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कर्मण्येवाधिकारस्ते
My right is to my work

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Editorial

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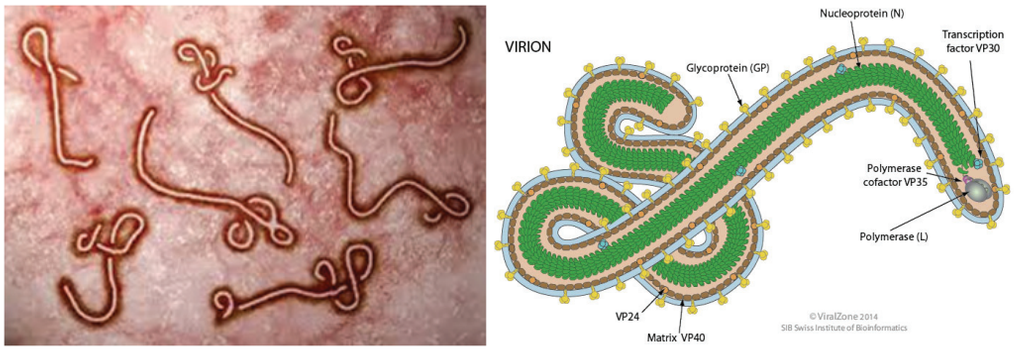
EBOLA VIRUS DISEASE

Ebola virus disease, formerly known as Ebola haemorrhagic fever, is an acute, severe illness which is often fatal if untreated. Ebola virus disease first appeared in 1976 in 2 simultaneous outbreaks, one in Nzara, Sudan, and the other in Yambuku, Democratic Republic of Congo. The latter occurred in a village near the Ebola River, from which the disease takes its name. Since 1976, outbreaks have occurred sporadically in Zaire, Sudan, Democratic Republic of Congo, Gabon, and Uganda. It has also spread between countries and affected Guinea, Liberia, Sierra Leone, Senegal, and Nigeria. The recent outbreak in West Africa (first cases notified in March 2014) is the largest in the history with 22,560 suspected cases and 9,019 confirmed deaths as of January, 2015 (CDC/WHO). On August 8th, 2014 the WHO declared this outbreak a Public Health Emergency of International Concern. A few cases have also been reported in countries outside of West Africa, all related to international travelers who were exposed in the most affected regions and later showed symptoms of Ebola fever after reaching their destinations.

The virus family *Filoviridae* includes 3 genera: *Cuveavirus, Marburgvirus,* and *Ebolavirus*. There are 5 species that have been identified in the genus *Ebolavirus*: *Zaire, Bundibugyo, Sudan, Reston* and *Tai Forest*. The first 3, *Zaire Ebolavirus, Bundibugyo Ebolavirus*, and *Sudan Ebolavirus* have been associated with large outbreaks in Africa. The virus causing the 2014 West African outbreak belongs to the *Zaire* species.

Ebola virus (EBOV) is characteristically long, thread like, filamentous or tubular, and measures 800 – 1000 nm. Ebola virion contains viral envelope, matrix and nucleocapsid components. The viral envelope carries 7 – 10 nm long glycoprotein spikes (virally encoded) projecting from its lipid bilayer surface. Viral proteins VP40 and VP24 are located between the envelope and nucleocapsid in the matrix space. At the center of the virion structure is the nucleocapsid, which is composed of a series of viral proteins, attached to 18 – 19 kb linear, negative sense RNA genome. The RNA is helically wound and complexed with the NP, VP35, VP30, and L proteins. The helix has a diameter of 80 nm and contains a central channel of 20 – 30 nm. The prototype Ebola virus, variant Mayinga (EBOV/May), was named for Mayinga N'Seka, a nurse who died during the 1976 Zaire outbreak.

