total Female		4202	61.87	1820	52.58	1335	47.00	12	38.70
Gender unknown		40	0.58	41	1.18	143	5.03	-	-
Male	AA	2369	91.5	1243	77.68	1003	73.64	14	73.68
	AS	183	7.06	311	19.43	309	22.68	5	26.31
	SS	37	0.14	46	2.87	50	3.67	0	0
Female	AA	3855	91.74	1433	78.73	948	71.01	5	41.66
	AS	308	7.32	333	18.29	351	26.29	5	41.66
	SS	39	0.92	54	2.96	36	2.69	2	10.52
Females per 1000 males		971		953		1098		2216	

Table 4: Caste wise analysis of data continued

		Muslim		OBC		Kurmi		Teli	
		Number	%	Number	%	Number	%	Number	%
Total		224	100	17043	100	344	100	1040	100
EP	**AA**	187	83.48	12071	70.82	149	43.31	469	45.09
	AS	33	14.73	4083	23.95	159	46.22	489	47.01
	SS	3	1.33	667	3.91	31	9.01	68	6.53
	U/K	1	0.44	222	1.3	5	1.45	14	1.34
Total Male		106	47.32	8162	47.89	198	57.55	576	55.38
Total Female		115	51.33	8566	50.26	138	40.11	423	40.67
Gender unknown		3	1.33	315	1.84	8	2.32	41	3.94
Male	**AA**	88	83.01	5808	71.15	99	50	289	50.17
	AS	17	16.03	1997	24.46	84	42.42	258	44.79
	SS	1	0.94	357	4.37	15	7.57	29	5.03
Female	**AA**	97	84.34	6226	72.68	50	36.23	176	41.6
	AS	16	13.91	2041	23.82	72	52.17	209	49.4
	SS	2	1.73	299	3.49	16	11.59	38	8.98
Females per 1000 males		918		947		1274		1158	

SCD is 23% with 19.62% carriers and 3.43% homozygous SCD. This prevalence is higher than any existing data in India. But in our study prevalence of carrier state is much higher for Teli and Kurmi subcaste of backward castes while slightly higher for scheduled castes and tribes. The problem of SCD in Chhattisgarh state is much grave than what has been conventionally scaled. When analyzed caste wise, highest prevalence was observed for backward castes (27.86%). The two subcaste groups within the backward caste, Kurmi & Teli, had a high prevalence of 55.23% & 53.44% respectively. SCD prevalence among indigenous tribal groups and scheduled caste groups were 26.74% & 21.66% respectively. The general caste had the lowest prevalence of 7.31%. In earlier studies in state of Orissa, SCD was found to be more common in general caste and scheduled caste but was found to be lower in scheduled tribe (Kar BC et al, 1986, 1987 & Balgir RS, 2005). Deshmukh et al, 2006 have also noted the that SCD is not much prevalent in upper castes. Another study in hospitalized patients in state of Maharashtra noted SCD much more in scheduled caste but low in backward castes (Kamble M et al, 2000). In either instances in Orissa backward caste have lower prevalence. But in Chhattisgarh, backward caste have much higher prevalence than other castes. This finding may entail further anthropological studies regarding the spread of various caste and tribal groups within India. Results were also analyzed according to district wise data. The individuals screened came largely from the district of Raipur, Mahasamund, Rajanandgaon, Durg, Bilaspur, Dhamtari. While all other districts differ only slightly from the overall prevalence (23%), the prevalence was found to be highest for Mahasamund (71.27%). We should extrapolate this data to the general population of Mahasamund skeptically as primary source of samples from Mahasamund was by organizing camps. Consequently it was already known to general public that camps were being organized for screening SCD. Thus individual who knew there sickle cell disease status also attended the camp. In this regard this data seems to be an overestimation of prevalence in district of Mahasamund but at the same time it is to be noted that Mahasamund has the highest proportion of OBC (consequently of kurmi and teli) among all the districts. Thus Mahasamund needs to be focused by health planners and studies that can determine exact prevalence of Mahasamund needs to be conducted. Globally highest prevalence is known to be in Africa between latitude 15° North and 20° South. While in some parts of Uganda it is as high as 45% (Aidoo M et al, 2002). Raipur district has the lowest male to female having SCD (830 female per 1000 male) while other districts differ modestly in male to female ratio with males slightly more prone to SCD. Males are more prone to be exposed to known precipitating factors as compared to females (Konotey Ahulu FID, 1974 & Samal GC, 1978). The other reason being the gender bias with better health care facilities available to the male than female. Solubility test had a high sensitivity and specificity (99.73% & 99.06% respectively) and positive and negative predictive value was 97.01% & 99.91% respectively. In earlier study such high sensitivity and specificity was also observed (Surve RR et al, 2000). We propose that it could become a valuable mass screening approach for identification of SCD in resource limited regions of world. We hope that more extensive studies be done to evaluate the exact prevalence of SCD in state of Chhattisgarh. In this regard districtwise survey work of state of Chhattisgarh encompassing the screening of general population is already in progress by the author with the financial support of state government.

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Conflict of interest statement

We declare that we have no proprietary, financial, professional or other personal interest of any nature or kind in any product, services/company that could be construed as influencing the position presented in, or the review of, the manuscript.

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A study of nutritional assessment of the pre-school children in rural area of Kurnool, Andhra Pradesh

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Introduction

Nutrition may be defined as the science of food and its relationship to health. It is concerned primarily with the part played by nutrients in body growth, development and maintenance (WHO. 1971)

Through centuries, food has been recognised as important for human beings in health and disease. Great advances have been made during the past 50 years in knowledge of nutrition and in the practical application of that knowledge. Specific nutritional diseases were identified and technologies developed to control them, as for example, protein energy malnutrition, endemic goitre, nutritional anaemia,nutritional blindness and diarrhoeal diseases.

Significant advances have been made during the past two decades. The association of nutrition with infection, immunity, fertility, maternal and child health and family health have engaged scientific attention.

A few studies also reveal the connection to childhood nutritional background, adolescent growth and work capacity and wages earned by adolescents. Gopalan(1983) pointed out that all growth retardation(apart from these genetically determined or due to hormonal defects) is a reflection of under nutrition. Satyanarayana et.al (1979;1980) in their study found that chronic under nutrition is not an isolated phenomenon. Majority of children from socially and economically backward families had suffered moderate and severe degree of growth retardation.

Unlike better socio-economic environment observed in well to do families in urban areas, majority of socially deprived reveal house-holds consist of families with no land of their own, illiterate mothers and fathers, doing out a living from manual labour or seasonal business.

In the present study therefore a humble effort is made to examine these issues in the context of Urban Health Training Centre (UHTC), which is a field practice area of Santhiram Medical College, Nandyal

Method of study

More specifically the following objectives are framed to examine the above mentioned issues:

To examine the nutritional status of the pre-school children in the area under study.

1) To examine the socio-economic status of the pre-school children and their parents.
2) To examine the nutritional status of the pre-school children with reference to the degree of malnutrition.
3) To analyse the relationship between social background variables like age,sex,size of family, birth order of the child, income of the family and the nutritional status of the child.
4) To examine morbidity status in relation to nutritional status of the children under study.
5) Finally, to examine the immunisation status and the sex differentials.

Universe

The present study is carried out in Nandyal.The pre-school children of four areas which come under the UHTC form the universe of present study. The study was undertaken in Tekke-1,Tekke-2,Saraswathi Nagar and Suddulapeta. The whole universe is covered and sampling techniques are not used.

Tools of data collection

For the purpose of data collection survey method is adopted and an interview schedule is administered to the mothers or fathers. The interview schedule intended to gather such information as socio-economic characteristics, morbidity trends and the immunisation status of the children under study. Appropriate statistical techniques are used to present data.

Assessment of nutritional status

The assessment of nutritional status involves various techniques. The assessment methods include the following:-

1) Clinical examination.
2) Anthropometry.
3) Bio-chemical evaluation.
4) Functional assessment.
5) Assessment of dietary intake.
6) Vital and health statistics.
7) Ecological studies.

Anthropometry

Of the above techniques anthropometry measurements i.e., body measurements are the most widely used means to assess nutritional status. The most commonly used and

simple body measurements are weight and height. Generally using these measurements the following parameters are calculated:

a) Weight for age.
b) Weight for height.
c) Height for age.

The extent of the problem of malnutrition in a community can be assessed by expressing body weight of an individual as percent of standard(normal) weight for that age and grade them according to what is popularly known as Gomez classification,which is as follows-

1) Normal : 90% and above of standard weight for age.
2) Grade I (Mild) : 75-90% of standard weight for age.
3) Grade II (Moderate) : 60-75% of standard weight for age.
4)Grade III (Severe) : <60% of standard weight for age.

Data analysis

In the present study ,the four areas which come under the UHTC comprises as a universe of study.The four areas are Tekke-1,Tekke-2, Saraswathi Nagar and Suddulapeta. Of the total 630 children under study, 115 children belong to Tekke-1, another 115 children belong to Tekke-2,214 children belong to Saraswathi nagar and 186 children belong to Suddulapeta. (Table -1)

Our Analysis reveals that out of 115 children of Tekke-1.58% are having normal nutritional status.21% suffer with mild malnutrition,13% of children suffer with moderate malnutrition,remaining 10% suffer with severe degree of malnutrition.

Out of 115 children of Tekke-2.30% are having normal nutritional status, 45% suffer with mild malnutrition, 19% suffer with moderate malnutrition, remaining 6% suffer with severe degree of malnutrition.

Out of 214 children of saraswathi nagar, 38% are having normal nutritional status, 22% suffer with mild malnutrition, 21% suffer with moderate malnutrition, remaining 19% suffer with severe degree of malnutrition.

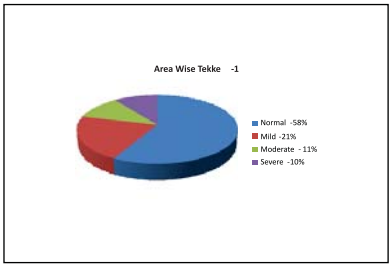
Out of 186 children of Suddulapeta,11% are having normal nutritional status,47% suffer with mild malnutrition, 30% suffer with moderate malnutrition, remaining 12% suffer with severe degree of malnutrition.

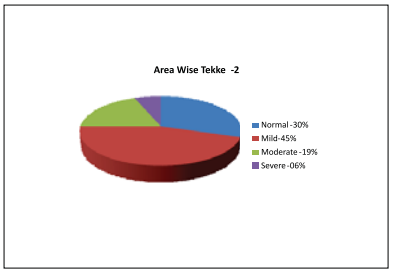
In the present study a humble effort is made to analyse the nutritional status of pre-school children with the variables such as sex, family size, monthly income, birth order, morbidity status and immunisation .

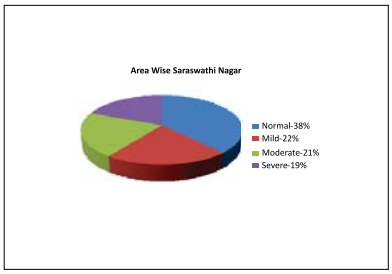
SEX:

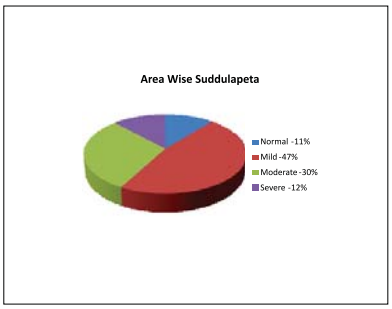
According to the sex wise distribution, out of 630 children, 339 are female and 291 are male.

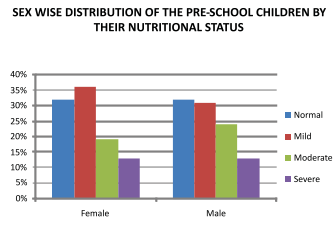
Out of 339 Female, 32% fall under normal nutritional status, 36% fall under mild malnutrition, 19% fall under moderate malnutrition, 13% fall under severe degree of malnutrition. (Table – 2)

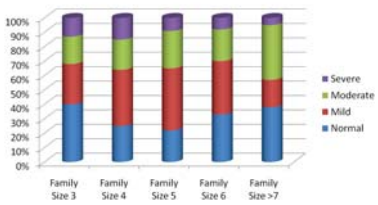












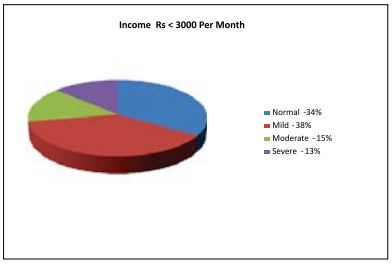
Out of 291 Male, 32% fall under normal nutritional status, 31% fall under mild malnutrition, 24% fall under moderate malnutrition, 13% fall under severe degree of malnutrition.

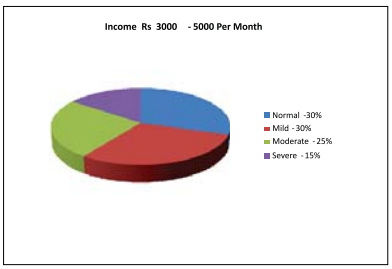
Family Size:

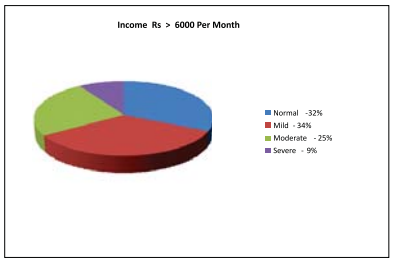
According to family size analysis,630 children are broadly divided into 5 categories,273 children are 3 member family size,195 children are 4 member family size,95 children are 5 member family size,46 children are 6 member family size,21 children are 7 or >7 member family size. (Table -3)

Out of 273 children of 3 member family size,40% of the children belong to normal nutritional status,27% of the children belong to mild malnutrition, 19% of the children belong to moderate malnutrition,14% of the children belong to severe degree of malnutrition.

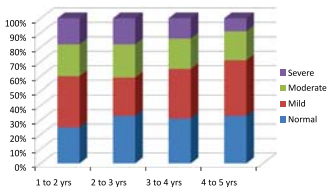
Out of 195 children of 4 member family size,25% of the children belong to normal nutritional status,38% of the children belong to mild malnutrition, 21% of the children belong to moderate malnutrition,16% of the children belong to severe degree of malnutrition.







AGE



Out of 95 children of 5 member family size.

Out of 95 children of 5 member family size, 22% of the children belong to normal nutritional status, 43% of the children belong to mild malnutrition, 26% of the children belong to moderate malnutrition, 9% of the children belong to severe degree of malnutrition.

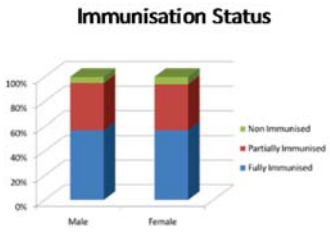
Out of 46 children of 6 member family size, 33% of the children belong to normal nutritional status, 37% of the children belong to mild malnutrition, 22% of the children belong to moderate malnutrition, 8% of the children belong to severe degree of malnutrition.

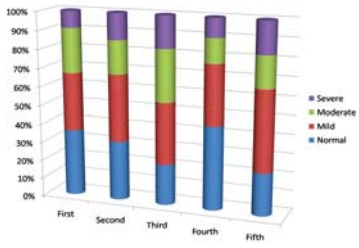
Out of 21 children of 7 or >7 member family size, 38% of the children belong to normal nutritional status, 19% of the children belong to mild malnutrition, 38% of the children belong to moderate malnutrition, 5% of the children belong to severe degree of malnutrition.

Income of the family per month:

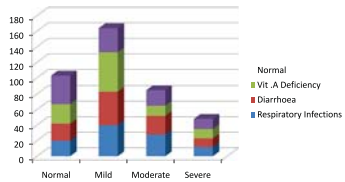
In terms of income of the family per month, the 630 children are placed under 3 categories, 206 children come under Rs.<3000/- per month, 231 children come under Rs.3000-5000/- per month, 193 children come under Rs.>6000/- per month. (Table- 5)

Out of 206 children of Rs.<3000/- family income, 34% of the children come under normal nutritional status, 38% of the children come under mild malnutrition,15% of the children come under moderate malnutrition,13% of the children come under severe degree of malnutrition.





Morbidity Status



Annexure

Table 1:

AREA WISE DISTRIBUTION OF PRE-SCHOOL CHILDREN BY THEIR NUTRIONAL STATUS

S. No	AREA	NUTRITIONAL STATUS				Total
		Normal	Mild	Moderate	Severe	
1	Tekke-1	67	24	13	11	115
		58%	21%	11%	10%	
2	Tekke-2	34	52	22	7	115
		30%	45%	19%	6%	
3	Saraswathi Nagar	81	48	46	39	214
		38%	22%	21%	19%	
4	Suddulapeta	21	88	55	22	186
		11%	47%	30%	12%	

Table 2:

NUTRITIONAL STATUS OF PRE-SCHOOL CHILDREN BASED ON SEX

S.No	SEX	NUTRITIONAL STATUS				TOTAL
		NORMAL	MILD	MODERATE	SEVERE	
1	FEMALE	110	122	66	41	339
		32%	36%	19%	13%	
2	MALE	93	90	70	38	291
		32%	31%	24%	13%	

Obtained Value-$\grave{A}^2_{c=}$ 2.7812 Table Value – at 5% - 7.81 Result - Accepted

Table 3:

NUTRITIONAL STATUS OF PRE-SCHOOL CHILDREN BASED ON FAMILY SIZE

S.No	FAMILY SIZE	NUTRITIONAL STATUS				TOTAL
		NORMAL	MILD	MODERARE	SEVERE	
1	3	110	75	52	36	273
		40%	28%	19%	13%	
2	4	49	75	41	30	195
		25%	39%	21%	15%	
3	5	21	41	25	8	99
		22%	43%	26%	9%	
4	6	15	17	10	4	46
		33%	37%	22%	8%	
5	>7	3	4	8	1	21
		38%	19%	38%	5%	

Obtained Value-$\grave{A}^2_{c=25.02}$ Table Value – at 5% - 28.87 Result - Accepted

Table 4:

NUTRITIONAL STATUS OF PRE-SCHOOL CHILDREN BASED ON INCOME PER MONTH

S.No	INCOME PER MONTH	NUTRITIONAL STATUS				TOTAL
		NORMAL	MILD	MODERATE	SEVERE	
1	<3000	71	78	30	27	206
		34%	38%	15%	13%	
2	3000-5000	70	69	58	34	231
		30%	30%	25%	15%	
3	>6000	62	65	48	18	193
		32%	34%	25%	9%	

Obtained Value-$\grave{A}^2_{c=12.018}$ Table Value – at 5% - 19.68 Result - Accepted

Table 5:

NUTRITIONAL STATUS OF PRE-SCHOOL CHILDREN BASED ON IMMUNISATION STATUS

S.No	SEX	NUTRITIONAL STATUS			TOTAL
		FULLY IMMUNISED	PARTIALLY IMMUNISED	NON-IMMUNISED	
1	FEMALE	194	127	18	339
		57%	37%	6%	
2	MALE	166	110	15	291
		57%	38%	5%	

Obtained Value-$\grave{A}^2_{c=}$ 0.0172 Table Value – at 5% - 11.07 Result – Accepted

Table 6:

NUTRITIONAL STATUS OF PRE-SCHOOL CHILDREN BASED ON BIRTH ORDER

S.No	BIRTH ORDER	NUTRITIONAL STATUS				TOTAL
		NORMAL	MILD	MODERARE	SEVERE	
1	FIRST	89	77	60	22	248
		36%	31%	24%	9%	
2	SECOND	71	80	39	32	222
		32%	36%	18%	14%	
3	THIRD	22	32	28	17	99
		22%	33%	28%	17%	
4	FOURTH	14	10	4	3	31
		45%	32%	13%	10%	
5	FIFTH	7	13	5	5	30
		23%	43%	17%	17%	

Obtained Value-$\grave{A}^2_{c=}$ 19.419 Table Value – at 5% - 30.14 Result – Accepted.

