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ORIGINAL ARTICLE

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Study Of Bacterial Agents In Chronic Suppurative Otitis Media Cases And Their Antimicrobial Sensitivity Pattern With Special Emphasis On *Pseudomonas aeruginosa*

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Abstract

This study was carried out with an aim to detect bacterial agents from Chronic Suppurative Otitis Media (CSOM), aural swab samples with emphasis on antimicrobial sensitivity pattern. Total 150 aural swab samples of CSOM patients from OPD of Otolaryngology and Head Neck Surgery, Sylhet MAG Osmani Medical College Hospital were studied. Out of 150 cases 145(96.67%) yielded growth of bacteria and there was no growth in 5(3.33%). Bacterial agents isolated from 145 cases which yielded growth were, *P. aeruginosa* 51(35.17%), *Staphylococcus aureus* 28(19.31%), *Klebsiella* 20(13.79%), *E. coli* 17(11.73%), *Proteus* 16(11.03%) and Mixed organism 13(8.97%).

Each isolate was subjected to culture sensitivity testing. Antimicrobial sensitivity and resistance pattern of the isolates were observed.

In our study all the patients were enrolled from outpatient department and the infections were community acquired. Considering the sample and organism the result is found similar and consistent to other studies done in our country.

[OMTAJ 2008; 7(2)]

Introduction

Chronic Suppurative Otitis Media (CSOM) remains one of the most common childhood chronic infectious diseases worldwide[1]. High incidence rate is attributed to overcrowding, inadequate housing, poor nutrition, passive smoking, high rate of nasopharyngeal colonization with potentially pathogenic bacteria and inadequate health care. Poverty is a major risk factor in developing countries[2]. The CSOM is one of the important health problems of our country. Some ~ 7.39% of children were observed to have CSOM in a study carried out in two slums of Dhaka city [3]. The disease has also been found prevalent among rural school going children[4]. In our country, people take their bath in highly polluted stagnant pond water and river water and also have habit of cleansing the ears with dirty materials [5].

When the eardrum has been perforated in an acute attack of otitis media and remains patent, infection with the original pathogens may persist or repeated infections may be caused by secondary invaders such as *S aureus*, coliform bacilli, Pseudomonas and Bacteroides. Swabs of the discharge should be cultured to guide the choice of antibiotics for systemic and topical therapy [6].

For effective and economic treatment, it is very important to know the microbial pattern and their antibiotic sensitivity. By this way, misuse of antibiotic with its consequent effect will be minimized and the period of treatment will also be shortened [5]. Antibiotic local aural drops were found to cure majority of cases among the primary cases. It is suggested that systemic antibiotics should be reserved for refractory cases, when specific pathogens are isolated on culture[7]. Treatment of CSOM is directed not only towards the cure but also to minimize the chronicity and overt complications. Antibiotics should be chosen to eradicate the most potential pathogens like *P. aeruginosa* and *S. aureus*. In all cases of infection, particularly recurrent or chronic cases,

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culture sensitivity should be done to rationalize the overall management.

In different studies *P. aeruginosa* is implicated as the most common pathogen for CSOM in our country [5]. By doing antimicrobial sensitivity and detecting ESBL production by the major pathogen like *P aeruginosa*, we can reduce the treatment cost and use of appropriate antibiotic will eventually down regulate the trail of events relevant to treatment failure in CSOM patients to a considerable extent.

The present study was designed to explore the microbial pattern its antimicrobial sensitivity pattern and extent of *P aeruginosa* infection among CSOM cases.

Materials and Methods

This study was carried out in the Department of Microbiology, Sylhet MAG Osmani Medical College and Department of Otolaryngology and Head-neck Surgery of Sylhet MAG Osmani Medical College Hospital. 150 patients with CSOM attending the ENT OPD were studied. Informed written consent of the patients or guardian was taken. The study was approved by the ethical review committee of Sylhet MAG Osmani Medical College.

Collection of Specimen

Aural swab was taken from each patient taking all aseptic measures with a swab stick and transported to the Microbiology laboratory as early as possible for inoculation into the Blood agar and MacConkey's agar media at 37°C for the next 48 hours. After 24 hours growth of microbial agent was identified by their colonial morphology, motility test, Gram staining character, pigment production, changes in TSI agar, odor, along with other standard biochemical tests [6, 11].

Antimicrobial sensitivity test

The isolates of the microbial isolates were subjected to antimicrobial sensitivity test (AST), by modified Kirby-Bauer disk diffusion method. Antimicrobial agents for AST were chosen from the NCCLs recommended panel for *P aeruginosa* [12]. The control strain of *P aeruginosa* (ATCC-27853) was used to check the quality of the antimicrobial disks with each batch of AST to see their standard performance. Antimicrobial sensitivity test for isolated pathogens, in addition to *P aeruginosa*, was done in the appropriate standard methods recommended by NCCL 2001. The strains which showed resistance to 1st line drugs were supposed to be subsequently processed for ESBL production.

Detection of ESBL production

The ESBL production by the *P aeruginosa* strains was first screened by Double disk diffusion (DDD) method, and finally to be confirmed by phenotypic confirmatory test, but as there was no strain positive in DDD screening test, so confirmatory test could not be done.

Double disk diffusion testing for ESBL detection[16]

Double diffusion test was done on the isolated *P. aeruginosa* strains which showing resistance to 3rd generation cephalosporins but were susceptible to up to two of other antimicrobials. By this method, synergy between a disk of amoxicillin plus clavulanic acid and 3rd generation cephalosporins was detected. The clavulanate in amoxicillin plus clavulanic acid disk diffuses through the agar and inhibits the β-lactamase surrounding 3rd generation cephalosporin disc. Mueller Hinton agar plates were prepared and labeled properly and inoculated with standardized inoculum (corresponding to 0.5 McFarland standard), of the test organism with sterile cotton swab. Amoxicillin 20μg and Clavulanic acid 10μg disc was placed in the centre of the plate, and three 3rd generation Cephalosporins such as Ceftazidime, Ceftriaxone, Cefotaxime and one Aztreonam disc were placed 20mm distance from Amoxicillin and Clavulanic The plate was incubated overnight at 37°C. No ESBL production was positive as the inhibition zone around the test antibiotic disc did not increase towards the Amoxicillin and Clavulanic disc, nor the bacterial growth was inhibited where two antibiotics diffuse together.

Preservation of the *P. aeruginosa* in 20% Glycerol broth

A single colony on the primary culture plate, identified as *P aeruginosa* was inoculated in Nutrient Agar media and incubated for next 18 hours and the grown colonies were scrubbed up by a sterile swab stick and mixed into a sterile 20% Glycerol broth, with ID number, date and preserved at -20°C in refrigerator.

Results

A total 150 samples of aural swab from CSOM patients were studied, of which 145 (96.67%) showed growth of bacteria and 5 (3.33%) showed no growth. Amongst the 145 isolated organisms 51 (35.17%), were *P aeruginosa.* Out of all 51 *P. aeruginosa* infected CSOM patients, 36 (70.59%) were within 18 years of age group rest were above 18 years.

Nearly half (51%) of the *P aeruginosa* infected CSOM patients used clean water for bathing, tube-well water (45.10%) and municipal supply (5.88%). Others used water from relatively dirty sources mostly pond water (41.14%) and water from different other sources like river, open wells etc. Majority of the CSOM patients, 18 (35.29%) had a habit of cleansing the ear with cotton bud, 20 (39.22%) with cotton. Rest 13 (25.49%) of them were in a habit of cleansing the ear with dirty materials.
All *P aeruginosa* isolates from CSOM patients was tested against all antibiotics of the recommended panel. Most of the isolates showed resistance to Amoxicillin/ Clavulanic-acid (73.43%), Cotrimoxazole (80.39%), Doxycycline (78.43%) and Chloramphenicol (78.43%). A number of isolates were resistant to Aztreonam (43.14%), Ticarcillin (35.29%) and Ceftazidime (23.53%). Very few were resistant to Ciprofloxacin (1.96%) and Gentamicin (5.88%). All of the isolates were sensitive to Imipenem (Table I). Out of total 51 *P aeruginosa*, isolated none were ESBL producers, identified by Double Disk Diffusion (DDD) screening test.

Table I: Antimicrobial sensitivity of *P aeruginosa* isolates from CSOM cases (n=51)

Sl.no	Name of the antibiotic	Sensitive (S) n (%)	Intermediate (I) n (%)	Resistant (R) n (%)
1	Amoxicillin/ Clavulanic Acid (AMC)	9 (17.65%)	2 (2.92%)	40 (73.43%)
2	Aztreonam (ATM).	16 (31.37%)	13 (25.49%)	22 (43.14%)
3	Ceftazidime (CAZ).	35 (68.63%)	4 (7.84%)	12 (23.53%)
4	Chloramphenicol (C).	7 (13.73%)	4 (7.84%)	40 (78.43%)
5	Ciprofloxacin (CIP).	43 (84.31%)	7 (13.73%)	1 (1.96%)
6	Doxycycline (DO).	9 (17.65%)	2 (2.92%)	40 (78.43%)
7	Gentamicin (CN).	48 (94.12%)	0	3 (5.88%)
8	Imipenem (IPM).	51 (100%)	0	0
9	Ticarcillin (TIC).	33 (64.71%)	0	18 (35.29%)
10	Trimethoprim/ Sulfamethoxazol(SXT)	7 (13.73%)	3 (5.88%)	41 (80.39%)

Discussion

In the present study, out of 150 aural swab samples from CSOM patients, 51(35.17%) *P. aeruginosa* were isolated. which was little lower than the study findings of Amin and Chowdhury [5], who found 51% *P. aeruginosa* in CSOM patients at Dhaka.
Personal habit like bathing habit and habit of cleansing ear was also evaluated in this study. Majority *P. aeruginosa* infected CSOM patients, used cotton bud and cotton, only a few used dirty materials for cleansing their ear. It is observed that, almost half of the *P. aeruginosa* infected CSOM patients used inappropriate sources of water for bathing. Improvement in the availability of better sources of water and easy availability of hygienic cotton bud could be the reason of reduction in incidence of *P. aeruginosa* in CSOM cases.
Antibiogram of all the isolated *P. aeruginosa* was done by NCCLS approved antimicrobial panel. All the Pseudomonas isolated was sensitive to one or more first line antimicrobial drugs. All 51 *P. aeruginosa* were not ESBL positive.
The ESBL producing gram negative organisms were found to be *E.coli* and *Klebsialla* in almost all studies in Bangladesh. It was observed that among the hospitalized, especially burn patients, ESBL production was ~ 5% and they received various antibiotics, including 3rd generation Cephalosporins. Studies were done in urban hospitalized patients [13, 14]. The ESBL production was very low or nil in other samples like urine and swab from surgical wounds.
In present study the CSOM cases were selected from OPD. Most of them were from adjacent villages. Patients were not hospitalized and no surgical intervention was done to these patients. Neither had they received any remarkable antibiotic treatment nor any 3rd generation Cephalosporins for their ailment. The isolates from them were community acquired. Lower rate of ESBL production by *P. aeruginosa* might be due to the reason that *P. aeruginosa* shows multiple mechanisms of drug resistance simultaneously other than the ESBL production such as efflux pump, AmpC enzymes and mutation of porin proteins[15].
In present study, detection of ESBL production was done using three combinations of 3rd generation Cephalosporins (Ceftriaxone, Ceftazidime, Cefotaxime), Aztreonam and Amoxicillin plus Clavulanic acid[16]. Use of only one of the third generation cephalosporin might fail to detect ESBL production resulting in under reporting of the prevalence [13].

pThe ESBL producing organisms, especially Gram negative strains are increasing throughout the world. The ESBLs cause problem in treating infections, as because such organisms are also resistant to most of the antimicrobials. Identification of the resistant organism is important in developing country like ours, where there is almost no control of antibiotic use. Detection of ESBL producing strains and their antimicrobial resistance pattern will shorten hospital stay by providing information on appropriate antimicrobials and reduce treatment cost of the patient.

In present study we did not find any ESBL producers *P. aeruginosa* isolates in CSOM aural swab samples. This negativity of the finding is good message for the patients and the clinicians. This result should be reconfirmed and verified from time to time in future. Search for ESBL production in hospitalized patients and nosocomial infections caused by other organisms should be continued.

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ORIGINAL ARTICLE

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Relactation in Fifty Lactation Failure Mother-infant Pairs.

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Abstract

It was a retrospective study done in the Lactation Management Center (LMC) in the Outpatients department of Pediatrics, Sylhet MAG Osmani Medical college Hospital. The Objective of the study was to look into the feasibility of Relactation in a hospital setting and growth of the infants during three months follow up. A total number of 50 cases records of lactation failure mother-infant pairs that seek help of LMC from 11th November 2006 to 10th November 2007 were selected for the study. They were evaluated for their age, lactation problems, breastfeeding pattern and growth of infants and outcome that occurring after Relactation. The age group varied from 3 days to 270 days with mean of 75.8±45.4 days. 36 infants were less than 180 days and 14 were more than 180 days. The infants were either nonbreastfed or partially breastfed. In addition to motivation and advice for frequent suckling by their infants; all mothers were prescribed metoclopramide in tablet form to augment milk secretion. Lactation supplement device was used as necessary. All infants had an increment of breastfeeding. Mean time for milk secretion in mothers of nonbreastfed infants were 4.5 days and mean time to develop willingness to suckle in these infants were 3.6 days. Mean time to increase milk flow in mothers of partially breastfed infants were 2.0 days and the infants were more willing to suckle by a mean of 2.4 days. Sixteen (72.7%) of the twenty-two nonbreastfed infants needed lactation supplement device. Seventeen (34%) infants switched over to exclusive breastfeeding at the time of discharge. Thirty (60%) infants who came for first follow up and thirty-seven (74%) were exclusively breastfed after 3 months follow-up. Subsequent growth of the studied infants was satisfactory. The study concludes that relactation is possible and with proper complementary feeding, it is optimum for growth of the infants.

[OMTAJ 2008; 7(2)]

Introduction

Relactation is defined as the resumption of breastfeeding following cessation or significant decrease in milk production'. The concept of relactation is not new and is well documented in literature. A relactation program was started in Bangladeshi refugee camps in 1971 by Roy.E.Brown [2, 3] and it was successful in reducing mortality of infants from gastroenteritis. The cessation of breastfeeding may be from few days to a few months [4, 5]. In general, it is taken to be less than six months[6]. Relactation is usually necessary if the baby is off the breast for at least one week'. Induced lactation is the initiation of breastfeeding in a woman who has not lactated for years or who have never been pregnant [7, 8, 9].

Oxytocin nasal spray or tablets has been used to induce letdown reflex with variable success[6]. Recently, metoclopramide, a potent, relatively safe prolactin stimulant has been used in reestablishment of lactation with promising results[10]. However, frequent suckling by the infant is the most potent stimulus which remains the basis of relactation[6].

The subject of relactation is becoming an area of interest with increasing awareness of breastfeeding. Several authors described their experiences on relactation [11, 12]. The present study was designed to look into the feasibility of relactation in a hospital setting with an idea to help mothers who unfortunately for any reason missed the opportunity to breastfeed

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their babies optimally. The subsequent growth of the infants during follow up was done to see whether the quality and quantity of breast milk after relactation was optimum for growth of the infants.

Materials and Methods

The study was conducted in the Lactation Management Centre (LMC) of Out Patients department of Paediatrics, MAG Osmani Medical College Hospital, Sylhet (SOMCH) from 11th November 2006 to 10th November 2007 on fifty mothers and their infants.

The study was a retrospective one including the infants were attended in outpatients departments of pediatrics' and were admitted for some other illnesses to inpatient department of pediatrics' and newborn in obstetrics department and their mothers were identified to have partial or complete lactation failure.