Fig 1: Ebola virus (Source: www.universityofcalifornia.edu; www.microbiology.info.com)



Ebola virus is a zoonotic pathogen. The virus is harbored in fruit bats, gorillas, monkeys, forest antelope, chimpanzees, and porcupines. Ebola is introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of these infected animals. Ebola then spreads directly through human-to-human transmission via direct contact (through broken skin or mucus membranes) with the blood, secretions, organs or other bodily fluids (tears, feces, urine, vomit etc.) of infected people, or indirectly from surfaces and materials (e.g. bedding, clothing, surgical equipment or a needle) contaminated with these fluids. People remain infectious as long as their blood and body fluids, including semen and breast milk, contain the virus. Men who have recovered from the disease can still transmit the virus through their semen for up to 7 weeks after recovery from illness. Health care workers have frequently been infected while treating patients with suspected or confirmed Ebola virus disease.

The incubation period, that is, the time interval from infection with the virus to onset of symptoms is 2 to 21 days. The initial symptoms are the sudden onset of high fever, fatigue, muscle pain, headache, stomach pain. There may also be sore throat, hiccups and red and itch eyes. This is followed by vomiting, diarrhea, rash, and bleeding problems that include bloody nose (epistaxis), spitting up blood from the lungs (hemoptysis), vomiting blood from the stomach (hematemesis) and bloody eyes (conjunctival hemorrhages), symptoms of impaired kidney and liver function. Then finally come chest pain, shock and death. Laboratory findings include low WBC and platelet counts and elevated liver enzymes.

A protein on the surface of the virus has been discovered that is responsible for the severe internal bleeding (the death-dealing feature of the disease). The protein attacks and destroys the endothelial cells lining blood vessels, causing the vessels to leak and bleed.

It can be difficult to distinguish Ebola virus disease from other infectious diseases such as malaria, typhoid fever, and meningitis. Confirmation that symptoms are caused by Ebola virus infection are made using RT-PCR assay, ELISA, serum neutralization tests, electron microscopy, and virus isolation by cell culture. Samples from patients are extreme biohazard risk.

There is no proven treatment available for Ebola virus disease. Therefore treatment for Ebola virus disease consists of early supportive care which often includes administering intravenous (IV) fluids and monitoring and maintaining appropriate electrolyte, oxygen, and blood pressure levels, and treatment of specific symptoms.

There currently is no vaccine for Ebola virus disease. Good outbreak control relies on applying a package of interventions, namely case management, surveillance and contact tracing, a good laboratory service, safe burial and social mobilization. Community engagement is key to successfully controlling outbreaks. Raising awareness of risk factors for Ebola infection and protective measures that individuals can take is an effective way to reduce human transmission. Health care workers should always take standard precautions when caring for patients. These include basic hand hygiene, respiratory hygiene, using personal protective equipment (to block splashes or other contact with infected materials).

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Aural Foreign Bodies in Children

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Key words:
Aural foreign bodies,
External auditory canal,
Children.

ABSTRACT

Background: Foreign bodies in the external auditory meatus are a common and sometimes challenging problem. A large variety of foreign bodies may be encountered in the external auditory meatus. Foreign bodies in the external ear canal present frequently particularly in paediatric population. The patients introduce most foreign objects, however insects may enter into the meatus accidentally.

Objectives: This study aims to evaluate the clinical profile and management of ear foreign bodies in children as seen in Pokhara, Nepal.

Methods: A two year prospective study of 47 patients that presented with features of aural foreign bodies in the Ear, Nose and Throat Department of Gandaki Medical College Teaching Hospital between Janurary 2013 to December 2014 was done. The diagnosis of aural foreign bodies in each subject was based on history and clinical findings at otoscopy.

Results: 47 children with aural foreign bodies were studied and managed. There were 30 (63.8%) males and 17 (36.2%) females with a sex ratio of 1.7 : 1 (M : F). The duration of symptoms ranged from 1 hour to 5 days. The foreign bodies were found in the left ear in 39 (83.0%) cases, right ear 7 (14.9%), and in both ears 1 (2.1%) case. The most common aural foreign bodies seen in this study were erasers 16 (34%), beads 8 (17%), and stones 8 (17%). The treatment modalities used were forceps extraction 21 (44.7%), syringing 9 (19.1%), removal under intravenous anaesthesia 8 (17.0%), suction extraction 5 (10.6%) and probe extraction 4 (8.5%). The complications were external ear canal laceration 3 (6.4%), otitis externa 2 (4.3%), and tympanic membrane perforation 1 (2.1%). No complications were associated with the extraction of the foreign bodies in this study.