Table 7:

DISTRIBUTION OF THE CHILDREN ON THE BASIS OF THEIR MORBIDITY & NUTRITIONAL STATUS

S.No	MORBIDITY STATUS	NUTRITIONAL STATUS				TOTAL
		NORMAL	MILD	MODERATE	SEVERE	
1	RESPIRATORY INFECTIONS	18	37	26	11	92
		20%	40%	28%	12%	
2	DIARRHOEA	11	22	12	6	51
		22%	43%	24%	11%	
3	VITAMIN A DEFICIENCY	4	8	2	2	16
		25%	50%	13%	12%	
4	NORMAL	170	145	96	60	471
		36%	31%	20%	13%	

Obtained Value-$\grave{A}^2_{c=17.65}$ Table Value – at 5% - 25.00 Result - Accepted

Table 8:

DISTRIBUTION OF THE CHILDREN ON THE BASIS OF THEIR AGE & NUTRITIONAL STATUS

S.No	AGE (Years)	NUTRITIONAL STATUS				TOTAL
		NORMAL	MILD	MODERATE	SEVERE	
1	1 to 2 years	35	50	32	25	142
		25%	35%	22%	18%	
2	2 to 3 years	47	37	33	27	144
		33%	26%	23%	18%	
3	3 to 4 years	46	50	31	20	147
		31%	34%	21%	14%	
4	4 to 5 years	65	75	40	17	197
		33%	38%	20%	9%	

Obtained Value-$\grave{A}^2_{c=}$ 14.23 Table Value – at 5% - 24.996 Result - Accepted

Out of 231 children of Rs. Rs.3000-5000/- family income, 30% of the children come under normal nutritional status,30% of the children come under mild malnutrition, 25% of the children come under moderate malnutrition, 15% of the children come under severe degree of malnutrition.

Out of 193 children of Rs.>6000/- family income, 32% of the children come under normal nutritional status, 34% of the children come under mild malnutrition, 25% of the children come under moderate malnutrition, 9% of the children come under severe degree of malnutrition.

AGE:

According to age dependent nutritional analysis the total 630 children are divided into 4 groups (1-2, 2-3,3-4 and 4-5). (Table – 4)

In 1-2 years age group among the total 142 children, 25% belongs to normal nutritional status, 35% belongs to the mild nutritional status, 22% belongs to moderate nutritional status and 18% belongs to severe nutritional status.

In 2-3 years age group among the total 144 children, 33% belongs to normal nutritional status, 26% belongs to the mild nutritional status, 23% belongs to moderate nutritional status and 18% belongs to severe nutritional status.

In 3-4 years age group among the total 147 children, 31% belongs to normal nutritional status , 34% belongs to the mild nutritional status, 21% belongs to moderate nutritional status and 14% belongs to severe nutritional status.

In 4-5 years age group among the total 197 children, 33% belongs to normal nutritional status, 38% belongs to the mild nutritional status, 20% belongs to moderate nutritional status and 9% belongs to severe nutritional status.

Immunisation status:

According to sex wise distribution based on immunisation status, 630 children are placed under fully immunized, partially immunized and non-immunized. (Table – 6)

Out of 291 male, 57% are fully immunised, 38% are partially immunised, 5% are non-immunised.

Out of 339 female, 57% are fully immunised, 37% are partially immunised, 6% are non-immunised.

Birth Order:

Depending upon the birth order, the 630 children are divided into 5 categories and their nutritional status is assessed, 248 children belong to 1st birth order, 222 children belong to 2nd t birth order, 99 children belong to 3rd t birth order, 31 children belong to 4th t birth order, 30 children belong to 5th birth order. (Table – 7)

Out of 248 children of 1st birth order, 36% of the children belong to normal nutritional status, 31% of the children belong to mild malnutrition. 24% of the children belong to moderate malnutrition, 9% of the children belong to severe degree of malnutrition.

Out of 222 children of 2nd birth order, 32% of the children belong to normal nutritional status,36% of the children belong to mild malnutrition, 18% of the children belong to moderate malnutrition,14% of the children belong to severe degree of malnutrition.

Out of 99 children of 3rd birth order, 22% of the children

Height for Age,pre-schoolchildren,sexes combination.

AGE	Height in cm		
In Years	95%	90%	85%
1+	75.4	71.4	67.4
2+	84.8	80.3	75.9
3+	92.9	88	83.1
4+	99.2	94	88.7
5+	106.4	100.8	95.2
95% Normal	90-95% Mild	85-90% Moderate	< 85% Severe

Weight for Age, Birth to 66 months

BOYS	Weight in Kg		Age in Months	GIRLS Weight in Kg		
90%	75%	60%		90%	75%	60%
2.66	2.21	1.77	0	2.75	2.29	1.83
5.13	4.28	3.42	3	4.96	4.13	3.31
6.77	5.64	4.51	6	6.23	5.19	4.15
7.86	6.55	5.24	9	7.14	5.95	4.76
8.75	7.25	5.75	12	7.75	6.5	5.25
9.5	7.75	6.25	18	8.8	7.4	5.8
10.1	8.4	6.75	24	9.5	7.9	6.3
11.25	9.4	7.5	30	10.25	8.5	6.75
12.4	10.25	8.25	36	11	9.25	7.4
13.4	11.2	8.9	42	12	10	8
14.25	11.75	9.5	48	13	10.75	8.75
15.5	12.9	10.4	54	14.25	11.75	9.4
16.4	13.75	11	60	15.25	12.75	10.25
17.28	14.4	11.52	66	16.74	13.95	11.16
>90% Normal	75-90% Mild	60-75% Moderate	60% Severe			

belong to normal nutritional status, 33% of the children belong to mild malnutrition,28% of the children belong to moderate malnutrition, 17% of the children belong to severe degree of malnutrition.

Out of 31 children of 4th birth order, 45% of the children belong to normal nutritional status, 32% of the children belong to mild malnutrition,13% of the children belong to moderate malnutrition, 10% of the children belong to severe degree of malnutrition.

Out of 30 children of 5th birth order, 23% of the children belong to normal nutritional status, 43% of the children belong to mild malnutrition,17% of the children belong to moderate malnutrition, 17% of the children belong to severe degree of malnutrition.

Morbidity Status:

Based on the analysis of the morbidity status of pre-school children, 630 children are divided into 4 categories and their nutritional status is assessed, 92 children suffering with Respiratory infections, 51 children suffering with Diarrhoea, 16 children suffering with Vitamin. A Deficiency, 471 children are non-infectious. (Table -8)

Out of 92 children with Respiratory infections, 20% of the children belong to normal nutritional status, 40% of the children belong to mild malnutrition. 28% of the children belong to moderate malnutrition 12% of the children belong to severe degree of malnutrition.

Out of 51 children with Diarrhoea, 22% of the children belong to normal nutritional status, 43% of the children belong to mild malnutrition, 24% of the children belong to moderate malnutrition, 11% of the children belong to severe degree of malnutrition.

Out of 16 children with Vitamin. A Deficiency. 25% of the children belong to normal nutritional status, 50% of the children belong to mild malnutrition, 13% of the children belong to moderate malnutrition,12% of the children belong to severe degree of malnutrition.

Out of 471 Non-infectious children, 36% of the children belong to normal nutritional status, 31% of the children belong to mild malnutrition, 20% of the children belong to moderate malnutrition,13% of the children belong to severe degree of malnutrition.

Conclusion

The findings of the present study lead up to arrive at the following conclusions. In our study there is no significant difference based on sexual differences and nutritional status of the preschool children. Whom we study the birth order of the child and the nutritional status; it reveals that the fifth birth order children are suffering with severe degree of malnutrition. It reflects that large family is experiencing low standard of living and ultimately results the severe degree of malnutrition among the pre-school children. The same conclusion arise when we study the income and nutritional status, Rs<3000 and Rs 3000-5000 category children are suffering with severe degree of malnutrition.

Basing on the above conclusions we can able to analyse that the economic status of the parents are very much influencing the standard of living and the quality of life of the family. This ultimately reflects on the nutritional status of the children.

Recommendations

In spite of the humble effort made by the Government to give better nutritional status to the children by distributing nutritious meal through Anganwadi centers, there is a remarkable degree of malnutrition. So basing on our study we can recommend the government to look after about the proper implementation of the program me, and to reach the benefit for the needy one.

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Pseudomonas aeruginosa infection in burn – A case report

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Abstract

The genus Pseudomonas consists of aerobic nonspring. Gram negative bacilli, motile by polar flagella. Members of this genus are mostly saprophytic being found in water, soil or wherever decomposing organic matter is found. A female patient aged about 40 years admitted in burn ward with 40% of total body burn area on 08-10-2009 at 4:30 pm in RIMS Hospital. Surgeon was attended the case and dressing the burn area put antibiotics.

Key words

Ps. aeruginosa, Culture Media, Postmortem repot, Nosocomal Infections.

Introduction

Pseudomonas consists of aerobic nonspring Gram negative bacilli.

Morphology

Pseudomonas is a slender Gram negative bacillus 1.5-3µ × 0.5µ, actively motile by a polar flagellum. It is noncapsulated, though mucoid strains may sometimes occur.

Cultural characteristics

It is an obligate aerobe. Growth occurs at a wide range of temperatures, 5°c to 42°c the optimum being 37°c. It grows well on ordinary media, producing large, opaque, irregular colonies, with a distinctive, musty, mawkish or earthy smell. Iridescent patches with a metallic sheen are seen in cultures on nutrient agar crystals are seen beneath the patches. It grows on Macconkey and DCA media forming nonlactose fermenting colonies. Many strains are haemolytic on blood agar. In broth, it forms a dense turbidity with a surface pellicle. Ps. aeruginosa produces a number of pigments, the best known being pyocyanin and fluorescin. Pyocyanin is a bluish green phonazine pigment soluble in water and chloroform.

Biochemical reactions

Metabolism is Oxidative and not fermentative. Peptone water sugars are unsuitable for detecting acid production, since this is weak and gets neutralized by alkali produced from peptone.

Pathogenicity: Blue pus was known as a surgical entity long before Gessard (1882) isolated Ps. aeruginosa from such cases. The term aeruginosa, meaning verdigris which is bluish green in colour and Pyocyanea being a literal translation of 'blue pus'.

In the community outside the hospital, the commonest infection caused by Ps. aeruginosa, is suppurative otiti, which is chronic though not disabling. In the hospital it may cause localized or generalized infections.

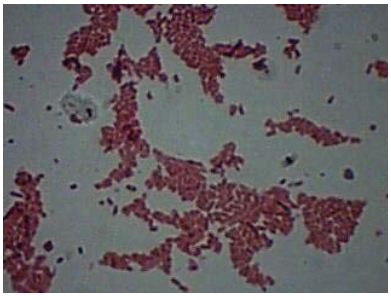
Localized lesions are commonly infections of wounds and bedsores eye infections and urinary tract infections following catheterization. Ps. aeruginosa is the commonest and most serious cause of infection in burns. It is also one of the commonest agents responsible for gastrogenic meningitis, following lumbar puncture.

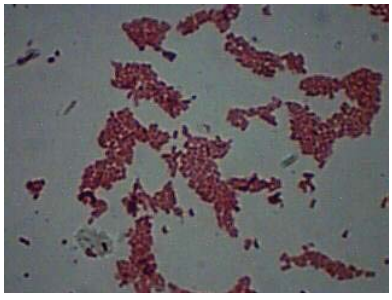
Case History

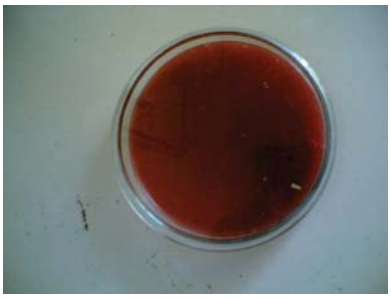
A female patient aged about 40 years admitted in burns ward with 40% total body area burns on 08-10-2009. She was under care of surgeon. Wound dressing is done every day, but she is not responding any type of antibodies.

Medical management:

1. Inj. Amikacin IV/Bid







2. Inj. Taxin 1gm IV/Bid
3. IV Fluids R.N-4 bottles, D.N.S-5 bottles
4. Application of Silverex Ointment Local area.

Investigations

Hb% 10.06g/dl, TLC 18000, P 73%, L 23% E 02, M 02, Platelet clot 300000, Blood urea 40 mg/dl, Serum Creatine 1.1mg/dl, Liver function test 1mg/dl, SGOT 450U/L, SGPT 200U/L, Alkaline Phosphate 150U/L, Total Protein 6.4, Serum albumin 4.2g%, Blood glucose 140mg/dl, Uric acid - Normal, Urine analysis PH - 6.5, Protein 24,.. Cardiac arrest occurred and despite cardiopulmonary resuscitation, the patient died on the morning of 5th day.

Autopsy findings

External findings: Body covered with white cloth, ante mortem dermo -epidermal burn injuries present over the dead body from face, neck, upper limbs, chest & abdomen front and back, both lower limbs except feet. The total surface of burned area is about 40%.

Fig. 36.1 Pseudomonas aeruginosa on nutrient agar

Cause of death: Due to Complications of Burns.

Discussion

In India suicidal burns injury cases are very common. A female patient aged about 40 years admitted in burns ward with 40% total body area burns on 08-10-2009. She was under care of surgeon. Wound dressing is done every day, but she is not responding any type of antibodies. Cardiac arrest occurred and despite cardiopulmonary resuscitation, the patient died on the morning of 5th day due to complications of burns.

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Immediate reattachment of fractured tooth segment – A case report

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Abstract

Trauma to the anterior teeth is relatively common among children and teenagers. Crown fracture of maxillary anterior teeth is frequent dental injuries for which patients seek immediate dental treatment. This case report presents one of the best methods used for reattachment, which is an ultraconservative technique. It allows the restoration of original tooth contour, colour and aesthetics.

Key words

Fracture, Trauma Fragment reattachment, Resin Composite

Introduction

The maxillary central incisors are the teeth most susceptible to fractures caused by direct trauma such as contact sports, road accidents and falls. Aesthetic rehabilitation of crown fractures of the maxillary anterior is one of the greatest challenges to the dentist. The present generation is very conscious about their appearance and demand for immediate treatment and aesthetic rehabilitation. The conventional approach for rehabilitation of fractured anterior teeth include composite restoration, post supported prosthetic restoration and in some cases extraction and fixed prosthetics[1]. With the introduction of technologically improved composite resins especially dual cured resins and dentin bonding agents, innovative techniques to treat fractured teeth has evolved.

The introduction of composite in combination with the use of acid-etch technique to bond composite to enamel, made restoration possible for the fractured incisor, with little or no additional tooth preparation[2,14]

Reattachment of fragment may offer following advantages

1. Better aesthetics, as shade match and translucency will be perfect.
2. Incisal edge will wear at a rate similar to that of the adjacent teeth.
3. Replacement of fractured portion may be less time consuming than needed for completion of a provisional restoration.
4. A positive emotional and social response from the patient for preservation of natural tooth structure[8].

Reattachment of dental fragment has become possible due to the improvement of adhesive technique and restorative materials. The possibility of dentin hybridization allows successful performance of dentinal treatment previously difficult by means of conventional techniques[4]. The purpose of this article is to discuss the considerations for dental fragment reattachment technique and to present a clinical case report of fracture involving enamel and dentin.

Case Report

An 18year old female patient reported to the Department of Conservative and Endodontic Dentistry, Babu Banarsi Das Dental College and Hospital, Lucknow, following trauma to maxillary central incisors. Trauma had occurred due to fall on stairs 2 hours ago. The patient brought broken crown fragment along with her which was stored in a plastic bottle containing milk.

Examination revealed that the teeth had horizontal fracture involving enamel and dentin (Fig a). Fractured portion of the teeth was intact (Fig b) and both the central incisor teeth tested positive to the electric pulp test. No mobility of the injured teeth was recorded and surrounding tissues were healthy. The periapical radiograph showed no root fracture or extrusion. The teeth fragment was maintained in normal saline during whole period prior to restoration.

Cotton rolls were placed and glass ionomer cement base was given covering the exposed dentine, excess cement was carefully trimmed, so as not to touch the margins of the fracture line, in an attempt to obtain an adequate seating of the fragment to the tooth remnant. With the edge of a No.35 inverted cone bur, a circumferential V - shaped notch was placed internally in the enamel of the teeth fragments and the teeth.

Phosphoric acid gel (37.5%) was applied to the enamel on the fragment and the teeth for 20 seconds, limited to 2 mm beyond the fracture margin. Air-water spray was used to remove the acid and the surface was air dried taking care to keep the dentin slightly wet Prime and bond adhesive system was applied to the conditioned areas. A small increment of resin composite was applied to the tooth fragment which was then reattached to its proper position. Visible light polymerization was done for 45 seconds while fragment was kept in position under pressure. The teeth were polished with polishing discs (Fig c). Occlusion was checked and post operative instructions to the patient were given.

Clinical and radiographic examination were carried out after 1 month, 3 months and 6 months. Teeth responded positively to the electric pulp tester and the radiographs

Fig a Fractured tooth

Fig b Fractured tooth segment

Fig c After reattachment

Fig D IOPA of the patient

showed no periapical changes.

Discussion

Reattachment of intact coronal fragment is an economical and less time consuming procedure. The dentist plays an important role in the management of injured cases and so he has to take into consideration every possibility of saving a tooth that has received trauma. The reattached tooth is restored to its original form, contour and margins and tends to be more compatible with the gingiva[10]. The psychological trauma caused to the individual due to the loss of aesthetics can be managed by this procedure successfully. When a tooth has not sustained a luxation injury, this technique should be considered.

The remarkable advancement of adhesive systems and resin composites has made reattachment of tooth fragments a procedure that is no longer a provisional restoration, but rather a restorative treatment offering a favorable prognosis. However, this technique can be used only when the intact tooth fragment is available[15].

The use of natural tooth substance clearly eliminated problems of differential wear of restorative material, unmatched shades and difficulty of contour and texture reproduction associated with other restorative techniques[6].

Conclusion

Reattachment of the intact fractured segment can be considered as an ultraconservative method for aesthetic rehabilitation. This procedure helps us to preserve maximal natural tooth structure. The superior quality adhesive materials make this procedure viable. The need of the day is to educate the population to preserve the fractured segment and seek immediate dental treatment.

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Intestinal myiasis by sarcophaga larvae coexisting with giardiasis - A case & report

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Abstract

Intestinal myiasis occurs when fly eggs or larvae that were previously deposited in food are ingested and survive in the gastrointestinal tract. Some infested patients are asymptomatic; others have abdominal pain, vomiting, and diarrhea. This is a case of 36 year old male farmer who presented with history of passage of worms in his stools. The patient also reported mild pain in abdomen, regular constipation and passage of flatus since last 15 years. These complaints had increased since last 3 months. On examining his multiple stool specimens plenty of cysts of Giardia intestinalis were seen. The larvae which were seen in this case were examined, and they were identified as larvae of "Sarcophaga spp. "The patient probably ingested larvae of the fly by contaminated water or raw vegetables or fruits from his own farm. The present case report highlights the possibility that worms or larvae in stool can be of flies and these should be closely examined in case of such complaints. Though cases of intestinal myiasis are rare, these cases keep occuring in developing countries like India.