All the data were documented in a registrar book, which was reviewed, and the data Collector gathered the following information: feeding problems, age, date of birth and place of delivery. All the babies were weighed routinely. During assessment, breastfeeding was observed for identification of problems. Breast-feeding observation form was used as a guide for assessment Breastfeeding patterns of the infants were identified and defined as exclusive, Predominant, token and nonbreastfeeding or artificial feeding [13, 14]. Partial breastfeeding was subdivided into high, medium and low partial according to the recommendation of interagency group for action on breastfeeding[15].

Following are the working definitions:

Exclusive breastfeeding: means giving a baby no other food or drink, including no water, in addition to breast milk (except medicines and vitamin or mineral drops; expressed breast milk is also permitted).

Predominant breastfeeding: means breastfeeding a baby, but also giving small amounts of water or water based drinks such as tea.

Partial breastfeeding: means giving a baby some breastfeeds and some artificial feeds either milk or cereal or other food.

High partial - breast milk more than 80% of the infant's diet.

Medium partial breast milk between 20% - 79% of diet

Low partial- breast milk less than 20% of the infant's diet.

Token breastfeeding: minimal occasional irregular breastfeeds.

Inclusion criteria

Two age groups of infants were taken:

Infants below six months. The aim was to establish excusive breastfeeding. Thirty six medium partial, low partial and nonbreastfeeding infants were in this group.

Infants above 6 months but less than 1 year. The aim was to optimize suckling frequency. Fourteen nonbreastfed infants were in this group.

Nonbreastfeeding and partial breastfeeding

Exclusion criteria

For the purpose of study exclusive and predominant breastfeeding were taken in the same group and was designated as exclusive breastfeeding. Exclusive breastfeeding groups were excluded from the study.

After enrollment, lactation status was determined by a questionnaire. Baseline information about anthropometry of infants and their mothers were to relactation was started as soon as the infant reasonably well to suckle. . Mothers were categorized for the requirement of services according to their need like counseling, correction of position and attachment, Oketani breast message technique. Mother was sufficiently motivated and empowered with the detail knowledge of breastfeeding. She was advised to take extra fluids and foods known to increase milk production like black seed (Nigella Sativallin of the family Ranunculaceae). All mothers were prescribed metoclopramide in tablet form in a dose of 10mg three times daily for 10 days. Bottle feeding stopped and feeding was started with cup and spoon. The mothers were counseled and shown proper positioning and attachment. A modified form of lactation supplement device, lacto aid was used to make breastfeeding rewarding to the infant. It was prepared by strapping a soft feeding tube no-5 or 6 attached to a 50 ml syringe without piston which was suspended from the mother's neck in such a way that milk poured into it flows by suckling force and not by gravity. The technique gradually withdrawn by pouring less and less when the baby started suckling well and milk from the breast was

satisfactory. They were discharge once significant milk flow was established or the baby was stable with lactation supplement device.

The infants were followed up for a period of three months. History of breastfeeding and anthropometric measurements were taken during this period. . Data were collected from the records book documented by the nurses of the center. It was compiled and analyzed with the help of personal computer.

Results

A total of 50 cases were enrolled over a period one year. The youngest infant was 3 days old and the eldest was 270 days. Eighty percent of the infants were never exclusively breastfed. Breastfeeding pattern studied infants ranged from nonbreastfeeding, medium partial, token, low and high partial breastfeeding at the time of admission, (Table-1). Twenty-two (44%) infants were nonbreastfeeding at the time of admission. Period of last breastfeeding to entry into study in nonbreastfeeding infant from 10 days to 120 days. Sixteen of the twenty-two (72.7%) nonbreastfeeding infants needed lactation supplement device at the time of relactation.

Table-1
Breastfeeding Pattern of Infants on Admission and Discharge (n-50)

Breastfeeding pattern	On admission number (%)	On discharge number
Nonbreastfeeding	22 (44)	0 (0)
Token breastfeeding	10 (20)	0 (0)
Low partial	4 (8)	13(26)
Medium partial	12 (24)	15 (30)
High partial	02 (04)	5 (10)
Exclusive	0 (0)	17 (34)

Mean time for willingness to suckle and its relationship to various factors are shown in table-II. Younger infants were willing to suckle later than older infants (3 days vs. 2.6 days); Partial breastfeeding infants were willing to suckle earlier than nonbreastfeeding infants (2.4 days vs. 3.6 days). Willingness to suckle in nonbreastfeeding infants had positive correlation with interval from last breastfeeding to entry into study. Patients with diarrhea were willing to suckle earlier than patients with illnesses other than diarrhea (2.4 days 4.3 days).

Table-II
Influence of Various Factors on Mean Time for Willingness to Suckle in Days during Relactation (n-50)

Influencing Factors		Mean time for willingness to suckle in days
Age	<2month	3
	>2months	2.6
Pattern of breastfeeding	Nonbrastfeeding	3.6
	Partial breastfeeding	2.4
Illness	Diarrhea	2.4
	Others illness	4.3
Interval of last breastfeeding to entry to study	<60 days	2.9
	>60 days	4.7

Mean time for appearance of milk in mothers of partially breastfeeding infants and their relationship to various factors are shown in table-Ill. Mean time for appearance of milk in mothers of nonastfeeding infants were 4.5 days and of partially breastfed infants experienced an increase in milk flow at a mean time of 2.0 days. In the nonbreastfeeding group, time for appearance of milk had positive correlation with interval from last breastfeeding to entry into study. Mean time for appearance of milk or to increase milk flow also had positive relationship with time for willingness to suckle. All infants had an increment in breastfeeding pattern at the time of discharge (Table-1.) None were nonbreastfeeding or token breastfeeding at the time of discharge. Thirty (60%) infant switched over to exclusive breastfeeding at the time of 1st follow-up visit.

Table-III
Influence of various factors on Mean Time for appearance of milk /to increase milk flow in days (n-50).

Influencing Factors		Mean time for appearance of milk / to increases milk flow in days
Pattern of breastfeeding	Nonbreastfeeding	4.5
	Partial breastfeeding	2.0
Willingness to suckle in days	<3	2.1
	3 or more days	3.4
Interval of last breastfeeding to entry to study	<60 days	3.5
	>60 days	6

Out of 50 infants, 42 (84%) came for follow up after I month, 40 (80 %) after 2 months and 37(74%) after 3

month. Seventy four percent infants switched over to exclusive breastfeeding at the 3rd visit and 21% started weaning (fig.-I). All infants were continuing breastfeeding. They were growing satisfactorily except one who lost weight (200 gm) in the first month. This baby was suffering from pneumonia and started complementary feeding.

Weight gain in both nonbreastfeeding and partially breastfeeding groups (shown in table-IV) combined during the first month ranged from 325 gms to 1200 gms (mean 625.1) (fig-2). In the second month it was from 220 gms to 900 gms (mean 520.3) and in the third month ranged from 210 gms to 450 gms (mean 390.4). Average gain in length during the first month was 2.0 cm, 1.2 cm in the second month and 0.95 cm in the third month. Occipitofrontal circumference increased by average 1.3 cm in the first month and 0.7 cm and 0.5 cm during second and third month. All except one infant were healthy and playful during follow up.

Table-IV
Observation of follow-up visit

Time of follow-up	Number of infants attend at LMC	Increment of Exclusive breastfeeding in %	Weight gain in Gms in range (Mean)	Increment of length in cm	Increment of OFC in cm
1st month	42	60	325-1200 (625.1)	2	1.3
2nd month	40	68	220-900 (520.3)	1.2	0.7
3rd month	37	74	210-450 (390.4)	0.95	0.5

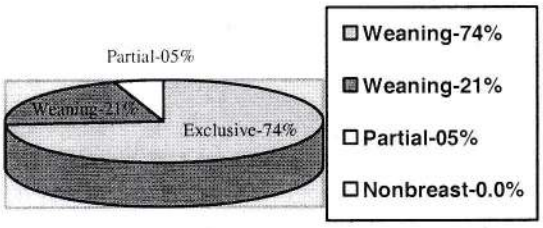

Fig. –1: Percentage of infants by breastfeeding pattern on follow up after 3rd month (n-50)

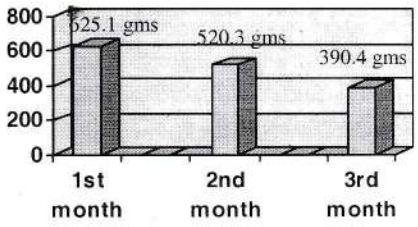

Figure 2: Weight gain on follow-up

Discussion

The most crucial period for establishment of breastfeeding is during the first few days after birth[15]. Risk factors for lactation failure and clinical indicators of breastfeeding problems are usually present just after birth and persist thereafter. In this study, the feeding practices of the women were not congenial for successful breastfeeding from the very beginning. Almost 80% of the infants were never exclusively breastfed. Frequent suckling by infant is the key to successful breastfeeding which could not occur as the infants were bottle-fed. Studies have shown that programmed cell death of mammary alveolar cells during involution commences within hours of end of suckling [16].

We stopped bottle feeding and started feeding with cup and spoon to avoid nipple confusion which might result in difficulty in initiating Relactation [6]. All infants were initially reluctant to suckle which was also observed by Bose et all [7]. Willingness to suckle was a major factor in the ultimate outcome and appeared to depend on several factors like age of the infant's pattern of breastfeeding, period of last breastfeeding to entry into study and type of illness in the infant (table-11).

Partially breastfed infants became willing to suckle earlier than nonbreastfed infants. The nonbreastfed infants might have forgotten the mechanism of suckling as they became used to bottle feeding, the mechanism of which is completely different from the breastfeeding'.

Willingness to suckle seems also to depend on the gap between the period of last breastfeeding to entry into study. The longer the period, the less was the child willing to suckle. Auerbach and Averyl as well as Bose et al[17] found this correlation.

Type of illness also affected willingness to suckle infants admitted for diarrhea started suckling earlier than infants with illnesses other than diarrhea. The possible reason might be that increased thirst led the infants with diarrhea to drink whatever was offer and the infants with illnesses other than diarrhea were too sick to suckle.

Younger infants were willing to suckle later than old - infants in contrast to that observed by Auerbach and Avery'. The reason might be that infants less than two months of age with severe illness become reluctant to feed more easily than older infants, for which reason stopped feeding well is identified as a danger sign for very severe disease in infants less than two months of age in WHO guideline for Acute Respiratory Infections[18]. The mothers of the infants in Auerbach and Avery's' study relactated at a time when their infants were not sick which might be the reason for difference from our study in the influence of age on willingness to suckle. In addition to delayed willingness to suckle, involution of the breasts might be a reason for delay in the appearance of milk in mothers of nonbreastfed infants.

Metoclopramide tablet was prescribed to all mothers to augment milk flow. All mothers experienced an increase in milk flow and there was no untoward reactions similar to other studies[10,19].

Although the number of infants coming for follow up was not adequate to draw a conclusion, the rate of growth was quite satisfactory in those who came for follow up. The growth of infants after relactation was studied by P. Chaturved[4], Alves J.G.[20] and Seema[21]. If the baby gained 125gm /week or 250 gm fortnight, it was taken as adequate growth[4]. In the present study, the infants gained about 336 gm/fortnight in the first month, 270 gm /fortnight in the second month and when all infants started complementary feeding in the third month, they gained 213 gm /fortnight. As all the infants were not exclusively breastfed, it is not possible to conclude whether the quality and quantity of breast milk after Relactation is adequate for growth of the infants. Of course, the infants had physical and psychological benefit as all infants were alert and playful at the time of follow up and all except one did not suffer from any major illness.

We thus conclude that relactation is possible and with proper complementary feeding is optimum for the growth of infants. It also helps in reducing morbidity from various illnesses that frequently occur in infancy. Hospital is a good place to start relactation as the mothers remain more receptive and can spend more time with the infant. But, to sustain it, a more frequent follow up particularly by home visit is necessary. Mother support group can be organized in the community which may include health personnel as well as mothers successful in breastfeeding and relactation to help mothers who initiated relactation.

Further work is necessary in this field of lactation management for more effective ways to help mothers who failed to breastfeed their babies optimally and also to see the effectiveness of relactation in child growth and development.

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ORIGINAL ARTICLE

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Volume of haematoma, initial GCS score and surgical outcome in primary spontaneous intracerebral hemorrhage

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Abstract

Spontaneous intracerebral hemorrhage refers to those cases that occur in absence of trauma. Spontaneous intracerebral hemorrhage accounts for approximately 4–14% of all strokes and is associated with a high mortality and morbidity. In our study we tried to establish that volume of haematoma and initial GCS score effects on the surgical outcome in patients of spontaneous ICH. It was a prospective observational study conducted in the department of neurosurgery, BSMMU, during the period from March 2005 to September 2006. All consecutively admitted patients of spontaneous ICH who underwent surgery were included in the study. They had compatible history, CT scan evidence of ICH, GCS score between 5 and 13 and not more than 80 years of age. A total 52 of patients were included in the study and the variables that were analyzed included volume of haematoma and initial GCS score. Association between the surgical outcome with volume of haematoma and initial GCS, were found out. Outcome was assessed by using modified Rankin's score and occurrence of death. The age range of the patients were 36-72 years with a mean age 57.4 ± 8.37 years. The most common age of presentation were between 50-59 years included 44.2% of the patients. Incidence of spontaneous ICH were more in male and present in 73.1% of male with a male to female ratio 2.73:1. 48.1% of the patents had initial GCS score critical range of severity (score 5-8) 46.1% of them were in moderate range of severity (score 5-6) and only 5.8% of them were in good (score13) range. Mean GCS score was 8.87±2.2 and the range of score were between 5 and13. 50% of the patients were operated on within 24-48 hours, 40.4% of them were operated on after 48 hours. Death rate was 51.9% postoperatively. Among the alive patients no postoperative Rankin's score 0, 4% had score 5, 20% had score 1, 28% had score 2 and 24% had score 3 and 4 for each. We found significant association with post operative mortality and larger haematoma volume (>60ml) and poor initial GCS.

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Introduction

Sudden hemorrhage into the cerebral parenchyma is a devastating form of hemorrhagic stroke affecting all ages. The peak incidence of hemorrhage occurs earlier in life than does that for ischemic stroke. Hemorrhagic stroke therefore produces not only an unacceptable risk of death and disability but also a major loss of productive years.[1] Spontaneous intracerebral hemorrhage (ICH) refers to those cases that occur in absence of trauma. The worldwide incidence of ICH ranges from 10 to 20 cases per 100,000 population and increases with age, is more common in men than women, particularly those older than 55 years of age.[2] Spontaneous ICH accounts for approximately 4–14% of all strokes and is associated with a high mortality and morbidity. Between 32% and 50% of patients die within the first month, and only 20% are independent six months after intracerebral bleeding.[3]

The key factor that affects ICH outcome is haemorrhagic volume. When haemorrhagic volume exceeds 150mL acutely, cerebral perfusion pressure falls to zero and the patient dies. If the haemorrhagic volume is smaller than 140mL, most patients survive the initial ictus. However, the haematoma itself can lead to secondary brain injury resulting in severe neurological deficits and sometimes delayed fatality.[4] Part of ICH induced injury is due to physical disruption of adjacent tissue and the mass effect caused as the ICH forms. This primary brain injury, occurring at the time of haemorrhage, may seem to be untreatable. However,

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although more than two-thirds of patients with ICH stop bleeding shortly after ictus, haematoma enlargement takes place in about a third of patients.[4,5] Enlargement of the haematoma after ictus contributes to midline shift and accelerates neurological deterioration. The precise mechanisms of haematoma growth are not known, but most rehaemorrhage occurs within the first 24 h.[6] A mass effect resulting from the volume of the haematoma, the edematous tissue surrounding the haematoma, and obstructive hydrocephalus with subsequent herniation may be the chief secondary cause of death in the first few days after ICH. Because of the localized nature of the mass effect and spatial compensation for local increase in volume afforded by ventricular and subarachnoid spaces, a marked, progressive elevation in the intracranial pressure is seen only in patients with a massive ICH.[7]

In our study we try to found out the effect of volume of haematoma and other parameter of the patient of ICH who underwent surgery. Although there are some studies already established the relation on prognosis of ICH and haematoma volume, initial GCS, age and other parameter but we try to the found out that relation in such a setting of BSMMU where most of the patient present after 24 hours of incidence.