Conclusions: Younger children are the at risk group to harbor aural foreign bodies. Proper instrumentation with adequate immobilization allows removal of many aural foreign bodies in the paediatric populations without complications in the hands of specialized personnel.

INTRODUCTION

Aural foreign bodies are generally accepted to be a common problem in children[1,2]. A large variety of foreign bodies may be encountered in the external auditory meatus[3]. The objects may be organic or inorganic. Organic foreign bodies include paper, cotton wool, rubber, seeds etc, while inorganic objects include beads, ball bearings and stones[3-6].

The patients introduce most foreign objects however insects may enter into the meatus accidentally. They are generally benign and often asymptomatic but infectious complications may occur such as otitis externa, particularly from organic foreign bodies as a result of local irritations of the epithelium of the meatal walls[7]. This study aims to evaluate the clinical profile and management of aural foreign bodies in children.

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METHODS

This is a prospective study of 47 patients who presented with history and clinical features of aural foreign bodies in the Ear, Nose and Throat Department of Gandaki Medical College Teaching Hospital Pokhara, Nepal between Janaurary 2013 to December 2014. Children with features of ear foreign bodies were recruited into the study. Data obtained from each patient during study included demographic data, presence of symptoms, which of the ear-affected by symptoms, duration of symptoms, and nature of objects. These were followed by ear, nose and throat examination. Findings at examination were documented particularly findings at otoscopy. The diagnosis of aural foreign bodies in each subject was based on history and clinical findings at otoscopy. Treatment modalities for the removal of the foreign bodies were noted. Any associated complications from the foreign bodies or with its treatments were also noted.

RESULTS

47 children with aural foreign bodies were studied and managed between January 2013 to December 2014. There were 30 (63.8%) males and 17 (36.2%) females with a sex ratio of 1.7 : 1 (M : F). The age ranged from 2 years to 10 years with a mean age of 6 years. The duration of symptoms ranged from 1 hour to 5 days and the most common time interval of presentations are as shown in Table 1. The foreign bodies were found in the left ear in 39 (83.0%) cases, right ear 7 (14.9%), and in both ears in 1 (2.1%) case (Table 2). The most common aural foreign bodies seen in this study were mainly erasers 34%, beads 17%, and stones 17% (Table 2). Other objects seen were maize (8.5%), pieces of paper (8.5%), rice (6.4%), cockroach (4.3%), button batteries (2.1%), and hay (2.1%) (Table 3). We did not record more than one type of foreign body in any of the ear during the study. The treatment modalities used were forceps extraction in 21 (44.7%), syringing 9 (19.1%), removal under intravenous anaesthesia 8 (17.0%) and suction extraction 5 (10.6%) and probe extraction 4 (8.5%) (Table 4). Most of the solid objects such as seeds, pieces of paper, stones and some of the beads were amenable to forceps extractions. Some of the small objects were amenable to syringing, where they closely fit the meatus but this was not employed to prevent impaction of the foreign body. Those that failed first and second attempts at removal using either forceps or syringing were extracted under intravenous anaesthesia. The complications due to the aural foreign bodies as seen in this study were external ear canal laceration 3 (6.4%), otitis externa 2 (4.3%) and tympanic membrane perforation 1 (2.1%) and with complication rate of 12.8% (Table 5). These complications were diagnosed based on the clinical findings at otoscopy at the time of presentations and following the removal of the foreign bodies and they were attended to and treated accordingly at the time of the study.

Table 1: Time to presentation

Interval	Frequency
0 – 4 hours	6 (12.8%)
4 – 8 hours	9 (19.1%)
8 – 24 hours	22 (46.8%)
48 – 72 hours	7 (14.9%)
After 72 hours	3 (6.4%)
Total	**47 (100%)**

Table 2: Laterality of aural foreign body

Interval	Frequency
Left ear	39 (83.0%)
Right ear	7 (14.9%)
Both ears	1 (2.1%)
Total	**47 (100%)**

Table 3: Types of aural foreign bodies

Types	Frequency
Erasers	16 (34.0%)
Beads	8 (17.0%)
Stones	8 (17.0%)
Maize	4 (8.5%)
Paper	4 (8.5%)
Rice	3 (6.4%)
Cockroach	2 (4.3%)
Button battery	1 (2.1%)
Hay	1 (2.1%)
Total	**47 (100%)**