Key words

Intestinal Myiasis, Sarcophaga, Giardiasis

Introduction

Human myiasis is the invasion of tissues of human by the larvae of Diptera (true flies). It occurs worldwide, but more often in hot and humid climates. Species causing myiasis can be obligate, facultative, or accidental. Myiasis can be classified depending on the condition of involved tissue into: accidental myiasis when larvae ingested along with food produce infection, semispecific myiasis where larvae are laid on necrotic tissue in wounds, and obligatory myiasis in which larvae affect undamaged skin[1]. Clinically, myiasis may be classified as cutaneous, atrial, wound, intestinal, or urinary, depending on the location of the fly larvae[2].

Intestinal myiasis in humans is probably an accidental myiasis related to ingestion of contaminated uncooked food or water containing fly larvae[3]. Most larvae are destroyed by the digestive juice, but some are able to live in the intestinal tract and produce intestinal distress. Moreover, the larvae can also exceptionally reach the intestinal tract through the anus (rectal myiasis)[4]. In urban areas of developed countries cases of intestinal myiasis are rare[5]; most have occurred in countries where nutritional and sanitary conditions are unsatisfactory.

In this paper we report a case of intestinal myiasis coexisting with Giardia intestinalis.

Case report

A 36 year old male, farmer by occupation, presented with history of passage of worms in his stools since last 3 months. The patient reported of having intermittent mild pain in abdomen and regular constipation and passage of flatus since last 15 years. These complaints had increased since last 3 months especially pain in abdomen. There was no history of diarrhea, malena or mucus in stool. There was also history of 3 Kg weight loss in past 3 months. He had taken many deworming treatment like albendazole, mebendazole, ivermectin etc from practitioners, but without any cure. His clinical examination was essentially within normal limits, but he was very apprehensive because of passing 5-6 worms per stool. He was asked to bring fresh stool with worms.

The worms in the stool appeared to be maggots of some fly, direct microscopy of the fecal sample revealed cysts of Giardia intestinalis in plenty.

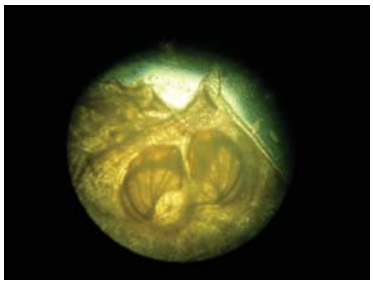
Macroscopic examination revealed 12 - 15 mm worm like structures which showed sluggish movement. In appearance they resembled fly larvae. The anterior end revealed the presence of a couple of black hooks. The larvae was fixed in 10% formalin for 24 hrs, dehydrated in ascending grades of alcohol, cleared in xylene to clear the internal structures and identification. Main identifying features were the presence of smooth posterior and characteristic spiracles at the end. These spiracles were present within the cavity and were surrounded by an incomplete peritreme. Slits of the hind spiracles were straight and were not pointing toward opening in peritreme. Thus finally it was diagnosed as third stage larvae of Sarcophaga species[6].

Discussion

Two genera of importance causing myiasis in family Sarcophagidae are Sarcophaga and Wohlfahrtia. These are commonly known as flesh flies. Females are larviparous, which deposit first instar larvae rather than eggs. As a group, these occur throughout most areas of the world although species distribution varies. Adult flies do not bite

Fig 1. Macroscopic appearance of maggot of *Sarcophaga sp.*

Fig 2. Microscopic appearance of posterior spiracles of the *Sarcophaga* seen under 40x



but feed on a wide range of liquid substances. They breed in excrement, decaying vegetable matter and animal flesh or meat.

When the literature was reviewed, it was seen that Sarcophaga can cause nasal, oral, wound and urogenital myiasis[1,7,8,9]. Few cases causing intestinal myiasis in humans are also reported[10,11].

In our patient we tried to find out the source of the infection, but could not reach to a definite conclusion. Initially for suspection of contamination by fly feces the patient stool sample was asked again which still showed the same larvae. On further enquiring, patient told that he has the habit of eating raw vegetables and fruits directly from his farms without proper washing. Possibly these unwashed fruits and vegetables were the source. Therefore the patient was advised to eat only properly washed fruits and vegetables. He was also advised to drink boiled or filtered water and keep good hand hygiene. For giardiasis patient was advised nitazoxanide PO 500 mg every 12 h with food for 5 days. Patient responded to the treatment and is presently asymptomatic. His repeated stools do not show any cyst of giardia and is now not passing any maggots in the stool.

Most of the cases of intestinal myiasis are benign or even asymptomatic. The case may be severe depending on the number and species of fly larvae. The patient may suffer from harsh abdominal pain as was seen in our case. These symptoms were proven in human volunteers who were given larvae of Calliphora and Musca domestica in gelatin capsules under experimental conditions, they experienced nausea, vomiting cramps and diarrhea for 48 h. Haemorragic gastritis catarrh has also been reported by Morikawa in 83 % of rats which were given Sarcophaga perigrina[10].

So these symptoms may be related to the progress of flesh fly larvae down in the intestinal tract. The injury done to the host is generally due to scratching of the walls of the intestines by the powerful buccal hooks of the larvae[12]. Occasionally, the larvae may mature in the folds of the intestinal wall and may cause ulcerative lesions[11]. It seems that the patient in our case is a chronic case of giardiasis and his symptoms were aggravated because of coinfection with Sarcophaga.

The present case report therefore highlights the possibility that worms or larvae in stool can be of flies and these should be closely examined in case of such complaints.

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Morbidity patterns among school students in east Delhi

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Abstract

Background

The health of the school children in adolescence period has a lot of implications for health problems in adults. Among all the observed morbidities it was seen that malnutrition is the most common one. Reported morbidities were malnutrition, dental ailments, worm infestation, skin disease, eye diseases, anemia and respiratory infections. 9th&10th class school students are on the threshold of adulthood. In Delhi there are very few studies which have been conducted among 9th&10th students to assess their health status in a comprehensive manner and to screen and advise the needful.

Objectives

To study the pattern of the current morbidities and to find out the relationship between various socio-demographic variables of the students and health status.

Methodology

Cross-sectional examination 9 and 10 class students in East Delhi schools from November 2006 to December 2007. The sample size was 400.

Results

Majority of the students were in the age group of 14/15 which was around 79%. In this study most common current morbidity was found respiratory infection (61.5%), others included fever (25.2%), pain abdomen (16.5%), conjunctivitis (14.2%) and toothache (7%). Refractive error was seen among 20% of students. In hemoglobin estimation 14.5% girls were severe anemic. Current morbidity was significantly associated with age, gender, religion and type of family.

Conclusion

The health status of the 9th and 10th class students of our study were consistent with those seen among the adolescents around the world.

Key words

morbidity, school students, health status, Delhi

Introduction

Ottawa charter (1986) recognizes that "Health is created and lived by people within the settings of their everyday life, where they learn, work, play and love". Health is created by caring for oneself and others, by being able to make decisions and have control over one's life circumstances and by ensuring that the society one lives in creates conditions that allow the attainment of health by all its members[1]. The health of its children is a nation's biggest asset. The World Health Organization's expert committee on school health services noted as long ago as 1950 that to learn effectively children need good health[2]. Fostering good health is equally important to help student's lead socially and economically productive lives in the future. Health-promoting schools build a safe and a healthy psychosocial environment by promoting the involvement of parents and community[3]. According to 2001 census 25-28% of the population of India comprises of school children[4]. The emphasis given on health care for children in India is evident from the fact that this has been clearly spelt out as a priority item in the National Health Policy and also in a separate declaration of National Policy for children[5]. Among all the observed morbidities it is seen that malnutrition is the most common one. Reported morbidities are malnutrition in 52-57%, dental ailments 22-27%, worm infestation 30-46%, skin disease 5-10%, eye diseases 2-4%, anemia 40-57% and respiratory infections 2.1%-17%. Other diseases like tonsillitis, lymphadenopathy, heart disease, asthma and minor injury are also seen[6,7]. Other than this, significantly, a greater number of the problems, diseases and inadequacies of adult mankind do not appear suddenly; rather they come about gradually, having been established during the early school years. This is to say that obesity, coronary thrombosis, ulcers, backaches, gastrointestinal pain, hypertension, chronic fatigue and the neurotic and psychotic behaviors related to feeling of anxiety, apprehension, fear, worry, hatred and jealousy are all tied ultimately to a pattern of living. It is this pattern of living which is favourably influenced when values are formed early in life, that is in school[8]. Adolescent children also acquire some habits like smoking, drinking alcohol and having 'pan'. Studies have shown that 20-35% of school children smoke cigarettes[9,10].

So it shows that there is a lot of morbidity and other problems present among school children and in this field various studies have been done but most of them were in

the primary school students. Keeping in view of these lacunae, this study is being carried out to know the health status of the students of 9-10 class. The specific objectives were to study the pattern of the current morbidities among the study subjects and to find out the relationship between various socio-demographic variables of the students and their health status.

Methodology

A cross-sectional study of 9 and 10 class school students in certain Government schools in East Delhi was conducted from November 2006 to December 2007.

Sample size

Of all morbidities malnutrition has been the commonest reported morbidity. Most of the studies have reported prevalence of malnutrition to be 50% or more. So in this study prevalence was assumed to be 50%. Allowing a relative error of 10% and for a confidence interval of 95%, using the Epi Info 2000 software, the estimated minimum sample size was 384[11].

Sampling procedure

All the government schools of East Delhi were included in the sampling frame for the study. Randomly two schools from the list of boys' school and two schools from the list of girls' school were selected, using tables of random numbers. Then 100 subjects were chosen from each selected school. Further 50 students each from class 9&10 were randomly chosen. For getting the total 50 subjects from each class, randomly a section was taken, and then in case 50 students were not obtained from one section, for rest of the subjects, another section was taken. A repeat visit was made for the absent students. All students in the selected classes, present on the day of the survey, were eligible to participate, allowing for anonymous and voluntary participation. The exclusion criteria were students of the class absent on the day of data collection and students who may refuse to participate in the study.

Data collection

The Principals of the identified schools were contacted. They were informed about the purpose of the study, and apprised of the fact that anonymity and confidentiality of the respondents will be maintained in the study. A written permission and consent from the principals was obtained prior to conducting the study in school. The tools of data collection were administered by the investigator. All the students were personally interviewed by the investigator. A pretested, semi-open ended questionnaire was used to

Table 1: Prevalence of various current morbidities in percentage.

Current morbidities	Percentage
Acute respiratory infection	61.5
Headache	31.5
Fever	25.2
Toothache	16.7
Pain abdomen	16.5
Conjunctivitis	14.2
Vomiting	5.5
Earache	4
Diarrhea	3.7
Others	11.7

Table 2: Association of current morbidities with selected socio demographic variables

	N(%)having some current morbidity	P value	Odds ratio	95% CI
Gender (n)				
Male (200)	157(78.5)	0.632	1.12	0.68-1.84
Female (200)	153(76.5)			
Age (n)				
d" 14(197)	152(76)	0.872	0.96	0.59-1.58
e" 15(203)	158(79)			
Religion(n)				
Hindu (350)	270(77.1)	0.651	0.84	0.38-1.85
Others (50)	40(80)			
Caste (n)				
General(254)	192(75.6)	0.228	0.73	0.43-1.25
Others (146)	118(80.8)			
Type of family(n)				
Nuclear (316)	238(75.3)	0.043	0.51	0.79-0.98
Joint (84)	72(85.7)			
Family size(n)				
3-5(186)	138(74.2)	0.140	0.70	0.43-1.15
e" 6(214)	172(80.4)			

Here in table 3 was also seen that malnourishment of the students was statistically significant ($p<0.05$) in relation with class, gender, age and caste of the study population.

elicit the responses. Information was collected about demographic data and self reported morbidities. Also Comprehensive clinical examination and hemoglobin estimation of willing cases were done.

In this study addiction was defined if the subjects were exposing to any type of addiction chewing tobacco, pan, smoking, and consuming alcohol in last 7 days irrespective of past history. Also in case of nutritional status the study subjects were categorized as having under nutrition if the BMI was less than 18 kg/m^2 and overweight if BMI was greater than 23 kg/m^2.

Results

The maximum numbers of students were in the age group of 14 and 15 which was around 79%. 87.5% of the students were Hindus where only 10.5% were Muslims. The maximum numbers of the students were from nuclear family (79%). In term of caste distribution maximum study population was general (63.5%). OBC, SC and ST were 10.5%, 25.5% and 0.5% respectively.

In regard to father's education, 35% had completed intermediate, graduation or post graduation. 34.5% had completed high school education, where as only 7% of subject fathers were illiterate. Among subject mothers 15% were illiterate, 33.4% had completed up to higher secondary school education. 8.7% had done Graduation or post graduation. Regarding father occupation most of them semiskilled worker (30.7%). 28.7% were skilled worker or shop owners. 3% of fathers were unemployed or retired. Among mothers 94.5% were house wife and only 5.5% were working.

The current morbidities in last 30 days was enumerated which is being depicted in [table 1]. A student could have reported more than one condition, so total percentage of the morbidity response was more than 100%. The prevalence of overall current morbidities in last 30 days among the study population was 77.5%. There was no gender based difference in distribution of disease. Among all the morbidities most commonly seen were respiratory tract infections (61.5%). The next common incidence after respiratory infection was headache (31.5%), few reported migraine also. Then the next disease which were commonly seen among the study population were fever (25.2%), pain abdomen (16.5%), conjunctivitis (14.2%), vomiting (5.5%), toothache (7%), earache (4%) and others (11.7%), like fracture, scabies, blepheritis, dyspnoea, myelgia, nausea, tonsillitis, drug allergy, constipation and gastritis.

In this study, it was seen that among the boys most common addiction was chewing tobacco (21%) and 13.3% girls also reported the same habits. Prevalence of smoking and alcohol consumption among boys was 11.5% and 0.5% respectively where as none of the girls reported smoking or alcohol consumption.

53% of the study population was having under nutrition and 0.8% had over weight. The number of girls reporting under nutrition was 62%.

In general physical examination most commonly seen was cervical lymphadenopathy (LAP) which was around 16.5%. Next most common was pallor (16.3%) and it was more prevalent among girls (23%). Others like enlarged tonsil (5.3%), icterus 1.5% and raised temperature was seen.

Table 3: Association of malnutrition with selected socio demographic variables.

Socio demographic variables Normal (%)	Malnourished (%)	P value	Odds ratio	95% CI
Class (n)				
IX(200) X(200)	145(72.5) 70(35)	0.000	0.20	0.13-0.32
Gender (n)				
Male (200) Female (200)	89(44.5) 126(63)	0.000	2.12	1.40-3.23
Age (n)				
d" 14(197) e" 15(203)	122(61.9) 93(45.8)	0.001	0.52	0.34-0.79
Religion(n)				
Hindu (350) Others (50)	193(55.1) 22(10.8)	0.139	0.64	0.34-1.21
Caste (n)				
General(254) Others (146)	150(59.0) 65(44.5)	0.005	0.56	0..36-0.86
Type of family(n)				
Nuclear (316) Joint (84)	163(51.5) 52(61.9)	0.092	1.53	0.91-2.57
Family size(n)				
3-5(186) e" 6(214)	93(50) 122(57.0)	0.161	1.33	0.88-2.01

Among all the vitamin deficiency most commonly seen was vitamin C deficiency (20.8%). Others sign like conjunctival xerosis (1%), Bitot's spot (0.25%), angular stomatitis (1%), Cheliosis (0.25%) and dermatitis 0.5% were also seen. Among 1.25% students rhonchi was found, murmur was found only in 0.75%, enlarged liver (0.75%), skeletal deformity 0.75% and neurological deficiency was seen among 0.75% only. Among 3 students murmur was found, but only 1 student was diagnosed previously.

Refractive error was seen 16% and 27% respectively among males and females. 22% of the study population had some psychological problem, among which 15.75% were having evidence of stress and 6.25% had severe problem.

The association of current morbidity with types of family was statistically significant ($p< 0.05$) in table 2.

In case of hemoglobin estimation among anemic students by physical examination severe anemia was seen in 14.5% of the girl respondents. Moderate and mild anemia was found in both the sexes. The distribution was 60% and 25.5% respectively.

Discussion

The overall burden of disease among young people is not well understood, either globally or at the country level in many nations. Nutritional problem have been the focus of many research and intervention studies. No other study that comprehensively covered health status had been undertaken in this specific class. In this study distribution of religion, caste, type of family and caste is consistent with existing population distribution in Delhi.

In our study in case illness was present in last 30 days, the most common morbidity was respiratory infection (61.5%), and this was prevalent in both boys and girls. No study was found in Delhi in the specific age group, but Gupta et al reported in their study in Rajasthan, that prevalence of respiratory morbidity among the age group 10-17 was around 36%, which is half figure found in our study[12]. It is well known that current morbidities are dependent on seasonal variations. Ananthakrishnan et al mentioned among the school age children up to 15 years in Kedar village prevalence of Fever as 67.7%, Respiratory infection 28.6%, Headache 17.3%, Abdominal pain 20.6%, Diarrhea 7%, Toothache 2% and Earache 2%[8]. So the finding of our study is consistent with the study quoted above.

In the present study under nutrition found among 53% of the study population, among which 44% was male. Only among 0.8% students overweight was observed. Panda et al showed among the 12-16 year age school students in Ludhiana city the prevalence of wasting was 44.5%, among which 17.8% were severe and 29% around moderate, with 24% being stunted[13]. So our study also is showing very close result.

K.Jayant et al in one of the study in Bombay showed that the prevalence of tobacco use among the high school boys was 12.8%, where as among girls the prevalence was only 1.1%[14]. but here in our study the prevalence is high, one reason can be it was 10 year back study, so day by day prevalence is increasing, another there may be different the prevalence between two metropolitan city.

Recommendations

The health status of the 9th and 10th class students of our study were consistent with those seen among the adolescents around the world. The present health status of the study population has the potential possibility of leading to increased health problems for this vulnerable population, in future. Considering the large number of adolescents in our country, the study thus evokes an urgent need to stimulate an action to identify those at risk and those who need treatment and prevention of progression of the health risk behaviours, among the adolescents especially this age group.

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Assessment of quality maternity care in urban slums of Agra: A population based study

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Abstract

Background

The maternal & child health services in India have been initiated strengthened and expanded over the years and are still underutilized.

Objective

To know the level of quality maternity care in urban slums of Agra.

Study design

Cross-sectional community based.

Setting

Urban slums of district Agra.

Participants

Married women aged 15-49 years, who had delivered a child during last one year interviewed at home.

Statistical analysis

Software like Systat-12 for analysis and tests of significance like chi- square test were utilized.

Results

Only 16.1% of women had 3 or more ANC visits and 3.6% had their first visit during first trimester. The antenatal check-ups influenced with the educational level of mothers ($p<0.001$). 44.4% of women received postnatal care, in spite of that 73.3% of delivery conducted by a trained health staff. Only 2.5% of women received three post-natal visits. Only one quarter of women (27.8%) received a health check-up in the first 24 hours after birth and 39.7% received a health check-up within the critical first week after delivery. The likelihood of a birth being followed by a postnatal check-up at all and within week increases with the educational level of mothers ($p<0.001$).

Keywords

Maternal care, Antenatal care, Post-natal care, Male involvement Millennium Development Goals.

Introduction

Although the decline in maternal mortality is impressive but still a lot would need to be done to achieve the time bound target of 100 maternal deaths per lakh of life births by 2012[1]. Most maternal deaths can be prevented if women have access to basic medical care during pregnancy, childbirth and postpartum period[2]. In India, these services are provided through the network of health centers in out-patient clinics, as well as through home visits by health workers[3]. However utilization of these services by the target population continues to be poor[4]. The present study was done to assess the quality in maternity care in urban slums in Agra.