Material and Methods

It was a prospective observational study conducted in the department of neurosurgery, BSMMU, during the period from March 2005 to September 2006. Non random sampling technique was designed. All consecutive admitted patients of spontaneous ICH who underwent surgery for hemorrhage were the study population. Inclusion criteria of the cases were; (a) Compatible history, (b) CT scan evidence of ICH, (c) Those patients who underwent surgery for spontaneous intracerebral hemorrhage. Exclusion criteria were (a) Patient treated conservatively, (b) GCS score <5 and >13 (c) Age of the patients >80 years. A total 52 of patients were included in the study and the variables that were analyzed included volume of haematoma and GCS score at admission. Association between the surgical outcome and volume of haematoma, initial GCS sore and other parameter were assessed. Volume of haematoma was measured by modified ellipsoid formula simply by ½. ABC (A= The largest diameter of the hemorrhage on slice with the largest area of hemorrhage, B= The largest diameter 90° to A on the same slice and C= Approximate number of CT scan slice with hemorrhage multiply the slice thickness in centimeter) Outcome was assessed by using modified Rankin's score and occurrence of death. All data were analyzed by using statistical software package SPSS version 12.

Results

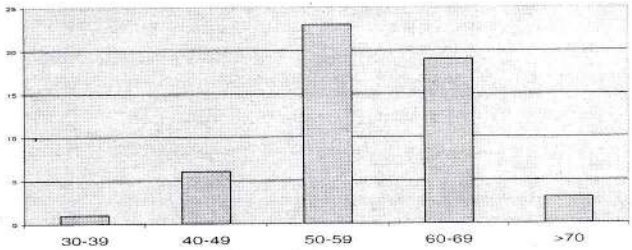

Figure 1: Distribution of the patients by age

Figure 1 shows the distribution of patients by age and majority (44.2%) of them were in the group of 50-59 years and 60-69 years (36.5%). The mean age ± standard deviation= (57.4 ± 8.37) years. 73.1% of the patients were male and 26.9% of them were female. Male to female ratio was 2.73:1 (Figure 2).

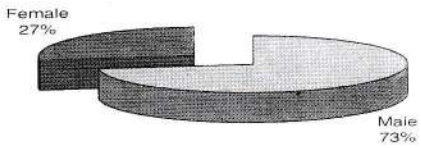

Figure 2: Distribution of the patients by sex.

GCS score at admission: Initial GCS score were recorded and divided into 3 groups according to the severity, mild (score 13), moderate (score 9-12) and sever (score 5-8). Most of patients (48.1%) were in prognostically critical range of severity of GCS score range (score 5-8). 46.1% of the patients were in prognostically moderate range (score 9-12) and only 5.8% of them were in prognostically good GCS range (score 13). Mean GCS score was 8.87 with a standard deviation of 2.2. The maximum score recorded was 13 and minimum score recorded was 6. (Table1)

Table 1: GCS score at admission (n=52)

GCS score range	Frequency	Percentage
5-8	25	48.1
9-12	24	46.1
13	3	5.8

Mean score ± standard deviation= 8.87 ± 2.2 Range= 6-13

Volume of haematoma: Most of the patients (46.15%) had haematoma volume between 60 and 69cc, followed by the groups of 40-49cc (26.92%), 50-59cc (9.61%), 70-79cc (9.62%), 30-39cc and (3.88%). The mean volume of the haematoma was 56.33cc with standard deviation of 13.19cc. The maximum volume measured was 90cc and the minimum volume measured was 20cc.(Table 2)

Table 2: Volume of haematoma (n=52)

Volume range in cc	Frequency	Percentage
<30	1	1.91
30-39	2	3.88
40-49	14	26.92
50-59	5	9.61
60-69	24	46.15
70-79	5	9.61
80-89	1	1.91
≥90	1	1.91

Mean volume ± Standard deviation = (56.33 ± 13.19) ccRange = (20-90) cc

Table 3: Time elapsed between ictus and operation (n=52)

Time in hours	Frequency	Percentage
≤24	5	9.6
24-48	26	50.0
>48	21	40.4

Time in hours is inclusive

Time of operation: Most of the patients (50%) operated on within 24-48 hours of ictus, 40.4% of the patients were operated on >48 hours of ictus. Only a small number of patients (9.6%) operated within 24 hours (Table 3).

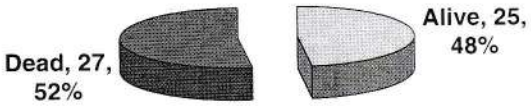

Figure 3: Post operative mortality

Death rate : Our death rate was high and more than half of the patients were died after operation (51.9%) and 48.1% of them alive till discharge (Figure 3)

Table 4: Modified Rankin's score among the survivors (n=52)

Rankin's score	Frequency	Percentage
0	0	0
1	5	20
2	7	28
3	6	24
4	6	24
5	1	4

Morbidity : Table 4 shows the distribution of postoperative modified Rankin's score among the survivors. No patients had score O and only 4% patients had score 5 (severe disability). Distribution of score 1,2,3 and 4 were almost equal (20%, 28%, 24%, 24% respectively).

Table 5: Association between surgical outcome and volume of hematoma measured on CT scan

Outcome	Volume of blood		Total
	<60cc	≥60cc	
Survived	16 (76.2)	9 (29)	25 (48.1)
Death	5(23.8)	22(71)	27(51.9)
Total	21	31	52

Value in the parentheses denote corresponding percentage value of column total.
p value = 0.001 (p value <0.05 was considered significant)

Table 5 shows association between surgical outcome of patients and volume of haematoma measured on CT scan. Majority of the patients (76.2%) who had haematoma volume <60cc were survived after surgery and 23.8% of them died postoperatively. On the other hand patient who had haematoma volume ≥60cc showed poor outcome in respect of death (71%) and 29% of them were survived postoperatively. p value (0.001) indicates that the association between surgical outcome and volume of hematoma was significant.

Table 6: Association between surgical outcome and GCS score at admission

Outcome	Admission GCS score			Total
	Critical (5-8)	Moderate (9-12)	Good (13)	
Survived	4 (16)	18 (75)	3 (100)	25 (48.1)
Death	21 (84)	6 (25)	0	27(51.9)
Total	25	24	3	52

Value in the parentheses denote corresponding percentage value of column total.
p value <0.001 (p value <0.05 was considered significant)

Table 6 shows the association between surgical outcome of patient and admission GCS score at admission. 84% of the patients with critical GCS score (5-8) died and 16% of them survived. 25% of the patients with moderate GCS score at admission were died and 75% of them were alive. All of the patients with good GCS score were survived. p value(<0.001) indicates that the association between surgical outcome and admission GCS score was significant.

Discussion

In our present study we found some risk factors that influence adversely on surgical outcome in spontaneous intracerebral hemorrhage. We found that established predictor for poor surgical outcome for ICH, like preoperative GCS score and volume of haematoma contributed in our series adversely.

The incidence of ICH has a tendency to increase with increasing age, and this has been demonstrated in many studies. ICH increased almost linearly with age, reaching a maximum in the oldest age groups.[8] In our series the mean age (57.4 ± 8.37 years) was almost same to the mean age of the study of Ahmed et al in Pakistan (58.8 ± 14) but much lower than that of the study of Bilbao et al (69 ± 12.6) in Spain. The age group with highest frequency was also lower level in our series (50-59 years) than that of the series of Bilbao et al. (71- 81 years). These observations reflect the higher life expectancy in western people. The male to female ratio was higher in our series (2.73:1) probably due to the fact that the male bed number of department of Neurosurgery, BSMMU, is 3times greater than that of the female and males are more privileged in our society.[9,10]

The GCS score in admission was found as an important predictor for outcome. In our study the range of admission GCS score differ from the study of Yen et al, they found 32.05% of the patients in critical GCS score (5-8), 21.02% of the patients in moderate range of GCS score (9-12) and 46.92% of the patients were in good range of GCS score (13) in contrast to our findings 48.1%, 46.1% and 5.8% respectively.[11] This was probably due to the facts that their good referral system, better multidisciplinary care. Our study findings were almost correspond the findings of Razzaq and Hussain in Pakistan except their findings of good score (34.24%, 45.2% and 16.44% respectively)[12].

In our series most of the patients (50%) operated on within 24-48 hours, 40.4% of the patients were operated after 48 hours and only a small number of patients (9.6%) operated within 24 hours. Bilbao et al observed in their series that most of the patient (57%) present within 6 hour of onset, 13% of them present between 6-24 hours and 30% of the patients present after 24 hours.[10] These facts probably reflect the better multidisciplinary care and better referral system in western countries.

In our series the death rate was 51.9% which was much higher than other observation that we found to compare. In the observation of Razzaq and Hussain and Ahmed et al , they found their mortality rate 39.7% and 32.2% respectively.[10,9] Cheung and Zou observed their death rate of patient of ICH was 22% in a hospital of Hong Kong.[13] It may be reflect the better critical care service in their hospital. Death after ICH appears to show a bimodal pattern with approximately half the patients dying acutely within the 1st 48 hours, and the further half over the next month. Less information is available on the long-term outcome after ICH, but it appears that should patients survive the acute phase of ICH, they have a relatively good functional outcome.[14] In our series most of the patients come to hospital after 24 hours after the onset of symptoms. It may also influence this fatal event.

Most studies have found a correlation between hemorrhage size and mortality. The larger the hemorrhage (irrespective of the location), the poorer the prognosis.[9] Among the radiological variables at baseline,

larger volume of the ICH, intraventricular spread of bleeding, and mass effect were significantly related to poor outcome.[3] Volume of haematoma was measured by modified ellipsoid formula simply by ½. ABC like other investigators.[15] We found a significant association between the surgical outcome and volume of haematoma ≥60cc (p=0.001). Bilbao et al (2005) in Spain, Cheung and Zou (2003) in Hong Kong and Razzaq and Hussain (1999) in Pakistan also found significant association with outcome and haematoma size (p value were <0.001, 0.001 and 0.04 respectively).[10,12,13]

Clinical severity has been considered as a potential predictor of global outcome, and specifically of mortality, in patients with stroke. The level of consciousness, measured by the GCS score, presence of coma, or a minor consciousness involvement on admission was already observed as an outcome predictor in patients with hemorrhagic stroke. Trials that used the GCS, observed an association between low GCS score and worse evolution.[16] In our study we found significant association between initial GCS score and surgical outcome (p<0.001) which was similar to the findings of Cheung and Zou (2003) and Razzaq and Hussain (1999). They found very significant association between the initial GCS score and outcome (p<0.001 in each).[13,12]

In our study we found significant association between surgical outcome of spontaneous ICH in respect of death and survived, and volume of haematoma more than 60ml and on admission GCS score. So, volume of haematoma more than 60ml and critical GCS score at admission effect adversely on surgical outcome in the patient of spontaneous ICH which also support the established other international findings regarding these parameter.

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ORIGINAL ARTICLE

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Infantile Hypertrophic Pyloric Stenosis: A Regional Experience.

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Abstract:

Infantile Hypertrophic Pyloric Stenosis (IHPS) is a common cause of gastric outlet obstruction in early infancy in the western population; rare in Asians and Africans. Pediatric Surgical unit at Madina Maternity & Children Hospital is the regional center for the surgical services in children. More than 20,000 deliveries in the region and 2-4 cases of IHPS every year signify a low incidence in this part of the globe. In a retrospective study over a period of 8.5 years, data of thirty two cases are studied. With a mean of 3.8 cases per year, "volume" of cases for the surgeon and the hospital is very low. Demographical parameters studied are within the ranges in the literature. Management related concerns are delayed presentation, high rate of duodenal mucosal perforation and longer length of hospital stay. Further regional studies are needed to comprehend the issues in IHPS in this part of the world.

[OMTAJ 2008; 7(2)]

Introduction

Infantile hypertrophic pyloric stenosis (IHPS) is the commonest cause of gastric outlet obstruction & most common condition in early infancy requiring surgery in the western world[1]. In the past, clinical diagnosis was easier because of late presentation but management was complicated for their gross electrolyte & nutritional disturbances. In the part of the world where IHPS is rare or uncommon, management would be more challenging. A new era of an earlier presentation without any or minimal electrolyte changes are the emerging group with declining clinical craftsmanship of olive palpability & increased dependency on ultrasonography. [2]

In the context, IHPS is the commonest cause of gastric outlet obstruction in early infancy requiring surgery in the Caucasian population. Having 15,000-16,000 deliveries per year at our hospital which is the sole pediatric surgical services in the region; we assumed a low incidence of IHPS in this zone of the Kingdom of Saudi Arabia because of number of patients dealt by a surgeon or number of infants treated with this diagnosis in our center is very low. Our aim is to study the demographic pattern of IHPS at our setup. (Where less number of patients is seen as per total volume of cases dealt by a surgeon or in an institute).

Materials and Methods

In a retrospective review, 32 cases of IHPS treated over a period of 8.5 years extending from July 1, 1995 to December 31, 2003 were studied for sex, race, gestational age, birth order, associated anomalies, age at vomiting, duration of symptoms, weight loss, age at presentation and operation, length of hospital stay, olive palpability, rate of mucosal perforation and timing of starting the 1st feed etc.

Results

Two to 4 patients with IHPS were admitted every year except in one when it was 7. Nineteen children were Saudi and 13 non-Saudi. Twenty-seven were male and 5 cases were female. Gestational age recorded in 25 infants; 24 of them were full term & only one preterm (Table 1). Seven were 1st-born, 6 were 2nd-born and one case was 12th in the birth order. Weight loss calculated from birth to admission weight in 10 infants, ranged from 100-1000 grams with a mean of 366 g. Associated anomalies like inguinal hernia in 5, undescended testis in 2, patent ductus arteriosus in 1 and 2 had symptoms of urinary tract infection (Table 2).

Six infants started vomiting at or before 7 days of age; one after 6 weeks. Age at the start of vomiting ranged from less than 7 to 50 days, mean was 23.4 days. Duration of vomiting before admission to the hospital ranged from 3-30 days with a mean of 15.07 days. Ten children presented with less than 10 days of duration of vomiting and 22 were beyond that time. Age at presentation (AaP) ranged from 23-103 days; 15 infants at 4th & 5th week and 10 after the age of 6 weeks. Forty

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two days was mean AaP and 45 days was mean age at operation (Table 3).

Twenty two infants were directly admitted to the surgical ward and 10 had preliminary admission to medical units. Average preoperative hospital stay in the 1st group was 2.78 days and in the 2nd group 3.83 days. Four children had duodenal mucosal perforation during the surgery; all were detected & treated during the procedure. Postoperative hospital stay was 3.29 days for non-perforated group and 6.6 days in the perforated one. Average length of hospital stay (LoS) was 6.88 days. Start of feeding after surgery in non-perforated patients was at 13 hours and in perforated group at 3 days (average).