Table 4: Treatment of the foreign bodies

Types	Frequency
Forceps extraction	21 (44.7%)
Syringing	9 (19.1%)
IV anaesthesia	8 (17.0%)
Suction	5 (10.6%)
Hook extraction	4 (8.5%)
Total	**47 (100%)**

Table 5: Complications of aural foreign bodies

Types	Frequency
Canal wall laceration	3 (6.4%)
Ottitis externa	2 (4.3%)
TM perforation	1 (2.1%)
Total	6 (12.8%)

DISCUSSION

Most of the patients with aural foreign bodies were found to be between 1 - 10 years with an average age of 5.4 years. Furthermore, 80% were found to be between 4 to 8 years of life. There is a male predominance with 1.7 : 1 (M : F). 65.9% presented within 24 hours of insertion of the foreign bodies to the hospital for definitive treatments. There were 2 cases that presented very late, 3 months and 2 years respectively and both were beads. Thus some foreign bodies could be in external ear canal unnoticed for a long period before presenting.

Foreign bodies in the aero-digestive tract tend to present earlier and more promptly removed compared with ear and nose foreign bodies as these conditions tend to present with acute upper air-way obstructions and dysphagia and they are acute symptoms necessitating prompt treatment[3,8]. Most of the foreign bodies were found in the left ear 83.0% followed by right ear 14.9% and in both ears in 2.1% of the cases in this study. However, Hon SK *et al* found a significantly higher proportion of foreign bodies in the right ear and nostril compared to the left ear[8].

The ear foreign objects may be seen easily on otoscopy but if it has been in the meatus for some time it may become covered with wax. A major etiological factor of foreign bodies in the ear is irritation caused by preexisting disease of the ear concerned[1,3].

In this study, erasers 16 (34.0%) are the most common foreign bodies, but in a study done by Balbani AP *et al* in Brazil, bean seeds were found to be the most common ear foreign bodies 23 (24.73%)[3].

All were successfully treated and rate of successful removal at first attempt after presentation was 83% using either forceps, syringing, suction or extraction. The appearance and nature of the objects at otoscopy guide us at least in deciding which choice of treatment modalities to be employed in removing the foreign bodies. Those objects that are solid, large and irregular, forceps extraction was employed while those that are small objects syringing was employed. Those that failed first and second attempt at removal using either forceps or syringing were extracted under intravenous anaesthesia and constituted 17.0% of the cases. Large foreign bodies should be removed using small forceps or a blunt hook but forceps should not be used for smooth rounded objects, as they will tend to push them further down the ear canal[9,10]. Small objects are mostly easily removed by syringing but this method must not be used where the foreign body closely fits the meatus, as it may become more deeply impacted[12]. The use of general anaesthesia is preferred in children of any age with aural foreign bodies whose contour, composition or location predispose to traumatic removal in the ambulatory setting.

In this study, 14 (29.78%) had previous attempts of removal. In a study by Balbani AP *et al* in Brazil of 187 patients with ear and nose foreign bodies, 86 (45.98%) have had previous attempts to remove them and 13 cases with complications (canal laceration, tympanic membrane perforation) were observed in these patients in whom these previous attempts had been made[3]. In another study by Bressler K and Shelton C in America, 53% of their 98 cases had undergone one or more previous attempts at removal prior to the Otolaryngologist attempt usually by an emergency room physician[11]. Expert care is desired for a seemingly minor problem. It is hoped that this awareness would continue so that the risks of complications would be minimized from attempted removal. Canal wall laceration (6.4%) and otitis externa (4.3%) were common complications from the aural foreign bodies. Canal wall laceration found in previous attempted cases. Suspicion of a foreign body should be maintained in any child presenting with a complicated otitis externa[12].

Prompt evaluation and removal of button batteries foreign bodies are necessary to prevent tissue destruction as they cause extensive liquefactive necrosis of the surrounding tissue by leaking an alkaline electrolyte solution resulting into severe otitis externa[12,13]. There was a case of button batteries foreign body in this study. There were no complications seen from the process of the otic foreign bodies removal in this study except those already caused by the presence of the foreign objects in the ear canal.