Material and methods

Present study was conducted in Agra, a district of U.P. state, India, during 2003, a city of Taj Mahal, which was made by Emperor Shajahan in memory of his wife Mumtaj Mahal,who died during postpartum period. In randomly selected urban slums, those households were listed in which females had delivered babies with in the past one year.

On the basis of Rapid Household Survey-RCH Project Phase-II, 1999, Antenatal coverage of Agra urban was taken as indicator for calculating the sample size. Taking 95% confidence limit with 10% precision and 20% non response rate, a sample of 360 women were interviewed on a pre-tested structured schedule for eliciting the study information. Non response rate was zero.

A pilot study was carried out and necessary modifications were done in schedule before starting the study.

The information collected and analyzed with the help of Systat-12 software. The study was conducted in the selected slums of district Agra; hence the results cannot be generalized for the entire state/ country.

Results

Profile of respondents

The mean age of females in the study group was 30.10 years (± 5.65) .Majority of women (69.70%) were in the age grouped 20 to 29 years. Literacy status revealed 41.3% illiterate and only 12.8% were having a schooling of 10 years or more. More than half (58.89%) of the respondents belonged to nuclear families. Majority of women (88.37%)

were housewives. All the families were found to be in the lower socio-economic class.

Maternal care

Table-1 stated the maternal care utilization by the women. Antenatal care was received by 65% of women. Only 44.4% of women received postnatal care, in spite of 73.3% of delivery conducted by a trained health staff.

Number and timing of antenatal care visits

The number of antenatal care visits and the timing of the first visit are important for the health of the mother and the outcome of the pregnancy. The World Health Organization recommends that all pregnant women should have at least four antenatal care (ANC) assessments by or under the supervision of a skilled attendant (W.H.O., 2006)[5]. These assessments should be spaced at regular intervals throughout pregnancy, commencing as early as possible in the first trimester. Table-2 reveals that only 16.1% of women had 3 or more antenatal visits. The antenatal visits were substantially influenced (p< .001) by level of education.

Regarding timing of first antenatal visit (Table-3), most (31.9%) of women had their first ANC visit in the second trimester.

Male involvement in antenatal care

The Reproductive and Child Health Programme in India envisages the involvement of men in women's reproductive health. Health workers are supposed to provide expectant fathers with information on several aspects of maternal and child care during their contacts with expectant fathers.

Table-4 presents information on men's involvement during maternal care It was observed that only 18.33% of husbands were present during antenatal checkups. 32.5% of men did provide help in house hold work during pregnancy, while most of women (67.5%) did not get any help in house works from husband.

Postnatal care

Post-natal care package is important for prevention of maternal mortality and morbidity in both mother and the newborn. Researchers have shown that more than 50% of maternal deaths take place during postpartum period. Conventionally, the 42 days (6 weeks) after delivery are taken as the postpartum period. Of this, it is the first 48 hours, followed by the first one week, which is the most crucial period for the health and survival of both the mother and her new born, as most of the fatal and near-fatal maternal and neonatal complications occur during this period. Unfortunately, post-natal care is a neglected component of maternal health services. Surveys have shown that only 1 in 6 women receive any form of post-natal care. Out of these most of the women not provided the complete package of post-natal care[6].

To assess the extent of postnatal care check-ups, respondents were asked for the last birth in past one year preceding the survey whether they received a health check after the delivery, the timing of the first check, and the type of health provider. This information is presented by background characteristics in Table-5.

By religion, births to Hindu women are more likely to be followed by a postnatal check-up and births to Muslim women are less likely to be followed by a postnatal check-up.35.83% received one post-natal visit, 5.83% received two post-natal visits and only 2.51% of women received

Table 1: Utilization of Maternal Health Services* by the study population

Period	Utilized	Not utilized	Total
Antenatal	234 (65%)	126 (35.01%)	360
Natal	264 (73.33%)	96 (26.66%)	360
Postnatal	159 (44.16%)	201 (55.83%)	360

*A women who had received at minimum one antenatal visit, had her delivery conducted by a trained personnel and at least one postnatal visit said to have utilized maternal health service.

Table 2: Demographic Characteristics of the women in relation to number of Antenatal care.

Characteristics	No Antenatal visitN (%)	Number of Antenatal visits		TotalN (%)	P value
		1-2visits N (%)	Three visitsN (%)		
Religion					
Hindu	90 (71.4)	148 (84.1)	54 (93.1)	292(81.1)	**P < 0.05**
Muslim	36 (28.6)	28 (15.9)	4 (6.9)	68(18.9)	
Education					
Illiterate	86 (68.3)	49 (27.8)	14 (24.1)	149(41.4)	
<10	35 (27.8)	103 (58.5)	28 (48.3)	166(46.1)	**P <0.001**
10 or 10 +	5 (3.9)	24 (3.6)	16 (27.6)	45 (12.5)	
Age group (years)					
15-19	5(3.9)	3 (1.7)	2 (3.5)	10 (2.8)	
20-39	117 (92.9)	171 (97.2)	56 (96.6)	344 (95.6)	**P >0.05**
40-49	4 (3.2)	2 (1.1)	0 (0)	6(1.7)	
Total	**126 (35.0)**	**176 (48.9)**	**58 (16.1)**	**360(100)**	

three post-natal visits (Table-5). There a significant association between education level and the extent of utilization of postnatal care is seen (^{22}=114.1, P <0.001).

Timing of first postnatal check-up

Regarding timing of first post-partum visit only one quarter of women (27.8%) received a health check-up in the first 24 hours after birth and 39.72% received it with in one week of delivery and 4.44% of women received after one week of delivery (Table-5). The likelihood of a birth being followed by a postnatal check-up at all and within week increases with the educational level of mothers (X^2=130.02, P<0.001).

Table 3: Demographic Characteristics of the women in relation to timing of first Antenatal visit.

Characteristics	No antenatal visit	Timing of first Antenatal visit.			TotalN (%)	P value
		1st Trimester	2nd Trimester	3rd Trimester		
Religion						
Hindu	90 (71.4)	10 (76.9)	95 (82.6)	97 (91.5)	292(81.1)	**P <0.05**
Muslim	36 (28.6)	3 (23.1)	20(17.4)	9(8.5)	68 (18.9)	
Education						
Illiterate	86 (68.3)	1 (7.7)	35 (30.4)	28 (26.4)	149(41.4)	
<10	35 (27.8)	3(23.1)	62(53.9)	66(62.3)	166(46.1)	**P <0.001**
10 or 10 +	5 (3.9)	9(69.2)	25 (21.7)	6(5.7)	45 (12.5)	
Age group (years)						
15-19	5 (3.9)	1(7.7)	3(2.6)	1(0.9)	10 (2.8)	
20-39	117 (92.9)	12(92.3)	111 (96.5)	104 (98.1)	344(95.6)	**P >0.05**
40-49	4 (3.2)	0(0)	1(0.9)	1(0.9)	6 (1.7)	
Total	**126 (35.0)**	**13 (3.6)**	**115 (31.9)**	**106 (29.4)**	**360(100)**	

Table 4: Involvement of husband in maternal care.

Type of activity	Response N=360		Reasons for not involving in maternal care				TotalN
	Yes%	No%		Didn't feel need%	Lack of time%	Denial of permission%	
Accompany her to antenatal visits	18. 3	81.7		24.2	72.5	3.4	**294**
Helping her in house hold work	32.5	67.5		23.6	41.7	2.2	**243**
Be with her in decisions regarding delivery	28.3	71.4		56.42	26.1	17.5	**257**
Be with her during delivery	87.5	12.5		11.11	88.89	-	**45**

Table 5: Demographic Characteristics of the women in relation to number of postnatal care.

Characteristics	Post natal care not usedN (%)	Post natal care used			TotalN (%)	P value
		One visit N (%)	Two visits N (%)	Three visits N (%)		
Religion						**X^2=0.70**
Hindu	162(80.6)	104(80.6)	18(85.7)	8(88.8)	292(81.1)	**df=3**
Muslim	39 (19.4)	25 (19.4)	3 (14.3)	1 (11.1)	68(18.9)	**P > 0.05**
Education						
Illiterate	127(63.2)	21(16.3)	1(4.8)	0	149(41.4)	**X^2=210.9**
<10	73 (36.3)	81(62.8)	3(14.3)	1(11.1)	166(46.1)	**df=6**
10 or 10 +	1 (0.5)	19(14.7)	17(80.9)	8(88.8)	45 (12.5)	**P <0.001**
Age group (years)						
15-19	1 (0.5)	3(2.3)	5(23.8)	1(11.1)	10 (2.8)	**X^2=40.22**
20-39	196(97.5)	124(96.1)	16(76.2)	8(88.8)	344(95.6)	**df=6**
40-49	4 (1.9)	2(1.6)	0	0	6(1.7)	**P< 0.001**
Total	**201(55.8)**	**129(35.8)**	**21(5.8)**	**9(2.5)**	**360(100)**	

Table 6: Demographic Characteristics of the women in relation to timing of first postnatal visit.

Characteristics	Post-natal care not usedN (%)	Timing of first postnatal visit.			TotalN (%)	P value
		<1 day N (%)	1-6 days N (%)	>6days-6 weeks N (%)		
Religion						**X^2=17.08**
Hindu	162 (80.6)	85 (85)	38(88.4)	7(43.7)	292(81.1)	**df=3**
Muslim	39 (19.4)	15(15)	5(11.6)	9(56.3)	68 (18.9)	**P<0.001**
Education						
Illiterate	127 (63.2)	10 (10)	11(25.6)	1(6.3)	149(41.4)	**X^2=130.02**
<10	73 (36.3)	55 (55)	27(62.8)	11(68.8)	166(46.1)	**df=6**
10 or 10 +	1 (0.5)	35 (35)	5(11.6)	4(25)	45 (12.5)	**P <0.001**
Age Groups (Years)						
15-19	1 (0.5)	3(3)	3(6.9)	3(18.8)	10 (2.8)	**X^2=24.03**
20-39	196 (97.5)	96(96)	40(93)	12(75)	344(95.6)	**df=6**
40-49	4 (1.9)	1(1)	0	1(6.3)	6 (1.7)	**P< 0.001**
Total	**201(55.8)**	**100(27.8)**	**43(11.9)**	**16(4.4)**	**360(100)**	

Discussion

Similarly, NFHS-3, India showed 25% of mothers had 1-2 antenatal care visits and 52 % had three or more visits. 44% of mothers had their first antenatal care visit in the first trimester of pregnancy and another 22% had their first visit during their 4th or 5th month of pregnancy. Only 10% of women had their first antenatal care when they were six or more months pregnant. Older women (age 35-49) are much less likely than younger women to have received antenatal care for their most recent birth, 98% of women with 12 or more years of education received antenatal care, compared with 62% of women with no education. For 50% of the pregnancies, the father said he was present during at least one of the mother's check-ups. For 17% of the pregnancies, the mother had at least one antenatal check-up but the father was not present during any of the check-up[7].

NFHS-3 results for Uttar Pradesh also reported that mothers received at least one antenatal check-up for only 66%, 26.6 % of women, who had received 3 or more ANC visits, and only 25.7% with an ANC visit in first trimester of pregnancy. So antenatal care utilization in India varies greatly by state.14.9% of mothers received postnatal care in U.P., reported by NFHS-3[8].

Similar findings reported in RHS-Agra slums that only 21.7% of women had 3 ANC visits, and only 10.4% had first visit in the first trimester[9].

Postnatal check-ups soon after delivery help safeguard the health of mother and baby, particularly for births occurring outside of health care facilities. Regarding postpartum care NFHS-3 reported similar finding that almost 6 in 10 women (58%) did not receive any postnatal check-up after their most recent birth. About one-quarter of women (27%) received a health check-up in the first four hours after delivery, and 37% received a health check-up within the critical first two days after delivery. Although the likelihood of a timely postnatal checkup is closely associated with having an institutional delivery, it is notable that 15-24% of births even in institutions did not receive a postnatal check-up. Among births delivered at home, only 9-12% of births received a postnatal checkup within two days of delivery. 38% of mothers received a postnatal check-up from health personnel after their most recent birth. A large majority of the postnatal check-ups were conducted by a doctor[7].

A study by Agarwal et al .showed that postnatal care was not sought by 84% mothers and only 16% receiving ANC visited either hospital or PHP for postnatal care.[10] Venkatesh, et al.reported only 35.9% of the women had utilized the health services completely during antenatal, intranatal and postnatal period[11].

Similarly a another survey in urban slums of Agra reported 59% antenatal visits and 42% institutional deliveries, and only 25.83% post natal contacts with health staff during last delivery. Only 6.25% receive two post natal visits with in first 10 days, and 7.92% had only one post natal visit in first 10 days, and 7.50 % had 3 or more post-natal visit in first 10 days[12].

Conclusion and recommendations

Although the most pregnant women visited antenatal care services at least once but systematic and regular post-partum follow-up care was poor. Even women who delivered in health facility are often discharged within hours and are not seen again until some considerable time afterwards.

Most maternal deaths can be prevented if women have access to basic medical care during pregnancy, childbirth and postpartum period[2]. Thus, renewed efforts are required to ensure that women are provided with adequate antenatal and delivery care[2]. So there should be a deliberate attempt at each and every level to understand the specific needs of the area to be intervened and a policy decision and programme planning to achieve excellence in public health. This is the right time to fill the gap between rhetoric and reality to achieve Millennium Developmental Goals.

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Effectiveness of directly observed treatment of tuberculosis patients under RNTCP in a rural area of Varanasi, Uttar Pradesh

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Abstract

Background

Tuberculosis (TB) remains a major public health problem worldwide and India rank first in terms of total numbers of incident cases. Directly Observed Treatment Short Course (DOTS) is the heart of Revised National TB Control Programme (RNTCP) and the effectiveness of this programme has not been evaluated in the rural setup of Varanasi. With this background this study was conducted in this area.

Objective

To describe the socio demographic characteristics of registered patients in PHC Chiraigaon block and the treatment outcome of DOTS.

Methods

This study was conducted in Primary Health Center (PHC) Chiraigaon community development block of Varanasi district adopting a community based prospective design. All the case of TB patients registered at PHC Chiraigaon block from 1st July 2006 to 30th June 2007, were the study subjects and were followed up to 15 months to know the treatment outcome as recommended by RNTCP. Information pertaining to patients was collected by interviewing them with the help of predesigned and pretested interview schedule.

Results

About half 75 (51.7%) patients were male and rest 48.3% were females. The treatment success rate was 109(75.2%). The defaulter rate was 25(17.2%). Patients who received drugs from Informal DOT Providers were significantly more likely to be Defaulters than patients who were treated by Formal DOT Providers (Relative risk = 3.5; 95% Confidence Interval=1.1-11.1; p=0.03). None of DOT providers was found to observe the swallowing of tablets by the patients

Conclusion

The cure rate in our study was below and defaulter rate was more than the target of RNTCP and the important factors identified were type of DOT providers and distance of patients from DOT center.

Key words

Effectiveness, DOTS, RNTCP, Treatment Outcome

Introduction

Tuberculosis (TB) remains a major public health problem worldwide. In 2008, there were an estimated 9.4 million incident cases of TB globally and India rank first in terms of total numbers of incident cases, approximately 2 million[1]. About 40% of the population in India is estimated to be infected with TB bacillus[2]. In 2008 about 3, 30,000 deaths were reported from TB in this country. The most important step considered in control of tuberculosis is early diagnosis and complete treatment. The slogan of WHO Stop TB strategy "TB anywhere is TB everywhere" indicates that how important it is to treat each and every patient as untreated sputum positive infect 10-15 person annually[2].

After extensive reviews and evaluations of the programme several shortcomings were identified and a revised national TB control programme (RNTCP) was implemented in 1993 introducing the directly observed treatment short-course (DOTS) strategy[3]. A large-scale implementation began in 1998 and countrywide coverage was achieved by March 2006[4,5]. RNTCP was implemented in Varanasi district in February 2003 and since then providing DOTS services to people of this area. DOTS is the heart of RNTCP and the effectiveness of this programme has not been evaluated in this area. So, this present study was done in the rural setup of Varanasi with the following objectives; to describe the socio demographic characteristics of registered patients in PHC chiraigaon block and the treatment outcome of DOTS.

Material and Methods

This study was conducted in Primary Health Center (PHC) Chiraigaon community development block of Varanasi district adopting a community based prospective design. There were seven Tuberculosis units out of the total eight blocks in Varanasi till the end of second quarter 2008. All the new case of TB patients registered at PHC Chiraigaon from 1st July 2006 to 30th June 2007, were the study subjects. The sampling design was non-randomized, non-comparative purposive sampling. Patients were followed up to 15 months to know the treatment outcome as recommended by RNTCP. All the effort was made to contact the registered patients. After getting the informed consent

from the study subjects, a semi-structured, predesigned, pre-tested interview and examination schedule was used for recoding all the information. Socio economic status of the patients was assessed by Uday Pareek socio-economic classification. The data entry and analysis was done by using SPSS V 16 software package.

Table 1: Age and Sex distribution of tuberculosis patients registered for treatment in the period from 1st July 2006 to 30th June 2007(n=145).

Age group (years)	No (%)		
	Male	Female	Total
d"15	03 (2.1)	06 (4.1)	09 (06.2)
16-30	24 (16.5)	33 (22.8)	57 (39.3)
31-45	36 (24.8)	25 (17.3)	61 (42.1)
46-60	11 (7.6)	04 (2.7)	15 (10.3)
> 60	01 (0.7)	02 (1.4)	03 (2.1)
Total	75 (51.3)	70 (48.3)	145 (100)

Table 2: Distribution of tuberculosis patients according to their demographic and socio-economic characteristics (n=145)

Characteristics	No (%)
Religion	
Hindu	134 (92.2)
Muslim	11(7.6)
Ethnicity	
Other Backward Class	72 (49.7)
Schedule caste	62 (42.8)
Others	11 (7.6)
Family type	
Joint	101 (69.7)
Nuclear	44 (30.3)
Socio-economic status (Uday Parikh)	
Lower	45 (31.1)
Lower Middle	63 (43.4)
Middle	37 (25.5)
Distance travelled for DOT Centre	
Up to 1 km	04 (2.8)
1-2 km	51 (35.2)
2-5 km	88 (60.6)
More than 5 km	02 (1.4)

Table 3: Distribution of tuberculosis patients according to their type and category (n=145).

Type and Category of patients	No (%)		
	Male	Female	Total
Type Pulmonary			
Sputum positive	50 (66.7)	53 (75.7)	103 (71.0)
Sputum negative	21 (28.0)	10 (14.3)	31 (21.4)
Extra pulmonary	04 (05.3)	07 (10.0)	11 (7.6)
Category			
I	44 (58.7)	43 (61.4)	87 (60.0)
II	12 (16.0)	13 (18.6)	25 (17.2)
III	19 (25.3)	14 (20.0)	33 (22.8)
Total	75 (51.3)	70 (48.3)	145 (100)

Results

Table 1 shows that more than half 75 (51.7%) patients were male and rest 70 (48.3%) were females. The mean age of the patient was 33.43 yrs with a standard deviation of 12.81 yrs. Majority 127 (87.6%) of the patients were below 45 years. Two fifth of patients were between 16 to 45 years. Nine (6.2%) patients were below 15 years of age. Tuberculosis was more in female than male below 30 yrs of age. In age group 16-30 years, females represented 57.9% in compare to male who represented 42.1% only.

Table 2 shows that most of the Patients 134(92.4%) were Hindu and rest 11(07.6) were Muslims. Nearly half of the patients 72(49.7%) belonged to the other backward caste, 62(42.8%) were from scheduled caste and rest 11(7.6%) were from others category. According to Uday Parikh socioeconomic classification, majority 63(43.4%) belonged to lower middle, 45(31.1%) to lower and rest 37(25.5%) belonged to middle socio-economic status. Majority 88(60.6%) patients had to travel a distance of 2 to 5 km to collect the drugs. Average distance travelled by the patients to collect the drugs was 2.5 km.