Table 1. Demographic data

Character	Number (%)
Nationality Saudi Non-Saudi	 19 (59.4) 13(40.6)
Gender Male Female Ratio M:F 5.4:1	 27(84.4) 5(15.6)
Gestational age Full term Preterm	 24(96) 1(4)
Birth order: 20 cases (%)	1st :7 (35) 2nd :6(30) 1 at12th.
Associated anomalies	IH: 5 (15.6) UDT: 2 (6.25) PDA: 1 UTI: 2 Syndrome 1

NB: LoS: length of stay, IH: Inguinal hernia, UDT: Undescended testis, PDA: Patent ductus arteriosus, UTI: Urinary tract infection

Table 2. Clinical variables.

Character	Range (mean)
Weight loss	100 – 1000 g(366g)
Age at vomiting	1 – 50 days (19days) < 7 days: 6; > 6 weeks 1
Duration of vomiting	3 – 30 days (15 days) < 10 days: 10; > 10 days: 22
Age at presentation	23 – 103 days: (38.3 days) < 28 days: 6; > 6 weeks: 9
Age at operation	41.5 days

Table 3. Treatment related variables

Character	Range (average)
Preoperative LOS: Surgical ward Medical ward (12 patients) Total	1 – 9 days (2.78 days) 1 - 9 days (3.83 days)
Postoperative LOS: Non-perforated Perforated (4)	1 – 12 days (3.29 days) 3 – 11 days (6.6 days)
Total LoS	6.88 days
Start of Feeding : Non-perforated Perforated	 6 – 16 hours (13) 2 – 7 days(3.25)

Discussion

IHPS is the most common cause of gastric outlet obstruction in early infancy. It is the commonest condition requiring surgery in this age group.[1] It is very common in whites, particularly of northern European ancestry; less common in blacks; and rare in Orientals[3] In the U.S.A, reported incidence of IHPS is 3 per 1000 live births which vary with geographical, racial and ethnic origin.[4] In Los Angeles, it is 1 in 300 live births and 1 in 913 in Pittsburgh.[5,6] Laron and Horne[6] stated incidence 1 in 830 in White infants and 1 in 2073 in Blacks. In Japan, reported incidence is 2-3 cases per 1000 live births[7]. The latest IHPS study from database in U.S.A showed an incidence of 8.3 to 12 cases per 1000 live births whereas in their previous report it was 2 to 5 cases per 1000 live births.[1] They found no seasonal variations in incidence. Recent reports of increase in incidence of IHPS came from the United Kingdom.[1]

The 1st description of IHPS is attributed to Hildanus[8] in 1627 and Patrick Blair is credited for the 1st postmortem finding in 1717. Almost a century ago, Ramstedt in 1912 described the technique of pyloromyotomy which remains the "gold-standard" procedure.[9]. A new era of laparoscopic pyloromyotomy started since 1991.[10].

Diagnosis is mainly clinical. Classically, non-bilious projectile vomiting in a 1st-born male child of 3-5 weeks age with visible gastric waves seen in epigastrium and an "olive" or "pyloric tumor" on palpation along with a characteristic hypochloremic hypokalemic metabolic alkalosis is the mode of presentation. Most infants experience emesis of small amounts by 2 weeks of life and then develop near complete obstruction with vomiting of almost all feeds over several days. A good

clinical "rule of thumb" that aids in diagnosis is that child with IHPS will continue to be hungry and active even after vomiting unless severely dehydrated. IHPS have been diagnosed at birth and even in fetus. [9]

In our series, olive or pyloric tumor palpability is documented in 29 (90.6%) infants; seventeen (58.6%) in the 1st examination, 9 (31%) in 2nd examination which stresses repeated evaluation to improve clinical skill. Routine ultrasonography and over-reliance on imaging studies may have resulted in a loss of this skill from 95% in 1957 to 62% in 1985.[8]

Reported[11] incidence of associated anomalies ranges from 6% to 12%.. Three major associated anomalies are intestinal malrotation, obstructive uropathy and esophageal atresia.[12]. An incidence of 3.4% inguinal hernia and 3% undescended testis reported in the literature[8]. In our series, 15.6% had inguinal hernia, 6.25% had undescended testis and 2 (6.25%) developed urinary tract infection.

It is well known that male infants are more likely to have pyloric stenosis than females; a ratio of approximately 2:1 to 5:1 reported[9]. In our series, 84.4% are male & 15.6% female; comprising a 5.4: 1 ratio.

First-born male child has an increased risk of developing IHPS; reported incidence is 45-55%[8]. In present series, birth order recorded in 20 infants; 35% are 1st-born, 30% are 2nd-born and one infant is 12th in the birth order. Five percent may have a positive family history of IHPS[13] and certain ABO blood group, notably B & O has increase in incidence[12] which (blood grouping) documented in negligible cases in our series.

Preterm (PT) infants with IHPS constitute a small subgroup of patients in this disease. Bloch's 1907 monograph[14] contains the first reference to pyloric stenosis in PT infants. Percentage of PT in IHPS quoted from large series ranged from 1% to 16%[15]. The lowest birth weight reported in a successfully treated patient was 879 grams[16]. In our series, one PT child accounted for 4% in this subgroup. Generally, PT infant presents 2 weeks later compared to the term infants[9] and lacks classical symptoms & signs. Voracious appetite, projectile vomiting and visible gastric waves are absent in this subgroup. The "constant hungry factor" has been disputed too[16]. In PT infant, more slowly evolving symptoms, coexisting medical concerns and absence of objective imaging criteria delays the diagnosis.

In our series, 6 (18.75%) infants had vomiting in the 1st week of life. It is well within the range of 12-20% reported in the literature[8]. Sixteen (50%) infants had vomiting started at 4th to 5th week and one infant had symptoms from 50th day.

Up to 4% of infant presents after 3 months of age; only 1 infant in our series presented at 103 days of life constituted 3.12% in this group[12].

In our series, mean age at the start of vomiting was 23.3 days (range 1-50 days) and mean duration of vomiting before admission to hospital was 15 days (range 3-30 days). In this retrospective series, it is difficult to ascertain the exact start of vomiting in some infants who had vomiting in 1st week of life. Average age at hospital admission was 38.3 days; 5.9 weeks reported in the literature[17]. Time interval from vomiting to hospital was 15 days in 1968 that came down to 9 days in 199[18]. Muyaed et al reported[18] in 1984, mean age at surgery 61 days which is 41.5 days in our series.

Birth weight was documented in 10 infants; weight loss ranged from 100-1000 g & mean was 366 g.

There were 4 (12.5%) cases of duodenal mucosal perforation in present series. In the recent literature, incidence of perforation is in the range of 0% to 4.3%[1]. Higher incidence may be attributed to very small number of procedure done by the surgeon (1 case per year) when some of them were performed by residents &/or registrars.

Start of feeding in non-perforated group was as early as 6 hours and delayed in some patients up to 16 hours; mean was 13 hours. In the group with mucosal perforations, mean delay of start of feeding after surgery was 3.25 days (range 2 to 7 days).

Out of 32 patients, twelve (37.5%) infants were admitted to the pediatric wards for initial management. They were later transferred to the surgical unit before the operation. This group of infants had a mean 3.83 (range 1-9) days of preoperative hospital stay. Those who were admitted directly to the surgical ward, mean length of preoperative stay was 2.78 days (range 1-9 days). Total length of preoperative hospital stay was altogether 3.18 days. Total hospital LoS was 6.98 days.

It seems that incidence of IHPS is low in this region of the Kingdom of Saudi Arabia which reflects the compounding effect of delay in diagnosis (low index of suspicion), longer length of pre & postoperative stay and high rate of mucosal perforation. A high index of suspicion of IHPS in a non-bilious vomiting infant of 4-6 weeks age may help in earlier diagnosis and a

comparable outcome. Regional studies in this entity may allow gathering of more information.

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ORIGINAL ARTICLE

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Comparative study of Seroprevalence of Hepatitis A virus antibody in new entrants and final year medical students of Sylhet MAG Osmani Medical College

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Abstract:

This cross-sectional comparative study was conducted with a view to see the seroprevalence of hepatitis A virus among the newly admitted first year and final year medical students of Sylhet MAG Osmani Medical College. Objectives of the study were also to compare the serological status of these two groups against HAV and whether any difference could be related to any sociodemographic parameters. In this study the seroprevalence of HAV was found to be higher in final year medical students (93.8%) than the new comers (67.5%). The difference is statistically highly significant (P < 0.001). Implications for such findings were discussed.

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Introduction

Hepatitis A virus (HAV) is a major cause of viral hepatitis through out the world, with an estimated 1.5 million cases annually [1]. Although infection by the hepatitis A virus is often asymptomatic or accompanied by mild, non-specific illness in young children, in adult the disease can sometimes be severe [2]. In developing countries with poor hygiene and sanitation, infection with HAV peak at early age, usually under five years, so that majority of the population will develop immunity [3].

Out breaks of hepatitis due to HAV are common in families and institutions, summer camps, day-care centers, neonatal intensive care unites and among military troops. The most likely mode of transmission under these conditions is by the fecal oral route through close personal contact. [4]. Spread is related to over crowding, poor hygiene and poor sanitation. With improved standard of living the prevalence is decreasing worldwide. In underdeveloped countries, 90 percent of children have the antibody by the age of ten. Young people not previously exposed, and visiting endemic areas, are increasingly become affected. Medical staffs in developed countries are at risk [3].

Hepatitis A virus seroprevalence rate varies on age, gender, socioeconomic factors [5] and local hygienic and sanitary standards [5, 6]. In a developing country like Bangladesh, enterically transmitted acute viral hepatitis is common due to lack of proper sanitation and food hygiene [7]. HAV infection is transmitted predominantly by close person-to-person contact. In endemic areas, HAV infection is common during childhood [8]. Medical professionals are more exposed to hepatitis A virus as they are getting in touch of the patients in hospitals and taking foods outside the hospital premises that are also shared by the patients and their attendants [9]. Most of the newly admitted medical students live in the urban areas with their families before admission in the Medical College. They had less chance of exposure to hepatitis A virus and so are less likely to develop immunity against it [10]. On the other hand there is an increased chance of anti-HAV seropositivity in the final year students as they are at high risk of having clinical and sub clinical infection during their stay in the campus [11]. It was the first study to see the seroprevalence of anti-HAV among the medical professionals in Bangladesh.

Studies revealed that, morbidity from hepatitis A virus infection is more common in the adult than those infected during childhood. Effective vaccine is available against the hepatitis A virus [2]. A study on medical professionals at the start and end of their medical education will explore the immune status against HAV at

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these times. It will be helpful to evaluate the necessity of vaccination of the non-immune students, which can prevent them from being infected and its fatal consequences. The present study was carried out to see the seroprevalence of HAV in newly admitted and final year medical students of Sylhet MAG Osmani Medical College, to compare between these two groups for the evaluation of the necessity of vaccination of newly admitted students against HAV.

Materials and methods:

It was a Cross-sectional, comparative study carried out in the department of Microbiology, Sylhet MAG Osmani Medical during the period of July 2006 – June 2007. A total of 160 students of this medical college residing in hostel were randomly included in this study. Half (80) of them were newly admitted first year students and another half (80) were the final year students. Equal numbers of male and female students were included in the study (40 male and 40 female from each groups). Student with previous vaccination with HAV Vaccine were excluded from the study. To evaluate the effect of socioeconomic condition on seropositivity of anti HAV history on socioeconomic background and parental occupation, previous residence either rural or urban, previous hostel stay, source of drinking water, sewage system, food habit etc were taken. History of jaundice of the subjects and their family members and vaccination history were also recorded for correlation with anti HAV seropositivity. The history of students was recorded in pre-designed data collection sheet. Ethical permission was obtained from the ethical review committee of Sylhet MAG Osmani Medical College. Approximately 3 ml of blood was collected from each participant. After separation by centrifugation, serum was stored in the laboratory at -20°C until estimation of anti HAV (total IgM+IgG) using EIA- gen HAV kits manufactured by Adaltis Italic S.P.A, Italy.

Results

Seroprevalence of HAV antibody in newly admitted first year MBBS students (aged 18-20 years, average 19 years) and final year MBBS students who stayed four years in the campus of (aged 22-24 years, average 23 years) were studied. Students of the both groups showed identical sociodemographic picture in all aspects like the occupation of parental occupation (fathers service holders and mothers housewives), socioeconomic status (almost all from high and middle socioeconomic class), family residence (mostly urban), source of drinking water (all taking safe water for drinking) and sewage system (all using hygienic sanitary latrine).

Habit of taking food outside residence varied significantly ($P<0.01$) between these two groups. 75% of the first year students and 91% of the final year students gave history of taking food outside home. Among the students taking meals outside, majority (58%) of the first year students had a frequency less than or equal to 12 times per month. Whereas, most of the final year students (60%) had a frequency of taking meals more than twelve times per month. This difference is statistically significant ($P<0.05$).

30% of the fifth year students (88% of them were infective) and 15% of the first year students (all of them were infective) had a positive history of jaundice. The difference is statistically significant ($P<0.05$). 39% of the students in both groups had a positive family history of jaundice.

Students vaccinated against hepatitis A virus were excluded from the study. Other than HBV no significant statistical difference was found between two groups. Nearly 90% of the students in both groups received EPI vaccines and only 1% of the students in the first year received MMR vaccine 30% of the first year and 76% of the final year students were vaccinated against hepatitis B virus.

Table-I: **Seroprevalence of HAV antibody in the first and final year students**

Anti HAV	First Year (n=80)		Final Year (n=80)		P value
	No.	(%)	No.	(%)	
Positive	54	(67.5)	75	(93.8)	
Negative	26	(32.5)	3	(3.8)	<0.001***
Equivocal	0		2	(2.5)	

Chi-square test, *** = Significant

Table-I shows 93.8% of final year students were anti HAV positive where as 67.5% of first year students were anti HAV positive. The difference was statistically highly significant ($P < 0.001$).

No statistically significant difference was observed due to the parental occupation and socioeconomic

background. Students taking chlorinated water of for drinking showed increased proportion of seropositivity (Table- II).

Table-II: **Source of drinking water and seroprevalence of HAV antibody**

Source	First Year			Final Year		
	Positive (n=54) No. (%)	Negative (n=26) No. (%)	P value	Positive (n=75) No. (%)	Negative (n=3) No. (%)	P value
Chlorinated supply water	3 (5.6)	0		6 (8.0)	0	
Deep tubewell	46 (85.2)	17 (65.4)	<0.05*	61 (81.3)	1 (33.3)	<0.05*
Boiled	5 (9.3)	9 (34.6)		8 (10.7)	2 (66.7)	

Chi-square test, * = Significant

Ninety-one percent of the fifth year students and 78 percent of first year students taking food outside were found seropositive (Table-III). Statistically significance difference was found in the final year students ($p<0.05$) whereas, in the first year students the difference was not significant ($p >0.10$) in terms of frequency.

Table-III: **Habit of taking food outside residence and seroprevalence of HAV antibody**

Food habit	First Year			Final Year		
	Positive (n=54) No. (%)	Negative (n=26) No. (%)	P value	Positive (n=75) No. (%)	Negative (n=3) No. (%)	P value
Taking food outside residence						
Yes	42 (77.8)	18 69.2)		68 (90.7)	3 (100.0)	>0.50ns
No	12 (22.2)	8 (30.8)		7 (9.3)	0	
Frequency of taking food outside residence						
	(n=42)	(n=18)		(n=68)	(n=3)	
12/ month	22 (52.4)	13 (72.2)	>0.10ns	25 (36.80)	3 (100.0)	<0.05*
>12/ month	20 47.6)	5 (27.8)		43 (63.2)	0	

Chi-square test, **ns** = Not significant.