In Table 3, about two third 103(71%) were Pulmonary sputum positive case followed about one third 31(24.4%) and 11(7.6%) by Pulmonary sputum negative and Extra pulmonary case respectively. Three fifth (60%) patients belonged to category I and less than one fifth (17.2%) patients were in category II while rest 33(22.8%) belonged to Category III. Out of 145 patients registered, 120(82.8%) were new cases.

It was observed that (Table 4), the treatment success rate was 109(75.2%) which was a combination of cure rate 56 (38.6%) and treatment completed rate 53(36.6). It was 81.5% in Category III patients followed by 74.7% and 68.06% for category I as well as II respectively. The defaulter rate was 25(17.2%) and it was observed more in Category I (18.4%) followed by category II (18.2%). The defaulter rate was also more seen in pulmonary sputum negative patients (19.4%) followed by extra pulmonary (18.2%). Percentage of death was 16% in Category II patients followed by 6.8% and 3.4 % in sputum positive pulmonary and Category II respectively. The total death rate was patients 4.8%. The total failure case was I (0.7%) of Category I and total transferred out case was 2.1%. Patients who received drugs from Informal DOT Providers (Local Medical Practitioners) were significantly more likely to be Defaulters than patients who were treated by Formal DOT Providers (Anganwadi workers, Multipurpose workers, Accredited social health activist) 22/98 versus 3/47; Relative risk = 3.5; 95% Confidence Interval=1.1-11.1; p=0.03). None of DOT providers was found to observe the swallowing of tablets by the patients during intensive and or continuation phase.

Table 4: Distribution of tuberculosis patients according to their treatment outcome.

Type of patients	Treatment success No (%)	Defaulted No (%)	Died No (%)	Failure No (%)	Transfer out No (%)	Total No (%)
Type Pulmonary						
Sputum positive	75 (72.8)	17(16.5)	7(6.8)	1(1.0)	3(2.9)	103(100)
Sputum negative	25 (80.6)	6 (19.4)	-	-	-	31(100)
Extra pulmonary	9 (81.8)	2 (18.2)	-	-	-	11(100)
Category						
I	65(74.7)	16(18.4)	3(3.4)	1(1.1)	2(2.3)	87(100)
II	17(68.0)	3 (12.0)	4(16.0)	-	1(4.0)	25(100)
III	27(81.5)	6 (18.2)	-	-	-	33(100)
Total	109(75.2)	25(17.2)	7(4.8)	1(0.7)	3(2.1)	145

Discussion

In the present study 51.7% patients were male and rests 48.3% were females. The mean age the patient was 33.43 years. Majority 127 (87.6%) of the patients were below 45 years. Two fifth of patients were between 16 to 45 years. This is the period during which people build a career and raise a family. Nine (6.2%) patients were below 15 years of age. Studies conducted in Anad district of Gujarat and in Hanumanthnagar Tuberculosis Unit in Bangalore City also reported this active age group[6,7]. Majority of patients were Hindu and belonged to lower middle class and this observation is similar to study conducted in Hanumanthnagar Tuberculosis Unit in Bangalore City[7]. But in the present study we found the majority of the patients were from joint families and most of them had to travel 2 to 5 km to take treatment contrast to study conducted in Bangalore city[7]. Because of overcrowding, tuberculosis is more common in joint families. In study conducted in Karnataka long distance travelling was found one of the reasons of defaulters[8].

About 71% were pulmonary sputum positive case followed 24.4% and 7.6% by pulmonary sputum negative and extra pulmonary case respectively. This observation is in accordance and with the study conducted in Bangalore[7]. Three fifth (60%) patients belonged to category I followed less than one fifth (17.2%) patients by category II while rest 33(22.8%) belonged to Category III. So it was observed from this study, out of 145 patients registered, 120(82.8%) were new cases. This observation is in accordance with the study done in Bangalore city and in China where new cases were 77.27% and 70.8% respectively[7,9]. The ratio between sputum-positive and sputum-negative among the new pulmonary cases in this study was 103:31, i.e., 3.3:1 against the RNTCP norm of 1:1[2].

In the study area for new sputum positive case the treatment success rate was 72.8%, defaulter rate 16.5 % and death rate 6.8% and all the findings are against the country's status report and RNTCP norms but the treatment failure was 1% which is less than RNTCP norm of < 4 %[2]. The defaulter rate was also found to be 23.25% in study conducted in Bangalore city which is in accordance with the present study[7]. A study conducted in rural area of Haryana, Gurgaon found 5% Defaulter rate in patients who received treatment from AWW in comparison to 12% treated by entire Tuberculosis units[10].

Conclusion

The cure rate in our study was below and defaulter rate was more than the target of RNTCP and the important factors identified were type of DOT providers and distance of patients from DOT center. Therefore, Multi-centric studies should be initiated to evaluate the DOTS strategy. Impact of health education of DOT providers in treatment outcome is to be examined for wider applicability. Capacity building of health care workers should be done for performing better in RNTCP.

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Bilateral tonsillolith: A case report

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Abstract

Tonsilloliths present as medical curiosities that are discovered incidentally on dental or soft tissue radiographs. They are usually asymptomatic and are found usually during routine imaging procedures. A rare case of bilateral tonsillolith in a male patient aged 70 years, which was incidentally discovered on routine panoramic radiograph and confirmed by Computed Tomography. In conclusion, even though in our case tonsillolith was asymptomatic, special emphasis is made on differential diagnosis as some of the soft tissue calcifications that occur in orofacial region may hint occult systemic conditions like atherosclerosis associated cardiovascular or cerebrovascular diseases.

Keywords

Tonsillolith, Panoramic radiograph, Computed Tomography, Radiopaque lesions.

Introduction

Tonsillolith are the calcified structures that develop in enlarged tonsillar crypts that is packed with bacterial and organic debris[1]. It is a rare dystrophic calcification as a result of chronic inflammation of the tonsil[2]. Many tonsillolith, especially the small concretions are asymptomatic; large concretions, on the contrary may produce several symptoms and mimic an abscess or neoplasia[3].

The pathogenesis is believed to be due to dystrophic calcification occurring after repeated bouts of inflammatory changes resulting in enlargement of tonsillar crypts[4]. The saliva and the inflammatory exudates surrounding the tonsil are the source of salts like Carbonates and Phosphates of Calcium and Magnesium. With the deposition of the salt, the tonsillolith forms and it grows in size due to the further addition of salt accretion[5].

Some of the soft tissue calcifications are manifestations of atherosclerosis associated cardiovascular diseases like hypertension, as reported in the literature, it is necessary to consider them under differential diagnosis. These calcifications vary in density and appear on routine panoramic radiograph and could pose a diagnostic challenge. The aim of this paper is to report a case of bilateral tonsillolith discovered incidentally on a routine panoramic radiograph, later on confirmed by computed tomography.

Case report

A 70year old male patient reported to our department, Bapuji Dental College and Hospital, complaining of broken artificial upper teeth set and desires to get it to be replaced, which was made 3years back. Patient past medical history revealed that he was Hypertensive since 15 years and was on medication.

On General physical examination, patient was moderately built and nourished, with blood pressure 130/80mmHg and all other vital signs were within normal limits.

On Extraoral examination, no abnormality was detected. Solitary right and left submandibular lymphnodes were palpable, enlarged, mobile, firm and non-tender. On Intraoral examination, completely edentulous maxillary and mandibular arches with well formed maxillary arch and partially resorbed mandibular arch. Bilaterally tonsils were enlarged, but asymptomatic (figure 1and 2).

On routine radiographic examination, panoramic radiograph revealed bilateral radiopacities overlapping the mandibular ramus, measuring about 1.5x1.5cm, with lobulated borders (figure-3). For confirmation, right and left lateral oblique view of mandible ramus projection were made, which also revealed radiopacities measuring 0.5cm away from anterior border of mandible on right ramus (figure-4) and 1cm away from posterior border of mandible on left ramus (figure-5). An array of radiographic differential diagnosis of Calcification in carotid artery, Calcified lymph nodes, Salivary gland calcification and Bilateral Tonsillolith were considered. Patient was referred to ENT for further evaluation. On palpation of the tonsils, a hard mass was felt on the right and left tonsillar region, which was non-mobile and non-tender, suggestive of Bilateral Tonsillolith, but to be ruled out by entities like Calcified granulomatous disease, intravascular concretions, Mycosis (Deep fungal infection), Lymphoma, malignancy, Foreign body and Elongated styloid process.

A Computed Tomography Scan was performed. Axial sections revealed hyper dense images on both palatine tonsil regions, between palatoglossal and palatopharyngeal arches, which were measuring about 24mm on right side and 21mm on left side, confirmed the diagnosis of Bilateral Tonsillolith (figure 6 and 7).

No treatment was required as the patient was asymptomatic, but he was alerted to the possible development of tonsillitis. Some of the soft tissue

Fig.1: Clinical photograph showing enlarged tonsil on right side.

Fig. 2: Clinical photograph showing enlarged tonsil on left side.

Fig.3: Orthopatomograph showing bilateral radiopacities in the mid ramus.

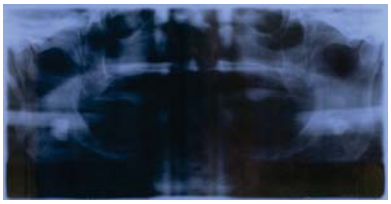

Fig.4: Right lateral oblique view of manible ramus projection showing opacity 0.5cm away from the anterior border of mandible.

calcifications like vascular concretions are found to be commonly associated with atherosclerosis associated cardiovascular and cerebrovascular conditions and chronic renal failure as noted in the literature. Since our patient was also hypertensive he was advised for regular follow up.

Discussion

Of the soft tissue calcifications occurring in orofacial region, tonsilloliths are very common. Tonsilloliths are concretions, which may vary in size and consistency and occur within the substance of the tonsil. The size of the tonsil may vary

Fig.6: Axial CT scan image showing calcified lesion(bilateral tonsillolith).

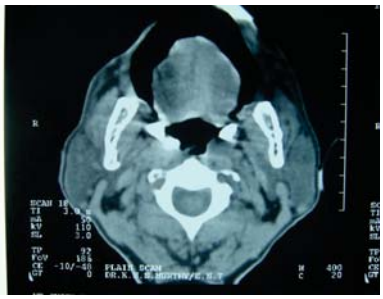

Fig.7: Axial CT scan image showing bilateral tonsillolith.

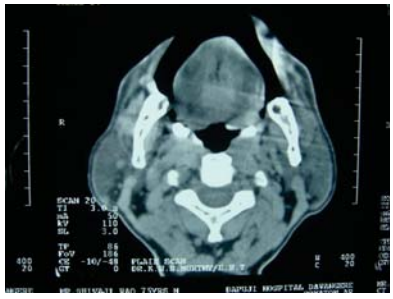

Fig.5: Left lateral oblique view of manible ramus projection showing opacity 1 cm away from the posterior border of mandible.

and giant tonsilloliths have been reported in the literature.[6] Large, bilateral tonsilloliths as in our case are relatively uncommon.

Tonsilloliths occur more frequently in adults than in children. Cooper et al reviewed 23 cases of tonsillolith and found that the age range of the patient was between 20-68 years with no gender predilection[1].

Many tonsilloliths, especially the small concretions are asymptomatic. Large tonsilloliths may sometimes produce symptoms of foul smell, chronic sore throat, irritable cough, dysphagia, otalgia or a foreign body sensation[4]. On palpation, tonsillolith consistency ranges from soft friable to hard as stone[7]. Giudice et al described a tonsillolith, which was accidentally detected in a patient with lithiasis of the left submandibular gland[1].

On the panoramic radiograph, tonsillolith appear as single or multiple radiopacities that overlap the mid portion of mandibular ramus in the region where the image of the dorsal surface of the tongue crosses the ramus in the palatoglossal air spaces. Radiopacity is of the same density as that of cortical bone and little more radiopaque than cancellous bone[8]. Superimposition of hard and soft tissue structures on such radiographic images is common in this anatomic region, creating challenges in the interpretation. Normal soft tissue structures that create shadows include unusually prominent maxillary tuberosity, elongated styloid process and calcified stylohyoid ligament, prominent hamulus[7].

The essential differential diagnosis for radiopaque lesions with in the mandibular ramus include calcification in carotid artery, calcification of lymph nodes, salivary gland calcification, phlebolith and calcification of stylohyoid ligament[2]. As a result of superimposition of the soft tissue structures, it is not always possible to differentiate the calcifications of arteries, lymph nodes or salivary glands from those of the tonsils. Calcifications within the carotid artery are usually located below the angle of the mandible and between the hyoid bone and cervical spine when viewed in OPG, thus differentiating it from Tonsillolith[2]. Calcified lymph nodes will be of variable radio densities, occasionally has a laminated appearance, when dense punctate calcifications are seen over the ramus, below the angle of the mandible. This radiopaque image can be shifted away from mandible with another projection[9]. Sialoliths are more common in the submandibular gland (83-94%)[2]. Sialoliths located in the hilar portion of submandibular gland may mimic a calcified lymph node, but may be presented with symptoms in contrast with calcified lymph node as the latter are asymptomatic and sialography may be necessary to distinguish[9]. But 50% of submandibular sialoliths are placed distal to mylohyoid muscle and another 50% are placed below the mylohyoid muscle, when viewed in an OPG[10]. Phleboliths are smaller and frequently has concentric radiopaque and radiolucent rings. Patients with Sturge Weber syndrome often develop arterial wall calcifications and dystrophic calcifications of facial arteries appear as linear fashion[9]. These pit falls can be avoided by obtaining a Axial Computed Tomographic sections[11].

No treatment is necessary, if asymptomatic. Surgical intervention would be of choice in symptomatic cases.

In case of atherosclerotic plaque patient should be referred to physician for cerebrovascular and cardiovascular workup. Evaluation of the patient for occlusive arterial disease and there are scanty reports of vascular concretions associated with medial calcinosis in hyperparathyroidism, chronic end stage renal disease and in cases of atherosclerosis. To conclude, tonsilloliths are rare findings on panoramic radiographs and their diagnosis is relatively easy especially when a Computed Tomography is advised. Though it is a relatively rare occurrence, the clinicians should be aware of possible occurrence of tonsilloliths in the differential diagnosis of symptoms developing in the region of tonsil.

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Comparative evaluation of sensitivity of Alvorado score with clinical and radiological findings: A retrospective study

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Introduction

The appendix was first time described in the sixteenth century[1,3]. In 1886, Reginald Fitz of Harvard Medical School first described the natural history of the inflamed appendix, coining the term "appendicitis."[4], since then acute appendicitis has remained the most common acute surgical condition of the abdomen in all ages and of course, a common disease in surgical practice with a life time prevalence of approximately 1 in 7[5]. The disease is slightly more common in males, with a male: female ratio of 1.4:1. In a lifetime, 8.6% of males and 6.7% of females can be expected to develop acute appendicitis[6].

Pain in the right iliac fossa is a common presentation in the emergency. Acute appendicitis is one of the differential diagnoses. Emergency appendicectomy is usually done in these patients if there is decision to operate on the choice of the surgeon on the overall clinical suspicion. It has been observed that many patients undergoing appendicectomy prove to be negative[7] this common surgical disease continues to remain a diagnostic problem. Delay in diagnosis definitely increases the morbidity, mortality and cost of treatment.

The diagnosis of acute appendicitis is purely based on history, clinical examination and some laboratory investigations (eg. WBC count). Imaging techniques have been shown to add very little. However, In equivocal cases, the dictum "when in doubt take it out" surgical approach has resulted in increased negative laparotomies[8].

only the histopathology of the surgically removed appendix, which is gold standard for the diagnosis of the appendicitis. Sometimes referred to as misdiagnosis, this can occur more than 15% of the time, with considerably higher percentages in infants, the elderly and young women[9].

A negative appendicectomy rate of 20-40% has been reported in literature and many surgeons would accept rate of 30% as inevitable[10]. As negative appendectomy is an economic burden both on patients and health resources, associated with the risks related with any of the surgical procedures under general anesthesia, so it should be avoided where possible. In an attempt to improve the diagnostic accuracy of acute appendicitis evaluation by CT scan and diagnostic scoring systems have been developed [11,12]. The most commonly used score is Alvarado scoring system (Table-1), developed by Alvarado[12]. According to this scoring system, symptoms, signs and increased total leukocyte count (TLC) are given numerical values and patients are scored out of 10, Patients with scores of 9 to 10 are almost certain to have appendicitis. Patients with scores of 7 to 8 have a high likelihood of appendicitis, while scores of 5 to 6 are compatible with, but not diagnostic of appendicitis.

This study is designed to evaluate the sensitivity of Alvarado scoring system in the diagnosis of acute appendicitis, to reduce the rate of negative appendicectomy.

Material & method

This is a retrospective study conducted in Department Of General Surgery, Saraswathi Institute of Medical Sciences, Hapur Ghaziabad from April 2009 to January 2010 on patients who underwent appendicectomy. We had analyzed 76 cases of appendicectomy, and its correlation with the clinical findings, ultrasound and pathological report. This study was started only after taking the permission from institutional ethical committee. We had included the patients of age group 15 to 55 years, and they were divided in to two groups of 38 cases each. In group A, 1st consecutive 38 patients, who had been operated on the basis of clinical examination, and lab investigation supported by positive ultrasound report.Where as in group B, next consecutive 38 patients were analyzed on the basis of Alvarado score 7 or more but without the support of ultrasound investigation. He exclusion criteria was appendicular lump.

Table-1 Alvarado Scale for the Diagnosis of Appendicitis

	Manifestations	Value
Symptoms	Migration of pain	1
	Anorexia	1
	Nausea/vomiting	1
Signs	RLQ tenderness	2
	Rebound	1
	Elevated temperature	1
Laboratory values	Leukocytosis	2
	Left shift	1
		Total Points 10

Data including age, sex, symptoms, physical sings and laboratory findings such as white blood cell total and differential count were recorded in Alvarado form (Table-1). Per operative findings were noted and all the findings were correlated with histopathological report. Negative appendectomy was labeled in the cases having no signs of inflammation on histopathology of surgically removed appendix.

Observation and results

In group A [Table 2] negative appendectomy rate was 21 %. Out of 38 patients, 20 were males and 18 were females. 8 out of 38 patients had negative appendectomy, out of which 5 were females (negative appendectomy rate 28%) and 3 were males (negative appendectomy rate 15%).

In group B [Table 3], negative appendectomy rate was 24%.This group comprised of 38 patients, out of which 21 were males and 17 were females. 9 out of 38 patients having Alvarado score 8 or more had negative appendectomy, out of which 5 were females (negative appendectomy rate 29%) and 4 was male (negative appendectomy rate 19%).

Discussion

Acute appendicitis a common surgical problem, still is having diagnostic challenge for surgeons. Because of this, negative rate of appendicectomy is 20%-40% as described in surgical literature[10]. Negative appendicectomy rate in this study was comparable in both the groups (Group A 21%, Group B 24%). From this study it was found that diagnosis on the basis of clinical examination, and lab investigation supported by positive ultrasound report (Group A) and by using Alvarado score(Group B) have comparable rate of negative appendicectomy. Patients with the Alvarado score ranges 7-10 have the accuracy 76% whereas in Group A it was 79%(Table-4). Statistically significant difference could not be found. In a study, Lone et al[13] observed negative appendicectomy rate as 17%. In a prospective study of 215 adults and children, use of the Alvarado score decreased an unusually high false positive appendicectomy rate of 44% to 14%[14].