Previous history of Jaundice plays a significant role in HAV seropositivity. In the first year, out of 54 seropositive cases 22 percent had history of jaundice & 78 percent had not. All of the seronegative cases had no history of jaundice. The difference is statistically significant ($p< 0.01$) (Table-IV). In the fifth year out of 75 seropositive cases 31 percent had history of jaundice & 69 percent had not. 33 percent of the seronegative cases had history of jaundice. The difference is not significant statistically ($p>0.50$) (Table-IV). Family history of jaundice made no significant difference in seropositivity in both first and fifth year students ($p> 0.50$ and $p> 010$ respectively).

Table-IV: **History of jaundice and seroprevalence of HAV antibody**

History of Jaundice	First Year			Final Year		
	Positive (n=54) No. (%)	Negative (n=26) No. (%)	P value	Positive (n=75) No. (%)	Negative (n=3) No. (%)	P value
Self						
Yes	12 (22.2)	0	<0.01**	23 (30.7)	1 (33.3)	>0.50ns
No	42 (77.8)	26 (100.0)		52 (69.3)	2 (66.7)	

Family						
Yes	20 (37.0)	11 (42.3)	>0.50^{ns}	30 (40.0)	0	>0.10 ns
No	34 (63.0)	15 (57.7)		45 (60.0)	3 (100.0)	

Chi-square test, **ns** = Not significant

Discussion

Anti-HAV antibody was found positive in 93.8% of respondents of final year and 67.5% of first year medical students. This finding is consistent with a study findings carried out in All India Institute of Medical science, New Delhi [12]. The result of the present study can be explained on two grounds. One is that the increased seropositivity is linked to the age difference first and final year students [13]. Another is the fact that, final year MBBS students are in contact with hospital environment for more then three years, which may be a cause of increased seropositivity.

In Bangladesh a study on the seroprevalence of HAV in population of age 1-25 years from different socioeconomic groups of both urban and rural background, showed increasing HAV antibody positivity with age (38% in <5 years, 75% in 5-10 years, 80% in 11-15 years, 98% in 16-20 years and 100% of respondents in 21-25 years age group) [8]. The present study showed less seropositivity in first year medical students than similar age group population of that study (67.5% versus 98%). Another study done by revealed that 97.6% of the population aged 21-30 years was positive to HAV IgG [7].

Recent seroepidemiological studies have demonstrated a decrease in the seroprevalence of hepatitis A virus infection in communities achieving higher socioeconomic standard [14, 15]. Around 75% of the present study population has higher or middle class background. The sociodemographic picture of these two classes poised to take the serological status of continuously decreasing HAV seropositivity thereby creating a gradually increasing pool of susceptible adult population. Widening gap between the poor and the upper echelon of our society during the last two decade has created a peculiar environment where seronegative vulnerable medical students are to interact with the patients having lower socioeconomic background in the public hospitals exposing themselves to the risk of HAV infection [16]. In future more students without having immunity against HAV are expected to enter into the medical colleges as the epidemiological pattern of HAV infection change over time in this part of the world. This fact has already been documented in Indian and other studies [17, 18, 19].

The present study population was selected from a group of students residing in hostels where they share common toilet, common dining and drink water from a common source. All these factors can contribute to the increased seropositivity of the final year students. It has been demonstrated that health care workers are at an increased risk of developing HAV infection [9,10, 11], showing increasing rate of seropositivity with increased duration of work at hospital. The present study revealed that students frequently taking food out side are more susceptible to become infected with HAV, which is concordant with other study findings [20]. Different studies showed that prevalence of HAV is higher in lower income group than middle-income group. [8,20]. It may be assumed that there is a possibility of declining seropositivity among the rapidly expanding middle and higher income group population.

This study revealed that, less than 70 percent of the newly admitted medical students were seropositive for HAV antibody. The seropositivity reaches near 100 percent after four years stay in the campus. It indicates that nearly 30 percent of the students remain vulnerable to hepatitis A virus infection during their study period supporting the need to develop vaccination programs for these groups [9, 11]. As of general population there is insufficient study to suggest universal vaccination against HAV in our country. A northern Indian study in school children detected 95% HAV seropositivity and suggested against unnecessary HAV mass vaccination [22]. Another study carried out among urban population of India detected changing seroprevalence of HAV in younger population approaching that of developed European counties[17]. Under this evolving background epidemiological scenario of HAV infection selective vaccination of high risk group like medical students and nurses based on serological evidence of HAV antibody would be a rational and cost effective approach at the present time [18, 19, 23].

The present study revealed that, Hepatitis A virus is highly prevalent in our health care setting. Seroprevalence of HAV antibody was found to be high in medical students, coming from middle and high-income groups. The rate is likely to increase further in low-income group of population. Medical students get exposed to Hepatitis A virus, which increases with their years of stay in hospital environment and at the time of their passing out almost all become seropositive.

Following recommendations are made on the basis of these findings: 1) Medical students, at the time of entry into the college, especially those situated in areas of high endemicity should undergo vaccination against HAV after pre-vaccination immunity screening. 2) As universal vaccination remain too expensive, other risk group identification and formulation and implementation of selective vaccination strategy for our country demand further seroepidemiologic studies including other sociodemographic variables.

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ORIGINAL ARTICLE

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Management of Bone Tumours in our Perspect

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Introduction

Benign lesions are quite common, primary malignant ones rare; yet so often do they mimic each other, & so critical are the decisions on treatment, that a working knowledge of all the important conditions is necessary.[1] A team comprising a surgeon, diagnostic radiologist, pathologist, radiotherapist, & medical oncologist is necessary to treat the spectrum of musculoskeletal tumours. A well functioning team provides the services of a tumour board, thus optimizing the care of patients with musculoskeletal tumours.[2] Management decision depends on proper diagnosis of the tumour. Without confirming accurate diagnosis, treatment should not be started. Adequate history, physical examination & proper investigations are most important steps for confirming diagnosis & definitive management.

Investigations like Blood and urine studies seldom are helpful except for patients with multiple myeloma, metastatic disease, infections, or Pagets diseases. Roentgenograms in two planes are most helpful for evaluation of bone tumours & occasionally in soft tissue tumours. Computed tomography is most helpful in assessing bone formation or calcific lesions & in evaluating the integrity of the cortex. Technitium bone scans are indicated to detect skeletal metastases and to determine multiple lesions. Ultrasonography may be useful to image cystic lesions. Magnetic resonance imaging is the study of choice to determine the anatomical setting of bone and soft tissue tomours. Arteriography is useful before arterial perfusion or embolization of an appropriate lesion.[2] Biopsy is the ultimate diagnostic technique for evaluating neoplasms. It may be accomplished by closed (Fine needle aspiration or core biopsy) or open means (Incisional biopsy or excisional biopsy). Frozen section biopsy needed during operation for removal of all malignant extension of the tumour.[2]

Management modalities depend on the treatment facilities, staging & grading of the lesions. Benign, symptomatic or enlarging tumours after the end of the normal bone growth, require biopsy and confirmation of the diagnosis. Unless they are unusually aggressive, they can generally be removed by local (marginal) excision or (in the case of cyst) by curettage. Suspected malignant tumours should confirm diagnosis and staging. The various treatment options can then be discussed with the patient (or the parents, in the case of a young child). The patient must be fully informed about the pros and cons of each *(Mankin and Gebhardt, 1985)*[1,3] We have limited facilities regarding staging, grading and operation (excision & instrumentation) of the tumours due to restricted access to CT and MRI, non-availability of intraoperative diagnostic facilities (Frozen section histopathology) & custom made implants availability. Within this limitation what we have done in the hospitals of Sylhet city that are evaluated in this study.

Patient and methods

Prospective & consecutive study done over forty five (45) tumour patients in sylhet MAG Osmani Medical College Hospital, and Private Hospitals in sylhet city from Jan 2004–Dec 2007. After admission in a hospital all patients were examined clinically after taking proper history. During taking history we give emphasis on age, sex, pain & mass. Physical examinations include evaluation of the patient's general health, detailed examination of the mass & atrophy of the surrounding musculature. Two plane plain X-ray, FNAC and open biopsy (incisional or excisional) done in every case for diagnosis of tumours. Other imaging CT, MRI & CT guided FNAC done according to patient's economical condition and diagnosis requirement.

We referred malignant 24 cases out of 45 patients to medical oncologist either before or after operation for adjuvant therapy (radiotherapy or chemotherapy). Rest benign tumor 21 cases remain under our follow-up. All

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patients enrolled on the basis of history, physical examination, radiological finding, FNAC & Biopsy.
There are 28 male and 17 female with a mean age of 32.53 years (10-70 years) have suffered from bone tumour. On considering behaviors of the tumour, 24 cases malignant and 21 cases benign were identified. According to site of the lesion; upper limb 16, in lower limb 24, & rest of the body 05 lesions were detected.
Pathologist confirmed all diagnosis by FNAC & by histopathology either before or after operation. Management (Operation) was done in all patients according to availability of the hospital facilities, type & site of the lesions.

Table 1: showing Sex, Age, Site of the lesion & Tumour behavior

Sexes	No	Age	No	Site of the lesion	No	Tumour behavior	No
Male	28	07-20 years	17	Upper limb	16	Benign	21
Female	17	21-40 years	14	Lower limb	24	Malignant	24
Total	45	41-70 years	14	Rest of the body	05	Total	45

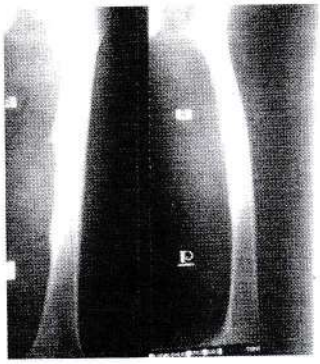
Results

We describe bellow all benign and malignant tumours having their clinical history (entity), radiological reports, histopathologial result and possible treatment options we delivered.

Table 2: showing different Benign & malignant tumours & Treatment given.

Malignant tumours	No	Treatment	Benign & locally malignant tumours.	No	Treatment
Osteosarcoma	11	Amputation/disarticulation & referred to oncologist	Osteochondroma	9	Excision
Chondrosarcoma	01	Referred to oncologist	Bone cyst	4	Bone graft
Metastatic lesions	05	Prophylactic fixation & referred to oncologist	Giant Cell Tumour (GCT)	6	Bone graft, excision
Ewing sarcoma	07	Radio & chemotherapy, amputation/disarticulation	Ameloblastoma	2	Excision & fixation

Osteosarcoma: Total no Osteosarcoma cases 11. *Clinically* all patients have short history of pain, bony swelling around large joints, rapidly increasing in size & gradual loss of health. *Radiologic* features are medullary and cortical bone destruction, an aggressive periosteal reaction—sunburst or codman triangle & soft tissue mass. Mid-thigh amputation or disarticulation of hip joint was done for all osteosarcoma in lower limb cases. Disarticulation of shoulder joint or mid arm amputation was done when osteosarcoma lies in upper limb.



Chondrosarcoma: Total no Chondrosarcoma case 01. *Clinically:* 45 years elderly female patient, having gradual increasing large hard swelling, arising from the pelvic bone with continuous dull ache. *Radiologically* a huge calcified soft tissue mass arising from the pelvic bone extending in the gluteal area and in the pelvic

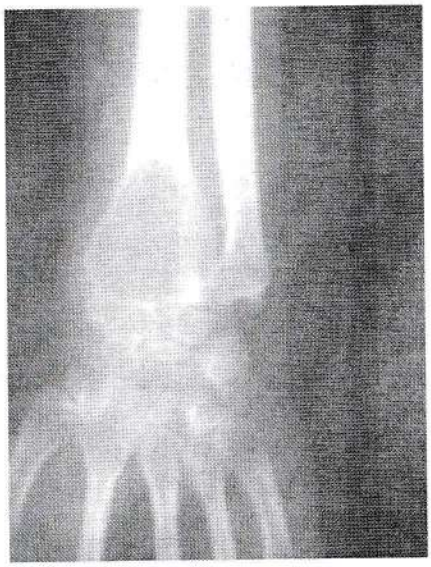
cavity. After confirming diagnosis histopathologically we *referred* this non-operable case to medical oncologist.

Ewing sarcoma: Number of cases we encounter o7, having age range 13-22 years. *Clinically* all most all patient presents as a localized painful mass along with systemic symptoms such as fever, malaise, weight loss and increased ESR which mimic acute osteomyelitis. *Radiographic* presentation is poorly defined in tubular bones, permeative or moth-eaten type of bone destruction, aggressive periosteal response onion-peel appearance and a large soft tissue mass. Pathologist confirmed all cases histopathologically. Initially all patients were *managed* by medical oncologist then we did limb sparing operation according to requirement.

Measatic lesions: We managed five metastatic bone tumour cases with or without pathological fracture. *Clinically* all were elderly patients age range 50-70 years, reported to us for pain in the involved area, fracture, general symptoms of weakness & gradual loss of health. *Radiologically* motheaten or geographic appearance encountered having pathological fracture of the long bone. Primary source of lesion could not be identified. FNAC & histo-pathology were done in all cases. Prophylactic fixation done along with methyl methacrylate cement package. Then patients sent to oncologist.

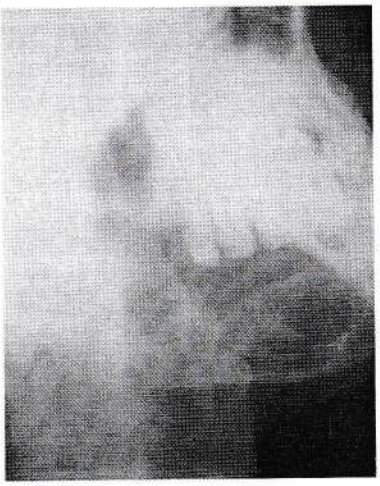
Osteochondroma: This, one of the commonest tumours of bone, developed from physeal growth cartilage. Total cases we treated were nine having age range 15-47 years. All tumours lies close to the joint, so main *complains* bony hard swelling, pain on joint movement & paraesthesia due to stretching of the nerve. FNAC done before operation, histopathology done after excision operation & confirmed osteochondroma. *Radiographic* presentation; usually directed away from the growth plate attached to the cortex. Lesion was un-interrupted merging of the cortex of the host bone with the cortex of the osteochondroma. Excision of the tumour was the *treatment* & on follow up we encountered no recurrence.

Bone cyst: We found 4 cases of bone cyst tumour in metaphysis of long bones, age range 10-18 years. *Clinically* all patients came to us either due to dull ache or pathological fracture. *X-ray* shows a well demarcated radiolucent area in the metaphysis, often extending up-to physeal plate, the cortex thinned & the bone expanded. *Management* done, curettage the cavity thoroughly & packed the cavity by bone chips. Diagnosis confirmed by histopathology of the curetted material.



Giant cell tumour (GCT): Total number of patents we have managed 06. The patents are usually young adult age range 22-45 years, *complains* of pain at the end of the long bone & slight swelling. On examination there were palpable mass with warmth of the overlying tissue. *X-ray* shows radiolucent area situated eccentrically at the end of the long bone. The center some times has a soap bubble appearance. The cortex is thin and ballooned; no sclerotic reaction at the periphery and no periosteal reaction. We have done different types *management* in different situations. Curettage & bone graft; Curettage, autograft & cement packing; Curettage & cement packing; Excision & bone graft (non-vascularized fibular graft), Excision & turn graft done. On follow-up: amputation done in one case

due to recurrence and malignant transformation, all other cases remain functionally well.



Ameloblastoma mandible: It is locally invasive tumour. We identified two lesions in mandible. The tumour grows very slowly with initial *symptoms* of pain, swelling, tenderness, difficulty in mastication. *Radiographic feature*: sharply defined rarefaction, honeycomb or loculated appearance & ultimately attain multicentric large size. *Management* done by excision of diseased part of the mandible & two ends in position by rush nail.