The sensitivity of the patients with the score 7 and above (Group B) was 81% in male and 71% in female and the combined sensitivity was 76%. Whereas it was 85% and 72% in male and female respectively and the combined sensitivity is 79% in the patients of Group A. In a study of Lone et al[13] has shown the sensitivity of the patients with the score 7 and above was 94% in males and 81% in females and the combined sensitivity was 88%. Similar sensitivity was found in another study[15]. This study also reveals that this scoring system was more helpful in male patients by showing high accuracy rate as compared to female patients (Table-2). Lone et al[13] has shown in their study that sensitivity in the same score was more in male than female patients. Low sensitivity in female patients were due to presence of diseases in genital system i.e. ovaries, salphinges etc[16,18]. In females additional investigations may be required to confirm the diagnosis. Since there are no signs, symptoms or laboratory tests that are 100% reliable in the diagnosis of acute appendicitis. These days the diagnosis of acute appendicitis is mainly clinical. Of course the more experienced the surgeon is, more will be the diagnostic accuracy, but the junior surgeons have to make the initial assessment and decision to operate or not. In this study Alvarado scoring system showed that the accuracy of the diagnosis was very dependable and acceptable in higher scores but patients with lower scores

Table 2-Group A

	No. of Patient	No. of Patient with negative appendicetomy	Percentage
Male	20	3	15%
Female	18	5	28%
Total	38	8	21%

Table 3- Group B

	No. of Patients	No. of Patients with negative appendicetomy	Percentage
Male	21	4	19
Female	17	5	29
Total	38	9	24

Table 4- Sensitivity of diagnostic method in two groups

	Sensitivity of Group A	Sensitivity of Group B
Male	85%	81%
Female	72%	71%
Total	79%	76%

Fig. 1: Negative Appendicectomy in both Groups.

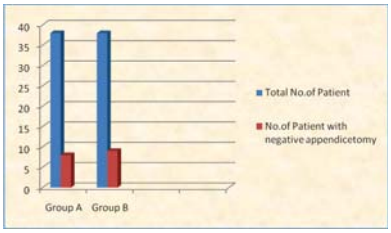
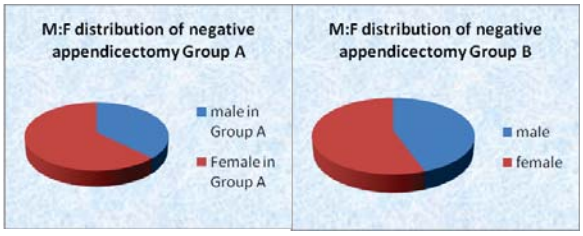


Fig. 2: M:F Distribution of negative appendicectmy.



should be kept under observation.

The diagnostic score may be used as a guide to decide whether the patients need surgery or observation. Patients with score of 8 to 10 are almost certain to have appendicitis and they should undergo operation immediately.

Conclusion

This study reveals that Alvarado scoring systems can be a cheap and quick tool to apply in emergency department to rule out acute appendicitis. This scoring system can help in making easy diagnosis of acute appendicitis and consequently reduces negative appendicectomy and complication rates (e.g. perforation). Thus can be helpful in reducing an economic burden both on patients and health resources and also helpful in critical re-evaluation.

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Intraoral trauma in sports and its prevention – a review

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Abstract

Participation in athletic activities at both the recreational and organized sports levels continues to attract growing number of developing children and adolescents. Not only from developed countries, but also from developing countries like India, more and more number of health conscious people is finding their way onto the playing fields and gymnasium.

Physical fitness, skill development, stress reduction and team building are some of the important positive aspects associated with participation in vigorous recreational activities and sports. Despite these benefits, there are certain risk factors which are associated with participation in these activities. Furthermore, as the predictive risk factors are more clearly identified and defined, the design and development of new protective devices may contribute to future athletic injury prevention.

Key words

Sports, sports injury, prevention, mouth guards.

Introduction

Sports influence the lives of majority of the world population. There are many reasons to participate in sports and physical activity such as pleasure, relaxation, competition, socialization and maintenance and improvement of fitness and health.

With growing interests in sports activities, there has been an increase in sports related injuries also.

A study by Birjur et al[1] in 1995 found that sport related injuries account for 36% of all injuries from all causes representing 4,279,000 sports injuries annually in the United States. San J (1996)[2], in one of his study found that out of all sports - related accidents reported, 11 - 18% were maxillofacial injuries. Given the high incidence of sports - related maxillofacial injuries, sports dentistry has a major role to play in this area.

Sports dentistry has two major components. The first is the management of oro-facial injuries which includes many specialties of dentistry like oral surgery, endodontics, operative dentistry, orthodontics, hospital dentistry and patient behaviour management. While treating these injuries, the question which comes to mind is, why do so many young athletes have to suffer such preventable injuries which can negatively affect the patient's oral health for a lifetime? This realization brings into focus the second aspect of sports dentistry i.e. prevention through sports safety measures.

Prevention of oro-facial trauma during sports activities includes teaching proper skills, purchase and maintenance of appropriate equipment, safe playing areas and wearing and utilization of properly fitting protective equipment. Thus, dental professional can play an important role in meeting the challenge of preventing these sports - related injuries.

Importance to the dental profession

Muscle injuries, torn cartilage, fractured bones, tendonitis, soft tissue lacerations, contusions and fractured teeth are just some of the many kinds of injuries which are associated with participation in sports.

According to Krizek[3] the diagnostic and therapeutic needs of those with oral injuries lies in the emotional and psychological importance to the patient of having a normal appearance and function of the face and its components. Therefore, dentistry is needed for a practical side of health care as well as for the emotional and esthetic consequences of facial or dental trauma.

Fortunately, modern dentistry has developed numerous techniques and appliances to help protect the sports participant from a variety of orofacial injuries. In fact, preventive sports dentistry represents the most important contribution the dental profession can make to assure a sports participant's welfare.

Risk factors for sports injury

An essential component of any injury prevention programme is an appreciation and understanding of the risk factors and determinants that can be predictive of these undesirable events.

1. Type of sport

Fast moving sports would appear to predispose to injury as a result of collisions.

The same is time of those sports that use projectiles such as balls, pucks or some form of a stick. Bats, hockey sticks and similar sports armamentaria are associated frequently with soft tissue lacerations and contusions as well as displaced comminuted - type fractures. Violent body contact during the game definitely increased the risk for wounds and injury.

2. Age

There appears to be an obvious difference in the risk of sports injury with age, although no one generalization can be held to be universally true. Robey et al and Blyth and Mueller concluded in two separate studies that risk of injury in high school football increases with age. Berson et al found an increased risk of injury for squash players over age 40 years. Degenerative changes in bone, ligaments and other connective tissues may also be important etiological factors for injury in older players[4].

3. Gender

The role of gender as a potential risk factor for sports related traumatic injuries may be a reflection of an apparent tendency for men and boys to select more aggressively vigorous or contact sports. The literature supports the fact that boys seem more prone to orofacial injury than do girls.Pinkham and Kohn[4], however, suggest that girls are at higher risk than boys when exposure rates are taken into account.

4. Growth

Growth also is a relative factor for injury risk in adolescents. Children at increased points in their growth rates are at increased injury risk because growth is expressed first in the long bones, then in the muscles. At this point, there may be a dramatic loss in flexibility. This loss in flexibility may be the most frequent cause of overall injury in adolescents[5].

5. Body size

A higher center of gravity, increased leverage due to greater length of limbs and stress on joints due to additional weight.

6. Aerobic fitness

Since physical fitness can lessen the onset of symptoms of fatigue, it has been assumed that aerobic fitness would, at the very least, predict some prevention of sports injuries.

7. Muscle strength, Imbalance and Tightness

Strength acquired through proper conditioning should be predictive of a potential reduction in sports - related injuries. On the other hand, localized weakness, muscles imbalances, or tightness appear to predispose an individual to sports injury[4]

8. Central Motor Control

Physical handicapped populations, which display central motor disabilities, are probably also at a greater potential risk for injuries associated with physical endeavors such as sports than for those without impaired co - ordination.

9. Skilled coaching

A lack of skilled coaching can increase risk potential for the athlete. Without proper instruction and guidance in physical fitness and sporting skills, and athlete is less able to respond in game situations, thereby increasing injury risk, Ranalli and Lancaster[6] showed that athletes were influenced by their coaches more than parents, other athletes or officials.

10. Orthodontic status and history of previous injury

Maxillomandibular relationships affect vulnerability to injury. Numerous studies have shown that orthodontic status plays a significant role in incisal trauma. A class II molar relationship having an overjet greater than 4mm, having a short upper lip or incompetent lips, and breathing through the mouth all increase risk for dental injury. Fixed orthodontic appliances in high school soccer and basketball players were found to be associated with orofacial injuries[7].

11. Psychological factor:

State of mind during play has much to do with the level of concentration and ability to perform in the sports. It is a balance between coordinated movement and thought. In instances in which this balance breaks down with stress or pressure, the athlete is more at risk for injury[5].

Protective equipment for the prevention of craniofacial and intraoral injuries.

At present, helmets, faceguards and mouthguards are the protective devices which are used in some sports to reduce the likelihood and the severity of sports - related traumatic injuries to the head, face and mouth of an athlete.

Helmets

Helmets are designed to protect the skin of the scalp and ears from abrasions, contusions and lacerations. Helmets protect the bones of the skull from fractures and the brain and central nervous system from concussions, unconsciousness, cerebral haemorrhage, brain damage, paralysis and death[8].

During the decades between the 1920s through the early 1950s, the primary form of helmet used in sports was the sturdy leather helmet.

Plastic helmets were fabricated in 1950s from thermoplastics composed of acrylonitrile-butadiene-styrene and polycarbonate. Soft padding was affixed to the internal aspects of these hard helmets to cushion the traumatic forces generated through the rigid plastics. A guard to reduce the likelihood of laceration to the chin was added to a snap -on strap that secured the helmet in place, but disengaged when pulled by an opponent[9].

A later modification was the placement of a protective rubber pad at the midline of the forehead region of the plastic helmet to prevent nasal pyramid lacerations caused by the helmet being driven into the soft tissues of the forehead during contact or collision. When used properly, helmets enhance player safety and reduce morbidity. Conversely, when used improperly as weapons against an opponent, they can potentiate injuries to the head, neck or spine.

In an effort to cushion the traumatic shock from a blow to the head from contact or collision, and thereby reduce further the number and severity of football - related injuries, two basic types of soft protective helmet linings

have emerged and are available currently. One type is known as the suspension helmet which is lined with soft plastic - covered foam that absorbs traumatic forces. The other is the so-called air helmet, which has the added safety feature of an inflatable bladder to enhance protection[10].

According to Withnal C et al[11], the two most critical properties of helmet are impact energy attenuation and load distribution. Through this mechanism, more serious head injury may be prevented and the severity of an MTBI (minor traumatic brain injury) may be reduced.

Eye / face guards

Face guards are designed to protect against facial injuries to the mouth, nose, eyes, nasal pyramid and zygomatic arches, depending upon the style of facemask used. Facemasks are manufactured from various numbers and diameters of plastic or rubber tubing or welded steel or aluminum and are covered with a coating of vinyl plastic.

The earliest style of facemask introduced, consists of a contoured single bar. The single bar facemask provides the least amount of protection from forces directed angularly such as those from an extended finger, a clenched fist, a forearm, or a helmet directed respectively toward the eyes, nasal pyramid, zygomatic region, or the mandibular arch[12].

The full - cage facemask affords the greatest degree of overall facial protection and is generally preferred by defensive players to avoid injuries. One major disadvantage of the facemask is that it prevents a protruding object within the ready grasps of an opposing player[10].

Mouthguards

Athletic mouthguards are designed to protect the lips and intraoral soft tissue from bruises and lacerations; protect the teeth from crown fractures, root fractures, dislocations and avulsion; protect the jaws from fractures and dislocations and provide support for edentulous spaces. Some authors have suggested that mouthguards may reduce the likelihood of neck injuries and indirect concussions; whereas other has proposed that a mandibular orthopedic repositioning appliance may increase athletic strength[13]. In addition to the amateur sports of boxing, football, ice hockey, and men's lacrosse, mouthguards are mandatory for participants in women's field hockey. The only professional sport that requires a mouthguards is boxing[14]. The American Dental Association (ADA) and the Academy for Sports Dentistry (ASD) recommended properly fitted mouthguards for variety of recreational activities and sports that place participants at risk for oral injuries:

Classification of mouthguards[15]

The ASTM in Designation: F697 - 80 (Re-approved 1986) established the classification system for athletic mouthguards as follows:

Type I: Stock mouthguards
Type II: Mouth - formed mouthguards
Type III: Custom - fabricated (over a dental cast) mouthguards.

This classification system is based on an ascending order of preference: Type I mouthguards are the least preferred, whereas Type III are the most preferred.

Stock mouthguards

They are purchased over the counter by consumers from sporting goods stores. They are the least expensive of the three types of mouthguards available and come in a variety of styles and colours, with or without straps. They are the least retentive and often bulky, stock mouthguards interfere most with the athlete's ability to breathe and speak and often cause the athlete to gag. Because of all these factors, stock mouthguards are unacceptable to most athletes and offer the least protection for the prevention of sports - related traumatic dental injuries.

Mouth formed mouthguards

Mouth formed mouthguards come in two varieties: shell lined and boil and bite. The shell lined variety is fabricated by placing freshly mixed ethyl methacrylate into a hard shell, which is then inserted into the athlete's mouth until the material sets. Although offering relatively good adaptation to the dental arch, this variety is often too bulky and uncomfortable as well as having an unpleasant odour and taste.

The thermoplastic boil - and - bite variety is the most widely used type of mouthguards. These mouthguards are fabricated by placing the mouthguard form into boiling water to soften the material. The softened material is then placed into the athlete's mouth, where it is molded with finger pressure as well as with facial and intraoral muscular movements to enhance adaptation to the hard and soft tissue structures of the mouth. After removal from the athlete's mouth the mouthguards is placed into cold water until the shape is set firmly. This variety can be reboiled and reformed to improve retention.

Custom fabricated mouthguards

They are made professionally over a dental cast of the athlete's arch (maxillary arch for patients with class I or class II malocclusion; mandibular arch for patients with class III malocclusion). They are considered superior to either stock or mouth - formed mouthguards. Because of their superior adaptation and retention, custom fabricated mouthguards are believed to interfere least with breathing and speech. Because of superior fit and comfort, they are more likely to be accepted by athletes.

Advantages of wearing helmets, facemask and mouthguards

These safety equipments protect against direct injuries of the teeth and oral structures, and also cushion traumatic

blows to the face and head to reduce various other injuries to the head and neck. In addition to protection against injuries, offer other advantages:

1. Protection of the teeth and intraoral structures:- Their uses reduce the likelihood tooth fractures and tooth dislocations. They also protect against intraoral soft tissue lacerations and against brushing of the lips and cheeks.

2. Jaw fractures and edentulous areas:

The use of mouthguards and faceguard protect against jaw fractures by absorbing the energy of a traumatic blow to the chin. The mouthguard prevents the mandibular condyle from being displayed upward and backward against the wall of the glenoid fossa, thereby a mouth of bone deformation. Fractures to the body of the mandible as well as the condyles are reduced by the use of mouthguards and faceguards. In addition, fractures of the maxilla can also be reduced. The mouthguard provides support for edentulous spaces for athletes who wear removable partial dentures.

3. Reduction of other head and neck injuries:

The use of mouthguards & helmets reduces the likelihood of concussions, cerebral haemorrhage, unconsciousness or other serious central nervous system injuries and even death. They also reduce the severity of injuries to the neck as well as help in solving some chronic neck problems.
According to Jackson E. Winters[16], mouthguards prevent sports related concussion by increasing the time and distance involved in acceleration when the mechanism of injury is an upward blow to the head through the mandible.

4. Athletic confidence:

Mouthguards and faceguards improve the confidence of players. Players are less concerned about receiving a traumatic blow that will affect their consciousness or result in a disfiguring injury. They therefore can concentrate their efforts on the sport.

5. Economic considerations:

The cost of mouth and face protection is inconsequential when compared to that of other sports equipment or to medical and dental costs for treatment of sports - related injuries.

Conclusion

There is a saying in sports that "Injury is just part of the game". In other words, injury is seen as an inevitable consequence of participant in sports. But sports injuries can be prevented and need not be part of the game. Ideally, we would like to reach the position where it is said that "Injury prevention is just part of the game".

Suggestions

The high incidence of orofacial injuries needs to be minimized. Here are some suggestions which are geared towards dentists, public health professionals, school officials and coaches to reduce these sports - related injuries.

1. A more and more dental professional has to come forward to play an active role in sports injury prevention programs. A dentist could do this by acting as team dentist for a high school or college.
2. Coaches and trainers should teach players about the correct use of the sports equipments like hockey stick and the safe ways or techniques to play the game e.g. safe ways to hit the boards and fall on the ice.
3. Players should learn to respect their opponents, to be aware of the hazards of their actions and to learn the correct way to wear properly fitted equipments
4. Referees should enforce the games rules and maintain a strict disciplinary code of conduct in cases of non - compliance regarding the use of protective devices.
5. All national association and all sports organizations should insist on the use of suitable protective equipment and guarantee the high testing standards of these equipments.
6. Doctors should continue to systematically evaluate and analyze the injury data in order to recognize the potential risk and identify the causal relationships.

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Life course analysis as a behavioural modifier for oral health

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Abstract

For an individual to survive in the nature, health is the primary requirement. This health has many determinants, one of which is sound health behaviour, which if modified to a positive path can assist in acquiring a sound health. The new widely accepted theory to modify this health behaviour to achieve sound health is Life Course Analysis which states that the stock of biological resources inherited and acquired during earlier stages of life will determine current and future health potential including resilience to challenge. Many authors have studied this newly emerging concept in relation to the oral diseases like dental caries, periodontal ligament diseases, traumatic dental injuries and oral cancer which conclude that there is positive relation between the life course events of an individual and his/her oral as well as general health.

Introduction

"Health is a state of physical, mental and social well being and not merely the absence of disease or infirmity and ability to lead a socially and economically productive life."

The above mentioned definition of health is given by World Health Organization and is most widely accepted which states that health of an individual is determined not only by physical and mental factor which, to some extent are under the direct control of the individual, but also by social and economic factor which are not always under the direct control of the individual i.e. a complete healthy condition of an individual is determined by the presence of the physical fitness, a stable mental state i.e. a sound health behaviour, presence of healthy social circumstances and good economical condition of the individual. Health behaviour of an individual is also an important factor which should be explored while determining the future prospect of health/ ill health in that individual. Failure to include social, economic, environmental and political factors in any analysis of health behaviours ultimately results in a very negative and victim blaming understanding which can lead to the development of potentially harmful and largely ineffective health policies[1].

Therefore different authors have given different theories to explain how the health behaviour can be modified-

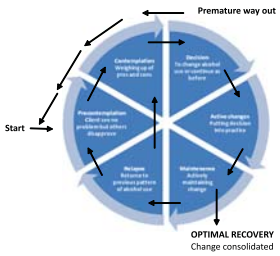
Health Locus of Control (HLOC): It is not a measure of actual control of behaviour but rather perceived control over outcomes. This concept is multi-dimensional. The first dimension is 'internal HLOC' which represents a person's belief about the impact of their own actions on health outcomes. The other two dimensions refer to the external influences on outcomes. 'Powerful others HLOC' focuses on beliefs about the influence of important people on outcomes, whereas 'chance HLOC' refers to the effect of chance or fate on outcomes[2].

Stages of change model: This model is based on the assumption that behaviour change is a dynamic, non-linear process that involves several distinct stages[2].