Discussion

Tumors of bone are difficult to diagnose because of their rarity and unsurpassed ability to present in disguise. Hence these should be diagnosed with caution by a skilled pathologist taking help of combined clinical and radiological investigators.[4]

For all but the simplest & most obvious of benign tumors, management calls for consultation & co-operation between the orthopedic surgeon, radiologist, pathologist and (Certainly in the case of malignant tumours) the oncologist, prosthetic designer & rehabilitation therapist as well.[1]

Limb salvage or limb sparing operations needs diagnostic confirmation of bone tumours (Benign or malignant).

In our study we consulted and co-operated with radiologist and pathologist to confirm all tumours diagnosis and referred all malignant cases to oncologist & rehabilitation therapist. Follow-up data of the malignant cases were not available which is the limitation of this study.

Tumors replacement by massive prosthesis carries a high risk of complications such as wound breakdown and infection. However, in most cases the prostheses function well and the incidence of local recurrence of the tumour is similar to that following amputation.[1,5,6] Limb amputation (sparing) operation nowadays is uncommon in specialized units.[1]

Due to non-availability of per-operative frozen section diagnostic facilities and custom made implants, we performed limb sparing operation in all our malignant cases except metastatic fractured & non-operable malignant cases which were routinely referred to medical oncologist after proper diagnosis & fixation when required. All benign tumours managed according to the nature and type of the tumour.

Osteochondroma: The treatment is surgical removal including the periosteum with recurrences of 02% cases.[7] In our study we excised all osteochondroma from their base including periosteum. No recurrence & no malignant transformation noted in our series

Bone cyst: Curettage of the cyst & packing with bone chips is followed by a recurrence rate of 15-40% particularly in children under 10 years age.[8] Since 1974, local steriods, after aspiration of the cyst fluid have given similar results.[8,9] In our series we have treated all the cases by curettage & bone graft with no recurrences.

Giant cell tumour: The treatment of Giant cell tumour (GCT) is directed towards local control without sacrificing joint function. There are different modalities of treatment for the management of GCT.

1. **Lesion in the expendable bone** bones excision no reconstruction.
2. **Lesion in the other long bones**

a) Intra-lesional curettage and packing the cavity by autograft or cement.

b) Excision of the tumour and reconstruction as suitable, by

- megaprosthetic joint replacement
- Biological reconstruction e,g autograft arthodesis (Knee, wrist shoulder) with internal or external fixation.
- Live microvascular fibula reconstruction (e,g around knee and shoulder, distal radius construction, distal fibula GCT with ankle reconstruction)
- Ilizarov method of bone regeneration
- Osteoarticular allograft

3. **Lesion in the axial skeleton or awkward position** can be managed by surgery, or by chemotherapy, or by radiotherapy (45 Gy in 4.5 weeks) or by embolization (Trans-catheter embolization of their blood supply).

Recent reports indicate that topical or systemic use of pamidronate or zoledronate (Bisphosphonate) can be a novel adjuvant therapy for giant cell tumour.[10]

We have managed our one case GCT by curettage and packing the cavity by bone graft, one case by bone cement, one case by auto-graft with bone cement combination. One case treated by excision of the tumour followed by non-vascularized fibular graft reconstruction. Arthodesis around knee joint by excision of upper tibial tumour and turn graft and internal fixation in one case. Arthodesis wrist by excision and corticocancellus bone graft from upper end of the tibia in one case. We can not supply other modern treatment due to shortage of facilities.

Benign tumours were managed satisfactorily even within the limitations imposed by non-availability / restricted availability of CT/MRI. But malignant tumour management, within the present purview, remained unsatisfactory. Easy access to CT/MRI can improve the outcome through better management of malignant tumors.

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ORIGINAL ARTICLE

The Osmani Medical Teachers Association Journal Volume 7 Number 1

Microorganisms isolated from middle ear cultures and their antibacterial susceptibility in patients with chronic suppurative otitis media

Kazi Aktar uddin

Abstract

A bacteriological study on 70 consecutive out-patients presenting with otorrhoea was performed in Sylhet M A G Osmani Medical College Hospital and different private clinic in Sylhet district between August 2000 and June 2001. This study sought to determine causative microorganisms of chronic suppurative otitis media (CSOM) and their antibacterial susceptibility in this age of emerging resistance. It will provide doctors information for better empirical treatment of CSOM where culture facilities are not readily available so that both intracranial and extra cranial complications can be avoided. The most common isolates were *Staphylococcus aureus* (50%), *Streptococcus pneumoniae* (23 %) and others 27%. All isolates of *Staphylococcus aureus* were susceptable to ceftraxione, gentamicin,and resistant to amoxycillin, cloxacillin, tetracycline and cotrimoxazole.

[OMTAJ 2008; 7(2)]

Introduction

Chronic suppurative otitis media is one of the commonest illnesses in ENT practice. It requires medical attention all the more in children of poor socio-economic status having past inadequate treatment and negligent medical care[1]. The present study was conducted to find out the various aerobic and anaerobic microorganisms associated with CSOM in paediatric and adult cases and their current antimicrobial susceptibility pattern to develop a current guide to emphirical therapy in this region. Samples were collected from 70 clinically diagnosed CSOM cases. The aim of medical management of CSOM is to achieving a dry ear by killing microorganism responsible for active disease[2].

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Sylhet M A G Osmani Medical College

Methods

The secretions of 70 samples belonging to various age groups and of both sexes of clinically proven chronic suppurative otitis media with definitive exclusion and inclusion criteria were collected and cultured by aerobic methods. The study was conducted in Sylhet M A G Osmani Medical College Hospital from August 2003 and June 2004. Informed written consent were obtained from the participants. Drug sensitivity was done according to standard laboratory protocols. . The smears were obtained using sterile cotton swabs, then inoculated into media, incubated and identified following standard procedure. Drug susceptibility was determined by disc-diffusion method

Results

Table I:.Age distribution. (N=70)

Age	Number	Percentage
10 -15	20	28.6%
16 -20	40	57%
21 -25	10	14 .3%

Table II: Drug susceptibility of the isolates

S L. N o.	Name of the isolated organism	Name of drugs (Sensitive)	Name of drugs (moderat ely sensitive)	Resistant
1	*Staphylococc us aureus*	ceftraxione, gentamicin, cefaclor,	ciproflox acin	amoxycillin, cloxacillin, tetracycline, cotrimoxazol e
2	*Streptococcus pneumoniae.*	amoxycillin, ceftraxione, ciprofloxaci n, cefaclor,		tetracycline, cotrimoxazol e
3	*Streptococcus*	amoxycillin,		cotrimoxazol

		n, erythromycin, cefaclor		
4	*Pseudomonas aeruginosa.*	ceftraxone, gentamicin, cefaclor,	ciproflox acin	amoxycillin, cotrimoxazole
5	*H. influenzae*	ceftriaxone, ciprofloxacin, gentamicin, cefaclor		amoxycillin, cotrimoxazole
6	*Klebsiella pneumoniae*	ceftraxone, gentamicin, cefaclor	ciproflox acin	amoxycillin, cotrimoxazole

Table III: Bacterial isolates from CSOM cases (n=70)

Name of organism (organism isolated)	No of cases	Percentages
Staphylococcus aureus.	35	50%
Streptococcus pneumoniae	16	22.85%
Streptococcus pyogenes	7	10%
Pseudomonas aeruginosa	5	7.14%
Haemophilus influenzae	4	5.71%
Klebsiella pneumoniae	2	2.85%
No growth	1	1.42%

No bacteria were isolated from one (1.42%)patient. Of 69 patients in whom bacteria were isolated, the most common bacteria was *Staphylococcus aureus* 35 (50%) followed by *Streptococcus pneumoniae* (22.8%) and Streptococcus pyogenes (10%) *Pseudomonas aeruginosa* (7.14%) *Haemophilus influenzae* (5.71%) *Klebsiella pneumoniae* (2.85%) All *Staphylococcus aureus* isolates were sensitive to ceftraxione, gentamicin, cefaclor, moderately sensitive to ciprofloxacin and resistant to amoxycillin, cloxacillin, tetracycline and cotrimoxazole. .*Streptococcus pneumoniae* isolates were found sensitive to amoxycillin, ceftriaxione, ciprofloxacin, cefaclor and resistant to teracycline and cotrimoxazole. *Streptococcus pyogenes* were sensitive to amoxycillin, cloxacillin, ciprofloxacin, erythromycin, cefaclor and resistant to cotrimoxazole and tetracycline. *Pseudomonas aeruginosa* were susceptable to ceftriaxone, ciprofloxacin, gentamicin, cefaclor and resistant to amoxycillin and cotrimoxazole. .*H. influenzae* strains were susceptible to ceftriaxone, ciprofloxacin, gentamicin, cefaclor and resistant to amoxycillin and cotrimoxazole. Isolates of *Klebsiella pneumoniae* were susceptible to ceftriaxone,

Discussion

In chronic otitis media bacterial infection is often a cause of exacerbation in the clinical course and failure in treatment [3]. The aim of the study was to investigate the incidence and profile of the aerobic bacterial flora in chronic otitis media and to determine the drug susceptibility of selected isolated bacteria among them.

In our study the most common microorganisms were *Staphylococcus aureus* (50%) *Streptococcus pyogenes* (10%) and *Pseudomonas aeruginosa* (7.1%) and *Haemophilus influenzae* (5.7%). This is similar to the study of Juen-Haur et al.. but contradicts the observations of another study [4] . The most common aerobic isolates were Pseudomonas sp., Proteus sp., and *Staphylococcus aureus* with recovery rates of 40.7%, 21.6% and 19.1% respectively .In their study Esposito etal isolated H. *influenzae* in significant numbers among previously untreated patients group comparing to previously treated [5]. et al in their study on paediatric CSOM patients found *Staphylococcus aureus* as the commonest aerobic isolate while in adult CSOM *Pseudomonas aeruginosa* was the commonest one [6]. The difference might be due to differences in life style of our study population most of whom belong to the lower socioeconomic strata of the society. Their bathing pattern might be important contributing factor.

The reason is that most of our patients are from the low social class living in poor communities due to this their life style bathing patern habits seoerate than other countries and are unable to afford the cost of healthcare, the factors, which make eradication of infection difficult [7],

Appropriate knowledge of antibacterial susceptibility of microorganisms will contribute to rational antibiotic usage and the success of treatment for chronic suppurative otitis media.

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ORIGINAL ARTICLE

The Osmani Medical Teachers Association Journal Volume 7 Number 1

Clinical pattern and epidemiological study of psoriasis attending at skin & VD OPD of Sylhet MAG Osmani Medical College Hospital. A study of 50 cases.

Md Abu Yousuf Bhuiya[1] and Md. Siraj Uddin[2]

Summery

Clinically diagnosed 50 cases of Psoriasis patients attending in Skin & VD OPD of Sylhet MAG Osmani Medical College Hospital between August'2001 and January 2002 were studied for epidemiology and clinical pattern of the disease. Highest number patients were found in adult age ranging from 31 to 45 years. About 68% were from poor socioeconomic condition. 78% cases were chronic & majority were suffering from the disease for more than 5 years. A positive family history was noticed in 18%. Regarding the clinical pattern plaque type was 54%, guttate 12%, erythrodermic 10%, pustular 2% and mixed 4%.

[OMTAJ 2008; 7(2)]

Introduction

Psoriasis is a common immune-mediated chronic, inflammatory disease of skin and joints characterized by red, thickened, scaly plaques that are the result of hyperproliferation and incomplete terminal differentiation of the epidermal keratinocytes, vascular changes, and migration of activated neutrophils and T lymphocytes into the dermis and the epidermis.[1-5]

Psoriasis worldwide in distribution with the prevalence of psoriasis is between 0.6 and 4.8%,[6-10] and varies according to race, ethnicity and geographic location.[6,11] Although the cause is not completely understood,[12,13] psoriasis is a multifactorial and polygenetically inherited disease.[14,15]

Plaque psoriasis, the most common clinical presentation characterized by symmetrically distributed and well demarcated, erythematous plaques topped by white-silvery scales.[16,17] Nail involvement occurs in 10 to 50%,[18,19] and psoriatic arthritis develops in 5 to 42% of psoriatic patients.[20,21]

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Treatment targets on symptomatic relief, remission and suppression of immune response,[5,8,16] Relatively mild and limited plaque psoriasis is adequately managed with topical medications, moderate to severe psoriasis often requires phototherapy and/or systemic treatment.[8,22]

Psoriasis is an incurable and chronic disease, persisting throughout life.[9,23] In addition to dermatological nuisance, it causes disruption in occupational and other daily activities, and profoundly impacts physical, psychological and social health and 5 to 30% of patients contemplate suicide. The negative effects of psoriasis on the quality of life can be even greater than that caused by life threatening illness.[16,24,25] The physical and psychosocial impact of the disease has stimulated a growing international interest and concern about psoriasis.[17]

Aims & objective of this study

1) To find out epidemiological information of psoriasis.
2) To see the clinical pattern of psoriasis.

Methodology

Study type - Epidemiological study
Study population - Patient with psoriasis attending at the skin VD OPD of Sylhet MAG Osmani Medical College Hospital
Study place - Skin & VD OPD of Sylhet MAG Osmani Medical College Hospital
Sample size - 50 patients have been identified clinically and taken as study population
Duration of study - Six months

Inclusion criteria

i) Patient of both sexes with psoriasis attending at skin VD OPD of Sylhet MAG Osmani Medical College Hospital were taken as study group.
ii) New cases were taken for the study
Instrument - A checklist consisting of various epidemiological marker was used as instrument for the collection of data.

Operational Definition

Plaque type - Circumscribed, solid, broad, elevated psoriatic lesion having the size of one cm or more in diameter.

Guttate type - Smaller psoriatic lesion having the size of less than 1cm in diameter (raindrop size)

Pustular psoriasis - Psoriatic plaque containing lake of pus.

Erythrodermic psoriasis - Psoriasis with very extensive scaling (involvement more than 90% of body surface).[24-29]

Poor - Having per capita income less than 5000/- taka per month

Average - Having per capita income 5000-10,000 taka per month

Rich - Having per capita income more than 10,000 taka per month

Methodology –

1) Cases were collected by me from skin VD OPD
2) Cases were taken to the Associate Prof. & head of the department of Dermatology for the confirmation of the clinical diagnosis.
3) Consent of the patient was taken
4) Proper history was taken
5) Thorough general examination and local examinations were done.
6) Check list was filled up accordingly.

Results

Table - I : Distribution of cases by sex variation.(N=50)

Sex	No. patient	Percentage (%)
Male	29	58%
Female	21	42%
Total	50	100%

Table - II : Distribution of cases by age group. (N=50)

Age in year	No. patient	Percentage (%)
0-15 yrs	5	10%
16-30 yrs	15	30%
31-45 yrs	20	40%
46-60 yrs	8	16%
61-75 yrs	2	4%
Total	50	100%

Table - III : Distribution of cases by socio-economic condtion.(N=50)

Socio-economic condition	No. patient	Percentage (%)
Poor	34	68%
Average	14	28%
Rich	2	4%
Total	50	100%

Table - 4 : Distribution of cases by occuptaion. (N=50)

Occupation	No. patient	Percentage (%)
Labour	15	30%
Business man	12	24%
Unemployed	11	22%
Service holder	10	20%
Student	2	4%
Total	50	100%

Any form of work using physical force is considered as labour.

Table - 5 : Distribution of cases according to onset. (N=50)

Onset	No. patient	Percentage (%)
Sudden	11	22%
Gradual	39	78%
Total	50	100%

Table - 6 : Distribution of cases on duration. (N=50)

Duration	No. patient	Percentage (%)
Short (less than 3 months)	6	12%
Long (3 months-5 years)	19	38%
Very long (more than 5 years)	25	50%
Total	50	100%

Table - 7 : Distribution of disease in family. (N=50)

Family association	No. patient	Percentage (%)
Present	9	18%
Absent	41	82%
Total	50	100%

Table - 8 : Distribution of disease with diet association. (N=50)

	No. patient	Percentage (%)
Present	8	16%
Absent	42	84%
Total	50	100%

Table - 9 : Distribution of disease with seasonal association. (N=50)

Association with season	No. patient	Percentage (%)
Present	34	68%
Absent	16	32%
Total	50	100%

Table - 10 : Distribution of disease with remission & recurrence. (N=50)

Remission and recurrence	No. patient	Percentage (%)
Present	39	78%
Absent	11	22%
Total	50	100%

Table - 11 : Distribution of pattern of psoriasis. (N=50)

Pattern	No. patient	Percentage (%)
Plaque type	27	54%
Guttate	12	24%
Erythrodermic	5	10%
Pustular	2	4%
Mixed	4	8%
Total	50	100%

Discussion

In this study the sample size was fixed to (n=50) that is 50 patients with psoriasis were selected from the skin and V.D department of Sylhet MAG Osmani Medical College Hospital.

After collection of information, compilation & tabulation of data were done to observe the different variables.

Table I shows that out of 50 patients male are 29 (58%). This result is correlated with Szepietowski *et al.*[30] 60% of their psoriatic patients were male in their series.

Table II shows the distribution of psoriasis in different age group. Here in this table most valuable age group is from 31-45 yrs. The least vulnerable age group is above 60 yrs. In both extremity the incidence rate is lower.[31]

Table III shows distribution in different socio-economic group. Here it's found that poor class people are more sufferer of the disease.[31]

Table IV shows distribution of case in different occupation. In this table it is found that occupation with physical labour are more vulnerable. Here incidence rate is about 30%.[30]

Table V shows distribution of cases according to onset. Here it's seen that maximum patient have gradual onset. The percentage seen here is 78%. The other group 22% have sudden onset of disease.[32]

Table VI shows distribution of cases according to duration of the disease onset. Here it's found that maximum case were of long duration of onset. 50% of the patient were suffering the disease for more than 5 yrs duration. Patient came with history of short duration were only 12% where duration were less than three months.[32]

Table VII express the familial association of psoriasis. Here it is found that in 18% cases there were association with the family members. Ferrándiz *et al.* had observed 10%, [33] and Naldi *et al.* had observed prevalence of psoriasis amongst relatives of psoriasis was 27.8%.[34]

Table VIII shows disease association with diet. In this table it is shown that only 16% of the patient have some ralation with diet. They described the lesion became symptomatic that is pruritic or, more scaly if they took some foods like beef, egg etc. But for the onset of the disease they felt nothing. In maximum cases 84% they found no relation with diet. [31]

Table IX shows the distribution of disease association with season. In this table it is found that 68% showed their disease association with season. In sunny season (summer/rain) the prevalence of the disease were less but in winter or dry season the disease prevalence is more. So it is found that winter season is favorable for psoriasis patient & this result also satisfy the text finding. [29]

Table X shows distribution of disease with chronicity, remission & recurrence. In this table it is found that in 78% cases there were remission & recurrence of the disease. The period of remission were variable, which were for the period of months to years. [29]

Table XI shows the distribution of psorisais in idfferent clinical pattern. In this table it is found that plaque type of psoriasis were maximum & were about half of the cases 54%. 4% cases were pastular. This findings are similar to the findings reported by others.[25] In this it is found that 24% cases were of guttate variety & 10% cases were of erythrodermic variety. It is also seen in this table that there were some patients having mixed morphological vaireties ie 8% of patient were in this group, where they were bearing both plaque & guttate type of lesions.

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Recommendations For Pre-Anaesthetic Assessment

Sajjad Ahmed[1] Md.Shah Newaz Chowdhury [2] Manjurul Alam [3]

The pre-anaesthetic assessment is an integral part of safe anaesthetic practice.[1, 2] it serves to identify associated medical illness and anaesthetic risks, with the ultimate aim of reducing morbidity and mortality associated with anaesthesia and surgery.

Introduction

The objectives of the pre-anaesthetic assessment are manifold. At times, to achieve these objectives, the anaesthesiologist has to resort to resources such as medical consultation and treatment as well as laboratory and other investigations. In an era where cost containment is important, factors like cost-benefit and benefit-risk ratios will have to be taken into consideration.[3,4]

With the above considerations, this document provides recommendations on pre-anaesthetic assessment to enhance patient safety.

The objectives of the pre-anaesthetic assessment are to:

I. Evaluate the patient's medical condition from medical history, physical examination, investigations and, when appropriate, past medical records.
II. Optimise the patient's medical condition for anaesthesia and surgery.
III. Determine and minimise risk factors for anaesthesia.
IV. Plan anaesthetic technique and peri-operative care.
V. Develop a rapport with the patient to reduce anxiety and facilitate conduct of anaesthesia.
VI. Inform and educate the patient about anaesthesia, peri-operative care and pain management
VII. Obtain consent for anaesthesia

GENERAL PRINCIPLES[5]

1. The pre-anaesthetic assessment should be performed by the anaesthesiologist who is to conduct the anaesthesia. If this is not possible, a satisfactory mechanism is required whereby the findings of the pre-anaesthetic assessment can be conveyed to the anaesthesiologist concerned.
2. The pre-anaesthetic assessment should be performed at an appropriate time before the scheduled surgery to allow adequate preparation of the patient. This also applies to day surgery patients.
3. Pre-operative admission is indicated in patients who require further medical evaluation or prior to major surgery. Admission should not be merely for pre-operative investigations which can be done as out-patient.
4. The pre-anaesthetic assessment may be conducted a) as a personal interview in the ward, operating theatre or pre-anaesthetic clinic[6] or b) using pre-set questionnaires[7] assisted by trained nursing or paramedical staff under the supervision of an anaesthesiologist.
5. Input from other medical specialties may be required in the pre-anaesthetic management of the patient. However, only the anaesthesiologist may determine a patient's fitness to undergo anaesthesia.
6. In the case of emergency surgery where early consultation is not always possible, the anaesthesiologist is still responsible for the pre-anaesthetic assessment. If surgery cannot be delayed in spite of increased anaesthetic risks, documentation to that effect should be made.

Detecting disease and assessing severity

1. A patient's medical history provides vital information to identify disease that may affect peri-operative outcome. Medical history should include medical problems, current medication and allergies, previous anaesthesia and family history of anaesthetic complications. System review should focus on those pertinent to anaesthesia and surgery. Menstrual history may be important in women of child-bearing age. Useful information may be obtained from the patient's family doctor or relatives.
2. Physical examination of the patient is an essential part of the pre-anaesthetic assessment. Although the cardiovascular and respiratory systems (including the airway) are important in the assessment of the

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patient, other systems i.e. the renal, hepatic and central nervous systems may also require detailed attention as guided by the history.

3. Laboratory and radiological investigations complement history and physical examination in detecting and assessing disease. These investigations should not be done as a routine but ordered as guided by the history and physical examination. Guidelines for investigations are presented in the Appendix.
4. Multidisciplinary management[8], subspecialty referral and medical record retrieval may be helpful in the overall assessment of the patient.

Risk assessment

1. The patient's pre-operative condition is not the only determinant of peri-operative outcome. Other factors such as complexity of surgery, urgency of surgery, surgical skill and factors related to anaesthesia also contribute to outcome. The American Society of Anesthesiologists (ASA) physical status classification provides a useful means to convey information regarding the patient's pre-operative condition and has been found to have some predictive value when applied to overall operative mortality.[9,10]
2. In assessing risk factors and optimising the patient for anaesthesia and surgery, the anaesthesiologist may need to consider the nature[11] and urgency of the surgery, social and economic factors, or any financial constraints that prevail. It is imperative that the anaesthesiologist be knowledgeable and well-informed to make a balanced judgement with regard to the benefit-risk ratio of anaesthesia and surgery for the high-risk patient. In such cases, risks associated with anaesthesia should be conveyed to the patient and / or the next-of-kin as well as documented in the consent form or the patient's case notes.

Pre-operative medication

Pre-operative medication may be prescribed to facilitate the anaesthetic management. The patient's current medication should be reviewed and continued when necessary.

Consent

The pre-anaesthetic assessment should include confirmation with the patient, the patient's guardian in the case of children below 18 years or the intellectually challenged, of the nature of the anaesthetic procedure and his / her consent for anaesthesia.

Documentation

A written summary of the pre-anaesthetic assessment, orders or arrangements should be explicitly and legibly documented in the patient's anaesthetic record.

Appendix

Recommended Pre-Anaesthetic Investigations [2,11]

(These tests are recommended for administration of anaesthesia and are not intended to limit those required for issues specific to their surgical management)

Electrocardiogram
Age above 50
Cardiovascular disease
Diabetes Mellitus
Renal disease

Full Blood Count
Age above 60
Clinical anaemia
Haematological disease
Renal disease
Chemotherapy
Procedures with blood loss > 15%

Coagulation Profile
Haematological disease
Liver disease
Anticoagulation
Intra-thoracic/Intra-cranial procedures

Liver Function Tests
Hepatobiliary disease
Alcohol abuse

Chest X-ray
Age above 60
Significant respiratory disease
Cardiovascular disease

Renal Profile
Age above 60
Renal disease
Liver disease
Diabetes Mellitus
Cardiovascular disease
Procedures with blood loss > 15%

Random Blood Sugar
Age above 60
Diabetes Mellitus
Liver dysfunction

Note:
For healthy patients undergoing short, minimally invasive procedures, investigations may not be necessary.

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Urethral Rhinosporidiosis–Two case reports

Pranashis Saha[1], Promode Ranjan[1], Md. Abed Hossain[2], Goutam Kumar Roy[3], Milton Modak[4]

Introduction

Rhinosporidiosis is a chronic granulomatous condition caused by fungus *Rhinosporidium seeberi*. The first case of rhinosporidiosis was described as nasal polyp by Guillermo Seeberi from Buenos Aires in 1900 and at that time the organism was considered as sporozoon. The life cycle of this fungus was described by Ashworth in 1923 and established the name *Rhinosporidium seeberi* [7]. Though it has a global distribution, 90% cases are from Asia mainly from South India, Sri Lanka and Pakistan and less than 5% cases are from Africa and the western countries [3].

CASE REPORTS

Case 1

A male patient age 34 years presented with a pinkish pedunculated mass through the external urethral meatus for 4 months without any urethral bleeding. The general examination did not reveal any abnormality. His genital examination was also normal except the lesion. The full blood count, serum creatinine and electrolytes were within normal limit. Ultrasound scan of renal tract showed no gross abnormalities. Local examination revealed a fleshy granular and vascular polyp arising from just 1 cm proximal to the external urethral meatus (fig-1). Urethrocystoscopy revealed rest of the urethra and bladder mucosa healthy. The polyp was resected and the base fulgurated with bipolar diathermy. The histopathological examination revealed tissue lined by well differentiated stratified squamous epithelial cells, the subepithelial stroma contains characteristic sporongia in various stages of maturity enclosed in a thick chitinous wall with a moderate infiltration of lymphocytes and plasma cells suggestive of rhinosporidiosis (fig-2). At 3 months interval no recurrence was noted with clinical examination, ultrasound scan and check urethrocystoscopy.

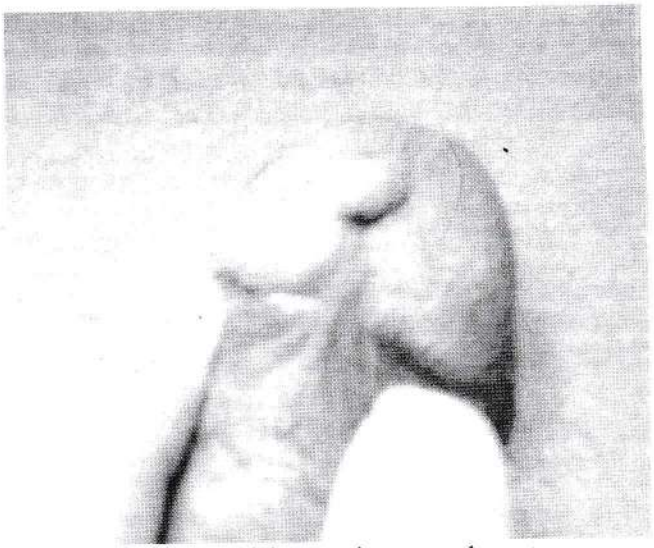

Figure1. Pinkish mass in external meatus.

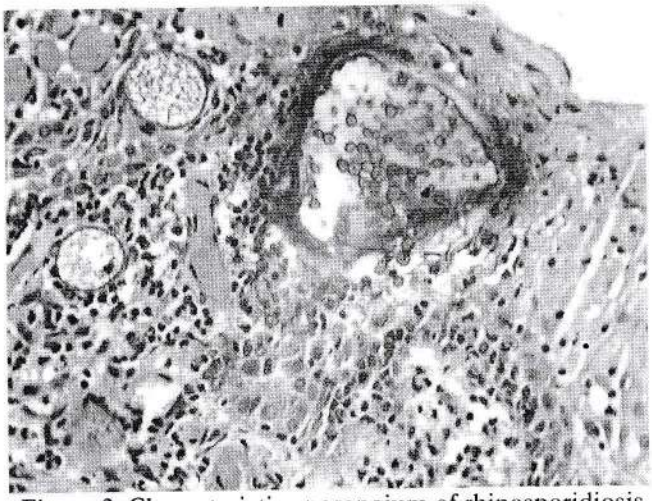

Figure 2. Characteristic sporangium of rhinosporidiosis in various stages.

Case 2

A male patient aged 70 years presented with a pinkish polypoidal mass protruding through the external urethral meatus for about 2 years with obstruction to the urinary stream. His general examinations were unremarkable and genital examination was also normal except the lesion(fig-3). Ultrasound scan showed no gross abnormality of the renal tracts. Urethrocystoscopy revealed the mass arising from the mid anterior urethra and then transurethral resection of the

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mass done with fulguration of the base. Histopathological study revealed urethral rhinosporidiosis(fig-4). After operation patient showed much improvement of the urinary flow. After 3 months no recurrence was noted with clinical examination, ultrasound scan and check urethrocystoscopy.

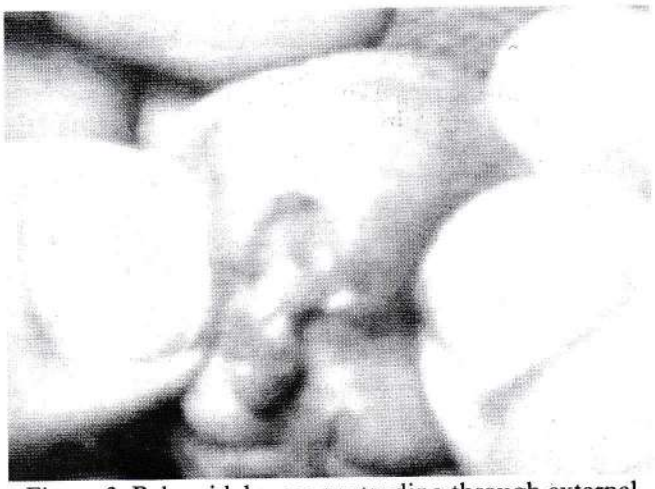

Figure 3. Polypoidal mass protruding through external urethral meatus

DISCUSSION

Rhinosporidiosis is caused by fungus *Rhinosporidium seeberi*, commonly found in south Asia[1]. Urethral involvement is very rare and was first reported in 1941 [2,5]. The disease affects mainly the nasal mucosa (70%), nasopharynx (6%) and the conjunctiva [3].