The above mentioned all the models have a common deficiency that they don't include social, economic, environmental and political factors in the analysis of health behaviour which ultimately may result in a very negative and victim blaming understanding which can lead to the development of potentially harmful and largely ineffective health policies. Therefore a new concept Life course analysis is evolved which is based upon an analysis of the complex ways in which biological risk interacts with economic, social and psychological factors in the development of chronic disease throughout the entire course of life.

In the life course perspective particular emphasis is placed on the social context, and the interaction between people and their environments in the passage through life. Life course analysis highlights the importance of social and environmental determinants for oral health and the need to adopt a more holistic approach to oral health promotion activities[1]. This approach is of value in assessing how advantage and disadvantage may cluster at socially critical periods of social development and accumulate longitudinally. A spiral of events and circumstances collectively affect the well-being and health of the individual throughout his or her life.

According to Great Britain's Department of health report "it is likely that cumulative differential life time exposure to health damaging or health promoting physical and social environments is the main explanation for observed



variations in health and life expectancy for both general and oral health[9].

One of the tenets of the life course theory is that the stock of biological resources inherited and acquired during earlier stages of life will determine current and future health potential including resilience to challenges. An individual's biological resources are influenced by their genetic endowment, their pre-natal and post-natal development and their social and physical environment in early life. Adversity in childhood becomes 'embodies' at an early age and its full impact manifests later in life[3].

There may be "critical periods" in both for the development of organ systems and for psychological and social development, though their existence and nature are still controversial. The development of the neural tube in very early pregnancy is an accepted example. Professor David Barker et al postulated a theory "Barker hypothesis" which says that an important component of adult disease risk is determined in utero, with maternal nutrition playing an important role[4]. However experiences in infancy, childhood may also determine adult health, independently of fetal life[5].

Although this is a biological process, the difficulty in a low income household of maintaining an intake of vitamins adequate not just for daily life but also for this critical period during pregnancy produces sharp social gradients in neural tube defects. The transition from school to work may be regarded as having similar importance for social development. People who enter less well paid employment are also more likely to encounter work insecurity and physical and chemical hazards at work to live in less well constructed housing in more polluted neighbourhoods, and to retire on no more than the basic state pension. At each stage, social and economic disadvantage can push the individual another step down an aetiological pathway towards established chronic illness.

Hence most of the interventions should be targeted at an earlier age in order to obtain their full advantage. The below given diagram is an outstanding example of this -

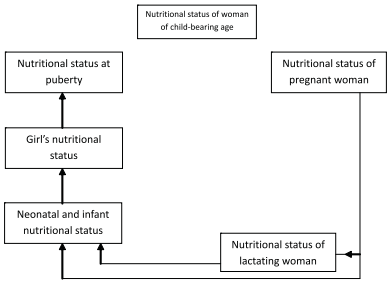
The above diagram shows a vicious cycle which says that malnutrition is self-perpetuating. Like if a woman in her child-bearing age is malnourished and becomes pregnant and gives birth to a child then her baby will also be underweight. If this is a girl child and she doesn't get the proper nutrition in her infancy, childhood and adulthood then this malnourished girl will again give birth to an underweight child. There are several factors which may cause this malnutrition which are poor environmental conditions, large family size, poor maternal health, failure of lactation, premature termination of breast feeding, and adverse cultural practices relating to child rearing and weaning such as the use of over-diluted cow's milk and discarding cooking water from cereals and delayed supplementary feeding[6]. Therefore it can be said that intervention at an earlier stage not only helps us to stay healthy but also the new born to be in total control of health.

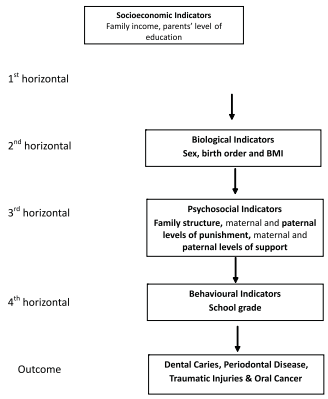
Davey Smith G et al, Moser K et al, Goldblatt P et al and Eachus J et al have quoted that ubiquitous nature of the association between unfavourable socioeconomic circumstances in adulthood and premature death has shown in many studies, with various socioeconomic indicators being related to morbidity and mortality. These studies have generally been inspired by suggestions that the early environment has specific influences which alter later susceptibility to disease.

The life course analysis theory states that there are some critical periods in human development that may have particular importance in determining health status and the generation of health inequalities within populations:

1. Transition from primary to secondary school.
2. School examination.
3. Entry to labour market.
4. Leaving parental home.
5. Establishing own residence.
6. Transition to parenthood.
7. Job insecurity, change, or loss.
8. Exit from labour market.

There are many studies linking conditions in adulthood to dental caries, periodontal diseases, traumatic injuries, oral cancer and tooth loss. When assessing the effects of factors operating at different stages of an individual's life on his/her risk of adult disease, one should use information from across the whole life course. Such investigations assessing which stages of life are of most importance to an individual's health have rarely included oral health, but may give an overall context for assessing oral disease risks and planning prevention that cannot be achieved by other methodologies[5].





Necolau B. et al also have drawn a relationship between height and dental caries experience in a sample of Brazilian adolescents (13 year old). Being a taller adolescent add a protective effect on caries experience. In addition adolescents from rural areas, those whose mothers had less than 8 years of education and those who reported a higher level of paternal punishment had an increased risk of having high DMFT[3].

The author included height as an important surrogate marker of early development and of social and physical environment exposures in early life and also that it is related to health and longevity. Socioeconomic circumstances influence foetal development and growth during childhood. Subsequently, poor foetal development and delayed linear growth, as indexed respectively by low birth weight and shorter leg-length are associated with increased mortality, suggesting an important role for diet in early life on adult health. Studies in population with high levels of nutritional deficiency also have found that children with low height for their age had significantly greater caries experience in their primary dentition[3].

Life course analysis as a modifier of oral health:[7]

Marco A. P. et al in a sample of 13 year old 652 adolescents found in their study Adolescents who were always poor showed, in general, a worse pattern of dental caries, whereas adolescents who never were poor had a better pattern of dental caries. Adolescents who had moved from poverty in childhood to non-poverty in adolescence and those who had moved from non-poverty in childhood to poverty in adolescence had similar dental pattern to those who were always poor except for the pattern of dental services use, which was higher in the first group. In all groups girls had fewer carious teeth, better oral hygiene habits and higher dental services use than boys[8].

Frode Hansen et al proposed a socio-ecologic conceptual model for periodontal diseases. The model, which includes 4 items: health-care organization, human biology, behavioural factors, and environment, has been tested on a random-sample of 50-year-old Oslo citizens. The investigation is based on a clinical examination as well as a questionnaire and structured interview. A logistic regression model was used to study associations between risk factors and the probability of deep periodontal pockets (>5.5 mm). The risk of periodontal pockets was positively associated with: short duration of education, being of male gender, previous periodontal treatment, poor oral hygiene and infrequent toothbrushing. Variables describing behavioural factors and human biology were the items found to be most closely associated with periodontal pocketing[9].

The adolescents with poor socioeconomic status, peer pressure, the family conflict or family breakdown or high level of paternal punishment in the early course of life can inculcate the adverse oral habits like tobacco chewing and smoking which in turn can lead to the development of oral cancer in later life.

Nicolau B. et al found in their study in a sample of 13 year old 652 adolescents that boys and overweight adolescents had more dental injuries than girls and non-overweight adolescents. In addition, adolescents from reconstituted and single families with high level of paternal punishment were more likely to experience traumatic dental injuries. Adolescents who had experienced family break-down tended to have more emotional problems than those from nuclear families because they had experienced parental conflict before and during the marriage breakdown. The same way children from reconstituted families have to face the remarriages of one of the parents and that may present another challenge to them. Thus they become more likely to have problems such as being involve in violent action and taking more risk, which in turn would make them more prone to have traumatic dental injuries[7].

Conclusion

The importance of timing and identifying 'windows of opportunity' when interventions may have the greatest long-term benefits in promoting oral health and reducing inequalities is an issue that needs to be explored further. Developing and implementing interventions that offer appropriate support at critical periods has enormous potential.

The promotion of a healthier adult lifestyle and continued improvement in oral hygiene throughout the whole life-course would appear to be the public health interventions most likely to increase tooth retention in middle age.

Oral health professionals working in isolation are unlikely to achieve sustained long-term improvements in oral health. Working in collaborative partnership with other relevant professionals and agencies is more likely to produce desired results. Successful collaborative working requires a shared agenda for action in which common risk/health factors are identified[1].

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Prevalence of anaemia in pregnancy in rural western Uttar Pradesh- A prospective study

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Introduction

Anaemia is the most common nutritional deficiency disorder in the world. WHO has estimated that prevalence of anaemia in developed and developing countries in pregnant women is 14% and 51% respectively. In India it is 65-75%[1]. About one third of global population are anaemic (2 billion)[2]. Prevalence of anaemia in South Asian countries is among the highest in the world. WHO estimates that even among the South Asian countries, India has the highest prevalence of anaemia. What is even important is the fact that about half of the global maternal deaths due to anaemia that occur in South Asian countries, India contributes to about 80%[3]. Anaemia begins in childhood, worsens during adolescence in girls and gets aggravated during pregnancy. In India the prevalence of anaemia is high because of poor dietary intake especially iron and folic acid, poor bioavailability of iron in phytate and fiber rich iron in Indian diet, chronic blood loss due to infection such as malaria and Hookworm infestation[4,5].

Material and method

This is a prospective consecutive study conducted in the department of Obstetrics and Gynaecology at Saraswathi Institute of Medical Sciences, Hapur, Ghaziabad, India. This study was initiated only after taking permission from the institutional ethical committee. This study was conducted with the aim to know the prevalence of anaemia, type and causes of anaemia in pregnant patients of rural areas, correlation with patient's socio-economic status, and correlation with age, parity and gestation. This study was done from 1st dec 2009 to Mar 2010. All the antenatal patients coming in obstetric OPD were included in this study. Detailed clinical history and examination was done. Patients were sent for Haemoglobin estimation, peripheral smear examination and stool examination. Haemoglobin estimation was done by Cynemethaemoglobin method.

Peripheral smear examination is another simple method for diagnosis of anaemia. Iron deficiency anaemia can be diagnosed by the presence of hypochromia (large central vacuoles) and microcytosis (small deformed cells) in peripheral blood smear film. In cases of megaloblastic anaemia there should be macroytosis, hypersegmentation of neutrophils and fully haemoglobinised RBCs. In haemolytic anaemias there would be polychromatic stripped and target cells. Degree of anaemia was classified as mild (10—d"11 gm%), moderate (7-d"10 gm%) and severe (<7gm%).

Causes of anaemia in pregnancy can be-

(A) Physiological

(B) Pathological- *Nutrional-Iron deficiency 60%, macrocytic

10%, Diamorphic 30%, Protein deficiency.

* Haemolytic- due to acute blood loss

* Haemorrhagic- due to chronic blood loss eg. Hookworm infestation.

Observations

In our study we included 250 patients who came in anti-natal clinic ranging from primigravida to gravida7.In our study, the maximum number of patients were in gravida3 or more followed by primigravida, gravida2. Maximum no. of patients came attended in our hospital were in second trimester followed by third trimester and first trimester. These patients were aged between 17- 36 years with the peak presentation at 20-30 years (Table1).

The values of Hb were observed from 3.9gm% to 12.7gm% in all the 250 patents in our study. 235 patients were anaemic out of 250 at the time of booking (94%). In multigravida group, most of the patients were belonged to moderate anaemia(7-9.9gm%), followed by mild anaemia (10-10.9gm%). 6.4% of the total patients were severely anaemic(Hb <7gm%). In gravida2 patients maximum no. patients were moderatly anaemic, followed by mildly anaemic. In primigravida maximum no. of patients were moderatly anaemic followed with mild anaemia. No patient was found severely anaemic in primigravida and gravida2 patients (Table3).

Discussion

The prevalence of anaemia in pregnancy is 94% in this study was more than data observed in other studies, 65-75% in India[1].

WHO estimates that even among the South Asian countries, India has the highest prevalence of anaemia. Most of the anaemic patients, 14% in this study were of mildly anaemic variety where as 77.2% were moderately anaemic. Only 2.8% had severe anaemia only found in multigravida patients.

In India, prevalence of anaemia is high because of low dietary intake, poor iron and folic acid intake, poor bioavailability of iron in phytate and fiber rich Indian diet and chronic blood loss due to infection such as malaria and Hook worm infestation[4,5].

Table1: Distribution of patients according to gravida, trimester & age.

GRAVIDA	No. of patients	Percentage%
Primigravida	84	33.6
Gravida 2	58	23.2
Gravida 3 or more	108	43.2
TRIMESTER		
I Trimester	20	8
II Trimester	173	69.2
III Trimester	57	22.8
AGE		
> 20 years	27	10.8
20-30 years	185	74
> 30 years	38	15.2

Maximum no. of patients were Hindus and with predominantly belonging to low socio-economic status (Table2).

Table2: Distribution of the patients according to religion and socio-economic status.

Relegion	No. of patients	Percentage(%)
Hindu	165	66
Muslim	80	32
Others	5	2
SOCIOECONOMIC STATUS		
Low	220	88
Middle	30	12
High		

Table 4: Estimation of Hb gm% according to trimester in primigravida (with percentage out of total 84 patients.

Trimester	Hb<7 gm%	Hb 7-9.9 gm%	Hb10-10.9 gm%	Hb e"11 gm%
I trimester	Nil	1(1.19)	Nil	Nil
II trimester	Nil	44(52.38%)	20(23.81%)	8(9.52%)
III trimester	Nil	7(8.33%)	Nil	4(4.76%)

X^2=7.339, D.F. =2, p< .05 (significant)

Maximum number of patients were having moderate anaemia in second trimester at the time of booking of gravida2 patients.(Table 5).

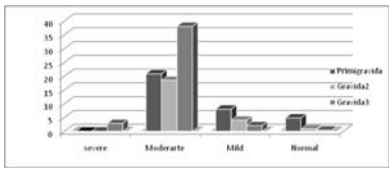
Table 5: Estimation of Hb gm% according to trimester in Gravida 2 patients (with percentage out of total 58 patients) .

Trimester	Hb<7	Hb 7-9.9 gm%	Hb10-10.9 gm%	Hb e"11 gm%
I trimester	Nil	5(8.62%)	NIl	Nil
II trimester	Nil	31(55.17%)	8(13.79%)	2(3.45%)
III trimester	Nil	10(17.24%)	2(3.45%)	Nil

X^2=1.765, D.F. =2, p> .05 (not significant)

Maximum no. of patient were in moderate anaemia in second trimester followed by third trimester at the time of booking in multigravida patients. 3.7% patients were severely anaemic in third trimester and 2.78% in second trimester (Table 6).

Fig 1: Distribution of Haemoglobin of the patients according to Gravida.



Maximum number of patients belonged to moderated anaemia group in second trimester at the time of booking of primigravida patients.(Table 4).

Table 6: Estimation of Hb gm% according to trimester in Gravida 3 patients (With percentage out of total 108 pts).

Trimester	Hb <7	Hb 7-9.9 gm%	Hb10-10.9 gm%	Hb e"11 gm%
I trimester	Nil	10(9.26%)	3(2.78%)	1(0.93%)
II trimester	3(2.78)	55(50.93%)	2(1.85%)	Nil
III trimester	4(3.7)	30(27.8%)	Nil	Nil

X^2=2.553, D.F. =1, p> .05 (not significant)

Maximum no of patients were in moderate anaemia in age group 20-30 years, followed by mild anaemia.(Table7).

Table 7: Distribution of Hb in pregnant women according to age group out of total 250 patients and their percentage.

Age gp.	Hb<7	Hb 7-9.9 gm%	Hb10-10.9 gm%	Hb e"11 gm%
<20yrs	Nil	13(5.2%)	10(4%)	5(2%)
20-30yr	7(2.8%)	148(72%)	20(8%)	9(3.6%)
>30yrs	Nil	32(12.8%)	5(2%)	1(0.4%)

X^2=22.836, D.F. =4, p<.001 (highly significant)

80% patients were suffering from iron deficiency anaemia, 15% from dimorphic anaemia and 5.1% from anaemia due to chronic blood loss.(Table8).

Table 8: Distribution of the patients according to cause of anaemia out of total 250 patients.

Cause of Anaemia	No. of patients	Percentage
Iron deficiency	160	80
Dimorphic	30	15
Chronic blood loss d/t Hook worms	10	5.1

Poor iron stores at birth[6], low iron content of breast milk and low dietary iron intake through infancy and childhood results in high prevalence of anaemia in childhood[6,7]. Anaemia gets aggravated by increased requirement during adolescence and pregnancy[8]. Assuming that the absorption of iron is 8% in pregnant women, there average dietary intake will meet only 30-45% of the requirement. Pica has been identified as a risk factor for anaemia in pregnancy[9]. Early marriage and adolescent pregnancy aggravates anaemia and results in poor iron stores in the off springs. It is obvious that there is an intergenerational self perpetuating vicious cycle of anaemia in Indian

Table 3: Distribution of Haemoglobin of the patients according to Gravida.

Degree of aneamia			Severe	Moderate	Mild	Normal	
Gravida	No of pts.	% of pts	Hb<7gm%	Hb 7-9.9 gm% (total %)	Hb 10-10.9 gm% (total %)	Hb>11 gm% (total %)	p value
Primigravida	84	33.6	0	52(20.8%)	20(8%)	12(4.8%)	<.001
Gravida 2	58	23.2	0	46(18.4%)	10(4%)	2(0.8%)	>.05
Gravida 3 or more	108	43.2	7(2.8%)	95(38%)	5(2%)	1(0.4%)	<.05
Total	250	100	7(2.8%)	193(77.2%)	35(14%)	15(6%)	

X^2=34.116, D.F.=4, p< .001(highly significant)

population. Iron deficiency is believed to be the most common cause of anaemia in pregnancy. In our study 80% cases are of iron deficiency anaemia and 15% dimorphic anaemia.

The values of Hb were observed from 3.9gm% to 12.7gm% in all the 250 patents in our study. 235 patients were anaemic out of 250 at the time of booking (94%). In multigravida group, most of the patients were belonged to moderate anaemia(7-9.9gm%), followed by mild anaemia (10-10.9gm%). 6.4% of the total patients were severely anaemic(Hb <7gm%). In gravida2 patients maximum no. patients were moderatly anaemic, followed by mildly anaemic. In primigravida maximum no. of patients were moderatly anaemic followed with mild anaemia. No patient was found severely anaemic in primigravida and gravida2 patients (Table3).

Screening of anaemia, treatment of anaemic women and availability of the food fortification (wheat flour with iron and folic acid, milk, sugar and salt with iron to build long term iron store remains the key to reduce anaemia. Even cooking in cast iron utensils improves the iron content in diet[7].

Programmes for prevention and management of anaemia

India was the first developing country to take up a national programme to prevent anaemia among pregnant women and children. There were two major component of the anaemic prophylaxis programme, preschool children were to receive 20mg elemental iron and 100 micro gm folic acid and pregnant women to receive 60mg elemental iron, 500 micro gm of folic acid. Of the two components the coverage under the component for children has always been very poor. The study conducted in 1989 by ICMR[11] indicated that coverage under the National Anaemia pregnancy programme was low and 60mg of ferrous sulphate was perhaps inadequate to treat anaemiaThe programme was revised and remained as National Anaemia Control Programme (NACP). Women would get iron 100mg and folate 500 micro gm. And those with anaemia should get two tablets daily.