Frequent bathing in stagnant ponds leading to abrasions caused by sand particles contaminated with the pathogens and also trauma from the contaminated stones used for mopping-up residual drops of urine are thought to be responsible for urethral infection[1]. Urethral rhinosporidiosis is manifested by one or more friable pink, painless polyp like lesion protruding from the urethral meatus.

Haematuria, intermittent bleeding, discharge and polypoidal growth from the external urethral meatus are usual mode of presentations [5]. Similar lesions can occur in the vagina, vulva or rectum; however sexual transmission has not been recorded[4]. The differential diagnosis includes condyloma accuminata, transitional cell carcinoma and adenocarcinoma of the urethra[5]. Medical treatment may bring little influence on the course of the disease with anecdotal reports of success with dapsone[6]. Surgical extirpation followed by electrocoagulation of the base is the treatment of choice. Endoscopic resection and electro-fulguration of the base is an alternative treatment[4].

CONCLUSION:

Urethral rhinosporidiosis is a rare clinical entity, surgical excision and electrocoagulation of the base is the treatment of choice. The recurrences are mainly due to inadequate excision or reinfection. These case reports are submitted due to its relatively uncommon occurrence.

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REVIEW ARTICLE

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Dengue Fever And Its Laboratory Diagnosis- A Review

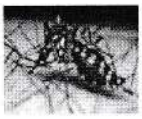
Saima Kamar [1], Osul Ahmed Chowdhury [2], Md Murshed [3], Rabiul Hasan[4]

Introduction

Dengue is an arbovirus, member of family of Flavivirus. It is composed of icosahedral nucleocapsid surrounded by an envelope. Incubation period- 2-7 days[1]

Dengue is a spectrum of disease caused by four serotypes of the most prevalent arthropod-borne virus affecting humans today, and its incidence has increased dramatically in the past 50 years. Due in part to population growth and uncontrolled urbanization in tropical and subtropical countries, breeding sites for the mosquitoes that transmit dengue virus have proliferated, and successful vector control has proven problematic. Dengue viruses have evolved rapidly as they have spread worldwide, and genotypes associated with increased virulence have expanded from South and Southeast Asia into the Pacific and the Americas[2].

The global prevalence of dengue has grown dramatically in recent decades. The disease is now endemic in more than 100 countries in Africa, the Americas, the Eastern Mediterranean, South-East Asia and the Western Pacific. South-East Asia and the Western Pacific are most seriously affected. Before 1970 only nine countries had experienced DHF epidemics, a number which had increased more than four-fold by 1995. Some 2500 million people – two fifths of the world's population - are now at risk from dengue. WHO currently estimates there may be 50 million cases of dengue infection worldwide every year. During epidemics of dengue, attack rates among susceptible are often 40 – 50%, but may reach 80 – 90%. An estimated 500 000 cases of DHF require hospitalisation each year, of whom a very large proportion are children and roughly 5% die. Without proper treatment, DHF case fatality rates can exceed 20%. With modern intensive supportive therapy, the rate can be reduced to less than 1%.



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In Bangladesh there had been Dengue outbreaks in 2000 (5,555 cases and 93 deaths); 2001 (2,430 cases and 44 deaths) and 2002 (6,104 cases and 58 deaths).

Cases were reported from the metropolitan cities (Dhaka, Chittagong, Khulna, Rajshahi) and as per the sero-survey findings, 3 sero-types of the virus circulating.

Government statistics put the latest figure of afflicted at 1,227 with 16 among them having died. Children have proved to be the most vulnerable group. Monsoon which is the high risk season. So, the worries deepen [3].

Although dengue haemorrhagic fever with shock syndrome was initially recognized in South-east Asia in 1951,it has since occurred in the south-west Pacific,Cariddean and South American countries[4].

VIRAL STRUCTURE:

1. The first structure of a flavivirus has been determined by using a combination of cryoelectron microscopy and fitting of the known structure of glycoprotein E into the electron density map. The virus core, within a lipid bilayer, has a less-ordered structure than the external, icosahedral scaffold of 90 glycoprotein E dimers.
2. Crystal structure of dengue virus

Viral replication;

Following attachment to the cell surface, the virus is taken up by receptor-mediated endocytosis.

Only one species of viral mRNA –the genomic RNA-is found in infected cells.

It is translated into a single, long polyprotein, which is processed by viral-coded and cellular proteases, giving rise to three structural and 3 non-structural proteins.

The Nucleocapsids are formed in the cytoplasm and maturation of the viral particle occurs by envelopment of nucleocapsid

- Nucleocapsid uncoates and viral RNA released.
- RNA replication begins close to nucleus-They are the progeny genome.

Mature virus particle are transportad via secretory vesicle and released cell surface by exocytosis[5].

(ADE-Antibody dependent enhancement)

Transmission:

- Dengue viruses are transmitted to humans through the bites of infective female Aedes mosquitoes. Mosquitoes generally acquire the virus while feeding on the blood of an infected person. Once infective a mosquito is capable of transmitting the virus to susceptible individuals for the rest of its life, during probing and blood feeding. Infected female mosquitoes may also transmit the virus to the next generation of mosquitoes by transovarial transmission i.e. via its eggs, but the role of this in sustaining transmission of virus to humans has not yet been delineated. Humans are the main amplifying host of the virus,
- The virus circulates in the blood of infected humans for 2-7 days, at approximately the same time as they have fever; Aedes mosquitoes may acquire the virus when they feed on an individual at this time
- Infection with one virus does not provide protection to the person from other three viruses. However, the person gets life-long immunity from that particular virus, once treated.

DENGUE INFECTION - 1) Asymptomatic
2) Symptomatic

2. Symptomatic-

I. Undifferentiated

II .Dengue fever - a. Without haemorrhage
b. With haemorrhage.

III. Dengue haemorrhagic fever—
a. No shock
b. Dengue shock syndrome [6,7]

Pathogenesis:

- Primary infection may be asymptomatic or may result in dengue fever. This is generally a self-limiting febrile illness which occurs after a 4-8 day incubation period. It has symptoms such as fever, aches and arthralgia (pain in the joints) which can progress to arthritis (inflammation of the joints), myositis (inflammation of muscle tissue) and a discrete macular or maculopapular rash.
- The circulation of infection-enhancing antibodies at the the time of infection is the strongest risk factor for development of sever disease.
- The main path physiological changes occured in DHF/DSS are increase vascular permeability and disorders in haemostasis. Absence of cross-reactive neutralizing antibodies and presences of enhancing antibodies from passive tranfer or active production is the best correlate of risk for dengue haemorrhagic fever.

Dengue haemorrhagic fever (DHF):

Risk factors for dengue hemorrhagic fever: It is a potentially deadly complication.

- Person's age and immune status
- Type of infecting virus.
- Persons who were previously infected with one or more types of dengue virus are thought to be at greater risk for developing dengue if infected again.
  - It is due to production of large amounts of cross reacting antibody at the time of second dengue infection.
  - The patient has increased vascular permeability and abnormal homeostasis (homeostasis is the maintenance of equilibrium, or constant conditions, in a biological system) that can lead to hypovolemia (abnormal decrease in blood volume) and hypotension (drop in blood pressure).

Different types of cells including monocyte/macrophage, endothelial cells, B andT lymphocytes, megakaryocyte and hepatocytes and various types of cytokines, chemical mediators are responsible for increased vascular permeability and injury.

- In severe cases, result in hypovolemic shock (Shock due to a decrease in blood volume) often complicated by severe internal bleeding

Dengue shock syndrome (DSS)

- Results from leakage of plasma into the extra vascular compartment.
- Rapid and poor volume pulse, hypotension, cold extremities, and restlessness occur.
- In addition to the plasma leakage, which is the result of generalized vacuities, disseminated intravascular coagulation is present.

- Dengue shock syndrome is usually a progression of dengue haemorrhagic fever and is often fatal. [8,9]

DIAGNOSIS:

USEFUL LABORATORY PROCEDURES:

- Complete blood count- Total leucocyte count, total platlet count, and hematocrit.
- Leucopenia is usual and thrombocytopenia common

Leucocyte count has a very important prognostic guide in early phase of dengue infection. Leucopenia <500cells/mm3 indicates that within the next 24 hours the patient will have no fever and patient will be entering the critical phase.

- Serial leucocyte count, Haematocrit level and platlet count are very important for prognostic purpose.

.IN CASE OF DENGUE HAEMORREGIC FEVER:

- Positive tourniquet test.
- Decreased platelet count- ≤10,0000/cumm
- Increase in haematocrit->20%
- Thrombocytopenia with platlets 100,000/mm3 or less
- Any evidence of plasma leakage due to capillary permeability manifested by

a. A≥20% rise in haematocrit for age and sex.

b. A>20% drop in haematocrit following treatment with fluids as compared to baseline.

c .Pleural effusion /ascites /hypoproteinaemia [10].

Methods for isolation of dengue virus: - Isolation of mosquitoes (adults or larvae)

-Inoculation of various mammalian or insect cell cultures.

- Intracranial inoculation of sucking mice.

Rapid diagnosis of dengue is crucial for proper patient care. As IgM antibody appears early during the disease course, its detection is a valuable tool for rapid diagnosis[11].

Early symptoms of dengue fever (DF) mimic other diseases often prevalent in areas where it is endemic, such as malaria and leptospirosis[12].The most straightforward diagnosis of a recent infection is achieved by the detection of the virus in the patient's blood, either by virus isolation in susceptible cell cultures[13] or identifying the viral RNA with PCR techniques[14,15]. But these methods are laborious and also require specialized laboratory facilities. In addition, it has been shown that the level of the circulating virus wanes as the antibodies become detectable and so these procedures are successful only when done within a few days of the onset of illness[16].

- Antibody titres of IgM, IgG -4 fold or greater rise in antibody titre in acute and convalescent sera.

Two patterns of serological response can be observed in patients with dengue virus infection: primary and secondary antibody responses, depending on the immunological status of the infected individuals.

A primary antibody response is seen in individuals who are not immune to flaviviruses. A secondary antibody response is seen in individuals who have had a previous flavivirus infection.

For acute- and convalescent-phase sera, serological detection of antibodies based on capture immunoglobulin M (IgM) and IgG enzyme-linked immunosorbent assay (ELISA) has become the new standard for the detection and differentiation of primary and secondary dengue virus infections[17].

Several methods have been described for the serological detection of dengue virus-specific antibodies, including the hemagglutination inhibition (HI) test[18], the neutralization test, the indirect immunofluorescent-antibody test, ELISA, complement fixation, dot blotting[19], Western blotting[20], and the rapid immunochromatography test (for which many commercial kits are available). Among these, capture IgM and/or IgG ELISA, antigen-coated indirect IgM and/or IgG ELISA, and the HI test are the most commonly used serological techniques for the routine diagnosis of dengue virus infections.

- Dengue virus serotype analysis is important in epidemiological and pathological studies. Among the available methods, virus isolation followed by type-specific monoclonal antibody immunofluorescence staining, and RT-PCR are widely used by many laboratories studying dengue virus[21,22].
- Neutralizing and hemagglutination-inhibition antibodies appear within 7 days after onset of rash

Another indirect enzyme-linked immunosorbent assay for detection of anti-dengue virus (DENV) immunoglobulin G antibodies using four recombinant DENV envelope polypeptides as antigens. These easily produced antigens are a feasible, cost-effective

alternative for generating reagents for dengue serological tests[23].

Dependable, immediate diagnosis of dengue can be performed in rural areas by the use of Rapid Diagnostic Test kits, which also differentiate between primary and secondary dengue infection [24].

Molecular diagnosis based on reverse transcription (RT)-PCR, such as one-step or nested RT-PCR, nucleic acid sequence-based amplification (NASBA), or real-time RT-PCR, has gradually replaced the virus isolation method as the new standard for the detection of dengue virus in acute-phase serum samples.

The real-time RT-PCR has become an important tool that can be used for early, specific and sensitive detection of dengue virus genome in human serum samples.[25]

Conclusion:

A rapid and accurate method for the diagnosis of dengue fever is important for proper patient management, keeping in view the complications and fatality rate associated with it. Present advances in molecular and serological diagnostic methods have greatly improved the sensitivity and specificity of diagnosis of dengue virus infection. Several studies have compared and evaluated the different serological tests available for the diagnosis of dengue viral infection. Further knowledge of the complex underlying mechanisms of dengue infection would lead to development of therapeutic and vaccine strategies. It is needless to say that there is an need for more clinical and laboratory studies on dengue infection.

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Imaging of stroke- current status and futuristic vision

Acute stroke is the third leading cause of death, accounting for approximately one in 16 deaths and is the leading cause of serious, long-term disability. On average, every 40 s, someone has a stroke and, of these, 15-30% become permanently disabled.[1] The major portion is caused by acute ischemia due to cerebral artery occlusion by a clot. The minority of strokes is related to intracerebral hemorrhage or other sources. After a major trial published in the *New England Journal of Medicine* in 1995, tissue plasminogen activator (tPA) was approved for use as an intravenous agent in ischemic stroke.[3] Currently CT scan is the gold standard for selecting patients for tPA therapy that has many limitations. One major obstacle in the development of effective therapies for ischemic stroke has been the lack of versatile imaging techniques. Further developments in stroke therapy, such as intra-arterial chemical[3] and mechanical[4] recanalization further advanced hopes for improved patient outcomes. Within the last years, the differentiation of infarct core and penumbra with MRI using diffusion-weighted images (DWI) and perfusion imaging (PI) with parameter maps was established. [5]
Beyond clinical trials, imaging has become a requisite component of the neurological examination enabling tailored stroke therapy with the use of detailed neuroimaging modalities. The addition of ultrafast MRI to acute stroke investigation has both increased our knowledge of acute stroke pathophysiology and brought a tool to study how to best select patients for thrombolytic therapy. MR offers the three essential components: vascular lesion identification, delineation of injured brain tissue, and map of ischemic brain. MR angiography can demonstrate the site of major cerebral artery occlusion, providing a means to screen for i.a. thrombolysis. Diffusion-weighted imaging (DWI) is capable of showing acute ischemic injury within minutes of symptom onset. Perfusion-weighted imaging (PWI) shows the total area of acute ischemia, more accurately reflecting the extent of neurological dysfunction. Combining DWI and PWI immediately gives information that bears on how much tissue is injured (DWI) and how much tissue is functionally inactive but still viable (ischemic on PWI but still normal on DWI.

Ideally, patient treatment in the future will be tailored not to a fixed time window but to the physiological state of the ischemic tissue as defined by MRI [6]. These techniques have been used in experimental studies with great success for over a decade and now are gradually entering clinical use [7].

antibiotics, cephalosporins, carbapenems, and fluoroquinolones. These investigators found that the organism *P aeruginosa* was resistant to the most antimicrobial agents, with more than 70% of isolates resistant to ampicillin, ampicillin + sulbactam, cefazolin, cefuroxime, cefotaxime, ceftriaxone, or co-trimoxazole. In a similar study, Jones et al. (2004)[10] showed that susceptibility rates in ICUs in the United States were lowest among the gram-negative bacilli *A baumannii* and *P aeruginosa* over the period 2000 to 2002, with rates of susceptibility to cefotaxime as low as 9.2% for *P aeruginosa* [10].

Nosocomial infection is a common consequence health care delivery system but it can be keep to a minimum extent if following measures are practice in every institutes-

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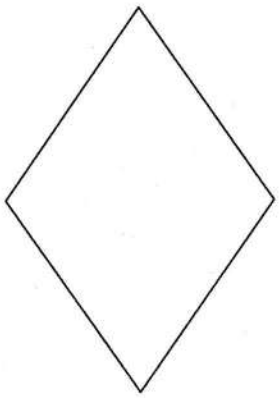

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