DLHS 2[12] also showed that there has been some improvement in percentage of pregnant women receiving IFA tablet. There has been significant reduction in percentage of women who received but did not consume the tablets. These data suggests that if all the pregnant women are screened for anaemia and provided accurate therapy, it might be possible to achieve substantial reduction in prevention of anaemia in pregnancy.

Conclusion

We conclude that the prevalence of anaemia at the time of booking is still high in India. The result suggested that anaemia predates the pregnancy in the majority of the cases. hence preconceptional care, including iron and folic acid supplementation is advocated to reduce this problem. During pregnancy efforts should be geared towards the early detection and treatment of anaemia before delivery.

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Analysis of causes, distribution, prevalence and management of low vision aids patients: A prospective study

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Introduction

A person with low vision is one who has impairment of visual functioning even after treatment and/or standard refractive correction, and has a visual acuity of less than 6/18 to light perception, or a visual field less than 10 degree from the point of fixation, but who uses, or is potentially able to use vision for the planning and/or execution of task. There are some devices which make things larger and brighter which are known as low vision aid. By the help of these devices patient can use his remained vision to improve his life quality.

Materials and method

This prospective case controlled randomized study was performed in department of ophthalmology of Saraswati Institute of Medical Sciences, Hapur and L.L.R.M. Medical College Meerut, India, from January 2007 to January 2009. The study was started only after taking permission from the institutional ethical committee. Patients with complain of diminution of vision were evaluated with series of tests like visual acuity, fields, contrast sensitivity, colour vision and fundus examination. Patients whom best corrected visual acuity was less than 6/18 in better eye were labelled as low vision patients and included in the study. Patients of definite cataract, with no perception of light or with active diseases like corneal ulcers or vitreous haemorrhage were excluded from the study. The aim of the study was to analyse main causes of low vision, prevalence of patients in hospital based population and management of LVA patients.

Total outdoor patients were about 7000. Total 80 patients of low vision were worked up in outdoor patient department. They were classified according to age distribution, sex distribution, literacy status, disease prevalence in hospital opd and type of device accepted.

In this study we observed that max patients seeking for LVA were of adult age group (>30 yrs)(table1), male population was on higher side (60%)(table2), literacy rate was high(88%)(table3). Most of the patients were suffering from retinal diseases(table4).optical devices were accepted by most of patients and most of the patients were benefitted by devices(table4,5&6).

Discussion

There are not too many studies on LVA. A population based study in south India has shown that that prevalence of low vision is 1.05% in southern India. If these data were extrapolated to the estimated 1014 million population of India, in the year 2010, 10.6 million people would need low vision services. By the results of study we concluded that though the patients attending low vision aid clinic were of all age, the more number was of older age group. Number of male patients was higher and mostly accepted high plus glass while self illuminated magnifiers were accepted least, though technically superior, probably because of high cost. Most of patients attending in out door with complain of low vision were of retinal diseases like ARMD and diabetic retinopathy. We were able to improve quality of life of 66 patients out of total 80 patients (Table-?). In 14 patients there was no significant difference with LVA or without LVA. Most of such patients were of optic atrophy and retinitis pigmentosa. Even all patients of same disease did not accepted same device proving that all patients have different visual requirements depending on their age, occupation, literacy status and tasks.

Thus the main aim of low vision device is not only to improve vision but also to improve quality of life as a whole. Hence low vision care has become a key element of comprehensive eye service model of programme development in the VISION 2020: the right to sight programme.

Table 1: Showing Age distribution.

Age group	No.	%
<8 yrs	24	30%
8-30 yrs	16	20%
>30 yrs	40	50%
Total	**80**	**100%**

Table 2: Showing Sex distribution.

Sex	No.	%
Male	48	60%
Female	32	40%
Total	**80**	**100%**

Table1and2show that low vision patients were more in more than 30 yrs Age group with male predominance.

Table 3: Showing Literacy status of patients.

Status	No.	%
Literate	70	88%
Illiterate	10	12%
Total	**80**	**100%**

Table3 shows that most of patients attending LVA clinic were literate.

Table 4: Showing Disease prevalence.

Disease causing low vision	No. of patients	%
ARMD	16	20%
Diabetic retinopathy	16	20%
Optic atrophy	14	17.5%
Retinitis pigmentosa	12	15%
Corneal opacity	6	7.5%
Myopic degeneration	6	7.5%
Albinism	2	2.5%
Retinal detachment	4	5%
Amblyopia	3	3.75%
Solar retinopathy	1	1.25%
Total	**80**	**100%**

Table 5: Showing Devices prescribed.

Type of device	No.	%
Optical	56	70%
Non optical	10	12.5%
No device	14	17.5%
Total	80	100%

Table5 shows that most of patients accepted optical low vision aid

Table 6: Showing Optical devices prescribed.

Type of device	No.	%
High plus glass	24	30%
Stand magnifier	6	7.5%
Hand magnifier	20	25%
Telescope	4	5%
Self illuminated magnifier	2	2.5%
Total	56	70%

Table 7: Showing results of devices.

Patient	No.	%
Benefitted	66	82.5%
Not benefitted	14	17.5%
Total	80	100%

Table7 shows that most of patients were benefitted with LVA

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Biliary cystadenoma: A rare entity

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Abstract

Biliary cystadenoma, an intra hepatic non parasitic biliary cystic disease is a rare entity. It is a benign lesion, but its malignant transformation is also seen. There are no specific signs or symptoms of this disease and usually the patient presents with pain, nausea, fullness, increased abdominal girth, and palpable mass. We are discussing here a case of bilobular biliary cystadenoma, with extension in gastrohepatic, hepatoduodenal and periportal region. This patient was diagnosed about eleven year back and has lived his life with only minimal complains.

Key words

Biliary cystadenoma, Cystadenocarcinoma, Hepatic cyst.

Introduction

Biliary cystadenoma, a premalignant condition, originates in the bile ducts, usually presents as a unilocular or multilocular cystic intrahepatic mass. It is very difficult to distinguish between biliary cystadenoma and cystadenocarcinoma from simple hepatic cysts as both are slow growing tumour, especially when the tumours are in the unilocular form. The clinical presentation of these lesions is very similar; moreover the hepatic cystic lesions, like hydatid cysts and metastatic tumours, can undergo cystic degeneration, and thus may mimic cystadenocarcinoma. We are discussing here a case of bilobular biliary cystadenomatous disease, with extension in to gastrohepatic, hepatoduodenaland periportal region and encasement of portal radical. This patient was diagnosed about eleven year back as a case of biliary cystadenoma and had lived a healthy life even without any specific treatment for the disease.

Case history

A 75-year old male presented in surgery department of our hospital with complains of continuous dull aching pain in epigastrium and right hypochondrium for last few months which increases in the intensity for last three days. Patient was admitted in All India Institute of Medical Sciences eleven year back with similar complains with mild jaundice. An image guided biopsy, revealed this as a case of biliary cystadenoma with involvement of mainly both lobe of liver and hepato duodenal ligament. Patient was managed conservatively and advised to remain in regular follow up, but he never returned back to AIIMS during last 11 years (Figure-1). During this period he had suffered with some episodes of abdominal pain managed by analgesic and one episode of jaundice which was self limiting. At present, the examination of patient revealed icterus with palpable liver up to 6 cm below the right costal margin without any clinical evidence of ascites. Serum bilirubin, hepatic enzymes, coagulation parameters, serum carcinoembryonic antigen and alpha-fetoprotein were within normal limits. Ultrasound examination showed multiple dilated areas in periportal and pre aortic region. CT revealed cystic multinucleated neoplasm involving left, caudate and medial part of right lobe of liver, with extension into gastro hepatic and hepato duodenal ligament with involvement of periportal region and encasement of portal radicals with cholelithiasis. Percutaneous transabdominal drainage done under radiographic guidance, and non bilious clear fluid drained. Microbial and cytopathologic analyses were unremarkable. The patient was treated symptomatically.

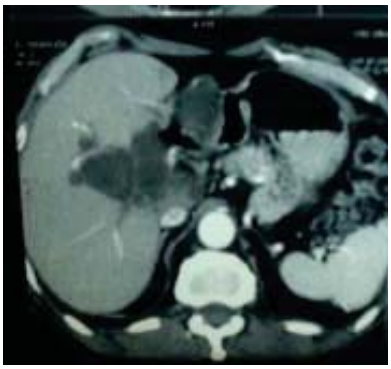
Discussion

Biliary cystadenoma represents a rare benign cystic hepatic neoplasm that has premalignant potential. The reported incidence is <1%, with a female predominance (F: M=4:1) and clinical manifestation typically after the fourth decade of life. Approximately 100 cases of cystadenomas and 50 cases of cystadenocarcinomas have been reported worldwide[1]. These lesions account for less than 5% of all patients with intrahepatic cysts[1]. About 85% of cystadenomas and cystadenocarcinomas are found in the intrahepatic portions of the biliary ducts, whereas 15% are in the extrahepatic ducts. The malignant counterpart is biliary cystadenocarcinoma, which is believed to arise from the premalignant form[2,5]. Biliary cystadenomas and cystadenocarcinomas, in gross appearance, are usually multilocular cysts with internal septa and nodularity of the inner wall.

The etiology of the congenital variant has been attributed to obstruction of aberrant biliary ducts or failure of involution of or interconnection between intralobular (proximal anlage) and extralobular (distal anlage) biliary ducts[6]. Histopathological analysis of such cysts typically reveals a trilayered configuration — an inner layer of loose connective tissue lined with columnar or cuboidal epithelium, a middle layer of more compact connective tissue with slight to moderate vascularity, and an outer layer of loose connective tissue with moderate to marked

Fig.1: showing swelling in right hypochondrium.

Fig.2: C.T. showing local involvement.



vascularity and bile ducts. Although histological differentiation between cystadenocarcinoma and cystadenoma is disputable, it is uncertain whether cystadenocarcinoma is de-novo cancer or whether they are derived from cystadenoma (adenoma-carcinoma sequence). Most cysts contain a clear, serous, sterile transudate devoid of protein, with an electrolyte composition similar to that of serum[6]. Exudative and/or sanguinous fluid implies primary or secondary infectious, inflammatory, or neoplastic phenomena, rarely; bile-stained fluid may be encountered primarily.

There are no specific symptoms and sign of this disease. . Mostly these patients are asymptomatic, and are discovered incidentally. The right upper quadrant abdominal discomfort, abdominal swelling, dyspepsia, nausea, and vomiting are the usual nonspecific findings in patients with benign or malignant lesions. Even these non-specifics complain are present only if the cyst is of more than 5 cm in diameter. Obstructive jaundice is extremely unusual in benign cystic diseases and, if present, should raise a clinical suspicion of neoplasm. There are only eight reported cases of intrahepatic biliary cystadenoma causing obstructive jaundice due to its extension into a major duct. The most likely cause of episodic jaundice in this patient would have been recurrent hemorrhage into the cyst which was extending along the left hepatic duct to the confluence, causing a transient rise in intracystic pressure and in turn occlusion of the common channel of the extrahepatic biliary tree.

The only definitively curative therapy is resection. Some

Fig.3: C.T. multilocular cystic Lesion.

authorities have also advocated for hepatic transplantation for patients with bi lobular hepatic involvement. Transplantation is although an ideal therapeutic approach, but it has some limitations like expertise, and organ availability, as well as co morbidity, age, and socioeconomic status of the patient. Therapy for symptomatic patients ranges from less to more invasive and from palliative to curative. Percutaneous transabdominal aspiration is usually associated with a high recurrence rate Results are improved when aspiration is combined with sclerotherapy, such as instillation of ethanol, doxycycline, or minocycline,[6] though the risks of infection and recurrence remain high Partial excision, epithelial eletrocoagulation, fenestration, and omentopexy using laparoscopic or conventional open techniques have been advocated by several authorities as effective palliation.

Our patient had a rare, benign variant of intrahepatic nonparasitic cystic disease, that of biliary cystadenoma with a long history of 11 year and episodes of obstructive jaundice.

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Are the marketing strategies used by pharmaceutical companies successful against prescribing physician

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Abstract

This study was carried out in Indira Gandhi Government Medical College Nagpur to find out different marketing strategies used by pharmaceutical companies to influence to change the prescription of drug by doctors. Study was carried out with the help of structured questionnaire. The prescribing doctors and medical representatives were study participants. Pharmaceutical companies use extra drug samples (70%), funny tours (63.33%), gifts (70%) and monetary benefits (53.33%) as major marketing strategies. The marketing strategies accepted by doctors from pharmaceutical companies were accepting extra drug samples (86.66%), gifts (86.66%), and monetary benefit (46.66%) Under the influence of these strategies prescribing doctor may prescribe less efficacy drugs or more costly drugs to the patients. Pharmaceutical companies are successful in achieving their marketing goals with the help of use of these marketing strategies.

Keywords

Prescription, Marketing strategies, Monetary benefit, Drug samples

Introduction

Prescription of drugs by doctor is directly related to increasing the sale of drugs. Doctors are key persons for prescription of the drugs. So, by influencing the doctors; pharmaceutical companies can increase the prescription of their drugs and ultimately increase the sale of these drugs. Heavy advertising of drugs to doctors lead to increase number of prescriptions being written by doctors, whether the new drug is useful for patient or not. Pharmaceutical companies sometimes hide adverse data from the public[1].

Drug companies promotions subconsciously influence physician's prescription patterns. Parker et al., in 2002, in one study found that, the pharmaceutical industry spent $15.63 billion on promotions, which include free office supplies, all expenses paid events and awards to sales representatives and physicians[2]. Orlowski et al 1992 in a study of prescription patterns, doctors have no objection on pharmaceutical company's all expenses paid seminars at popular vacation site[3]. Due to all this, there are chances that less effective or equally effective brand with higher cost of same formulation may be prescribed by physician.

After considering, all these aspect of marketing research, pharmaceutical marketing tactics, and prescription of drugs by doctors, this study was planned to find out the marketing strategies used by pharmaceutical companies to influence doctors to prescribe the drug.

Aims and objectives of the study

1) To study different marketing strategies used by pharmaceutical companies to influence the doctors.2) To study the effect of these marketing strategies for increasing the prescription of drugs by doctors.

Material and methods

This study was carried out in Indira Gandhi Government Medical College, Nagpur. For this study, data was collected with the help of structured questionnaire from the persons involved in promotion of drugs (Medical Representatives) and persons that were actually prescribing the drugs (Resident Doctors of Indira Gandhi Government Medical College, Nagpur).

The study participants in this study were medical representatives visiting to outpatient department (OPD) of Indira Gandhi Govt. Medical College, Nagpur and the doctors working in outpatient department (OPD) of Indira Gandhi Govt. Medical College, Nagpur. Total 60 participants were included in this study, 30 participants were medical representatives, and 30 participants were doctors.

The structured questionnaire for medical representatives (questionnaire-1) was containing following questions:

1. Do you provide scientific data about your company drugs to doctors?
2. Do you mention side effect of your company drugs to doctor?
3. Are you offering extra drug samples for prescribing your company drugs?
4. Which factor you think useful for promotion of your company drugs?
5. What material you are using for promotion of your drugs? 6. Are you offer gift to doctors for prescribing your company drugs?
7. Do you offer monetary benefit to doctor for prescribing your company drugs?
8. Do you provide any promotional activity like funny tours, sponsored travel to doctors to prescribe your company drugs?

The structured questionnaire for doctors (questionnaire 1) was containing the following questions:

1. What will you do if medical representative offer extra drug samples for drug prescription?
2. What will you do if medical representative offer gifts for drug prescription?
3. What will you do if medical representative offer monetary benefit for drug prescription?
4. How you decide the prescription drug?

Results

The results of the study showed that 100% pharmaceutical companies provide scientific data about drug. 96.66% pharmaceutical companies mention about the side effects of drug. 70% pharmaceutical companies offer extra drug samples for drug prescription. 70% pharmaceutical companies offer gifts for drug prescription. 53.33% pharmaceutical companies offer monetary benefit for drug prescription. 63.33% pharmaceutical companies offer funny tours, sponsored travel to the doctors for drug prescription (Table 1).

86.66% doctors will accept extra drug samples drug prescription. 86.66% doctors will accept gifts for drug prescription. 46.66% doctors will accept monetary benefit for drug prescription. Constituents of drug (33%), brand of drug (46.66%) and cost of drug (20%) are taken into consideration while decision of the prescription of drug by doctors (Table 2).

Discussion

Results of these questionnaires (Table1 & 2) were correlated and discussed in light of observation of previous studies. 70% of pharmaceutical companies offer extra drug samples to doctors for prescription of their company drugs (Table1) and it was seen that 86.66% of doctors will prescribe drug if pharmaceutical companies offer extra drug samples(Table 2). Some physicians love drug samples and also have belief that it helps them to take care of patients who are not affording the newer expensive drugs. Other physicians had opinion that they are just helping pharma companies sell more products without any fees. Physician is the middle man who is working for the drug company for free of cost[4]. Therefore, offering extra drug samples to doctor will definitely increase the prescription of drug.

86.66% doctors would prescribe drug if they had been offered by gifts (Table 2), 70% of pharma companies has strategy of offering gifts to doctors (Table 1). Randall et al. 2001[5] in their study on residents found that residents were in opinion to accept educational gifts of moderate expense. Therefore offering gifts to doctors by pharma companies is an appropriate marketing strategy.

46.66% doctors would always prescribe drug if pharma companies offer monetary benefit to them (Table 2), 53.33% pharma companies offer monetary benefits occasionally or as a last strategy (Table1). The pharmaceutical industry spent billion on promotions, which include free office supplies, all-expenses-paid events and awards to the sales representatives and the physicians[2]. This shows that offering monetary benefit will also be a useful marketing strategy of pharmaceutical industry. Somerset et al. 2001, confirmed that offering monetary benefit is a fundamental tactic in meetings between general practitioners and pharmaceutical representatives[6]. Nowadays, some of the pharmaceutical companies started disclosing their expenditure on physician for promotion of prescription of the company drug.

Quality and brand of drug go hand in hand, 93% of medical representatatives think quality of drug useful for promotion of prescription of drug and 46.66% of doctors

Table 1: No. / (%) of response given by medical representative to structured questionnaire.

Response of the Medical Representatives	YES	NO
Provide scientific data about drug	30(100)	0
Mention side effects of drug	29(96.66)	1(3.33)
Offer extra drug samples for drug prescription	21(70)	9(30)
Offer gifts for drug prescription	21(70)	9(30)
Offer monetary benefit for drug prescription	16(53.33)	14(46.66)
Offer funny tours, sponsored travel to doctors	19(63.33)	11(36.66)

Table 2: No. / (%) of response given by doctors to structured questionnaire.

Response of the doctors	Will accept	Will not accept
Extra drug samples drug prescription	26 (86.66)	4 (13.33)
Gifts for drug prescription	26 (86.66)	4 (13.33)
Monetary benefit for drug prescription	14 (46.66)	16 (53.33)
Decision of the prescription by physician		
a)Constituents of drug	10(33)	-
b) Brand of drug	14(46.66)	-
c) Cost of drug	06(20)	-

(Table 2) think brand of drug useful for deciding prescription of drug. Providing full scientific data of drug including side effects of drug will add knowledge of doctors and will definitely increase the prescription of drug. Most of pharmaceutical companies provide funny tours and travels to doctors that may also act as good marketing strategy.

Conclusions

Use of extra drug samples, gifts, and sometimes offering monetary benefit will definitely influence the prescribing doctor and increase the prescription of drug. Maintaining good quality of drug or brand of drug is helpful for increasing the prescription of drug by doctor. For effective and safe drug, offering extra drug samples and gift will definitely increase the prescription of drug. The study shows that the marketing strategies used by pharmaceutical companies are successful against the prescribing physician. But, there are chances that less or equally effective drug with higher cost might be prescribed by doctor under the pressure of pharmaceutical companies.

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