CONCLUSIONS

In conclusion, younger children are the at risk group to harbor aural foreign bodies. Around two third of these children presented to the hospital within 24 hours of insertion of the foreign bodies. The most common objects encountered were erasers followed by beads, and stones. The left ear more affected than right. Majority (83%) of them were amenable to treatment without associated complications using either forceps or syringing. Expert care is desired for aural foreign bodies in order to avoid complications.

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Conflict of Interest

None

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Follow Up Patterns of the Patients in Paediatric Outpatient Department in Gandaki Medical College Teaching Hospital

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Key words:
Follow up,
Nonattendance,
Paediatric out-patient.

ABSTRACT

Background: Lost to follow up or delayed follow up in the hospitals or clinics disturb the effective management of the patients.

Objectives: This study aimed to observe the follow up patterns of the patients in the paediatric out-patient department.

Methods: This study was carried out prospectively for 6 months from 1st June 2013 to 30th November 2013. All the patients below 15 years of age including neonates attending paediatric OPD of Gandaki Medical College Teaching Hospital were included in the study. Patients attended for follow up were divided into 4 categories - on date follow up, emergency follow up, delayed follow up and follow up with new complains.

Results: Altogether 3436 patients attended in the paediatric OPD. Among them 1181 (34.4%) patients were advised for follow up and 1411 (41.1%) patients came for follow up which included follow up with new complain. Among total follow up patients, 471 (33.4%) patients came with new complains and remaining 940 (66.6% and 79.59% of total follow up and advised follow up respectively) patients came for follow up as per advise (actual follow up) which included 848 (90.2%), 40 (4.2%) and 53 (5.6%) on date follow up, emergency follow up and delayed follow up respectively. 241 (20.41%) of patients did not attend (DNA) for follow up.

Conclusions: A significant number of patients do follow up in our paediatric OPD. Among them satisfactory number of the patients did follow up on date. Some patients did not attend (DNA) for follow up. About one fourth of the patients (advised for follow up) who did not attend (DNA) and delay for follow up with treatable morbidity failed to receive care from which they would benefit.

INTRODUCTION

Follow up of the patients is an important aspect of the clinical practice for the proper management and the health care of the patients but studies suggest that nonattendance at out-patient department (OPD) is common. A literature review and survey by the author of sector-wide OPD non-attendance rates in 2002 showed a range for non-attendance of between 5.5% and 15%[1].

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Nonattendance (failure to attend follow up) is a universal problem in the management of paediatric OPD and clinics as well. In general, nonattendance rates in the United States (US) range from 5 to 55%, whereas United Kingdom (UK) figures range from 3 to 12%. In Denmark, a very low rate (4%) has been reported[2]. As no relevant studies were done in Nepal, there is no data on follow up patterns and nonattendance rate of the patients of Nepal.

This study is done to observe the pattern of follow up and nonattendance of the patients in the paediatric OPD (out-patient department) at the Gandaki Medical College Teaching Hospital, Prithivi Chowk, Pokhara.

METHODS

All the patients below age of 15 years including neonates who attended the paediatric OPD for the consultation from 1st June to 30th November 2012 (6 months) were included in the study. All the patients were examined by paediatric consultants and the records were kept and maintained by trained sisters in the OPD register.

Patients who need follow up were advised to follow up (in 3 days to 2 months, depending upon the type of disease) and recorded in the register along with age, sex, address, diagnosis and parents' occupations.

The patients came for follow up were categorized in 4 groups:

1. On date follow up	Attended on the advised date or till 2 days beyond advised date
2. Emergency follow up	Attended before the advised date
3. Delayed follow up	Attended after 2 days of advised date
4. Follow up with new complain	Old patients came with new complains

All the data was entered and analyzed through excel.

RESULTS

Altogether 3436 patients attended in the paediatric OPD. There were 1986 (58%) males and 1450 (42%) females (Fig 1). 1791 (52.12%) were under 5 years age group and 1645 (47.88%) above 5 years age group (Fig 2 and Table 4).

Fig 1: Male female percentage of total patients

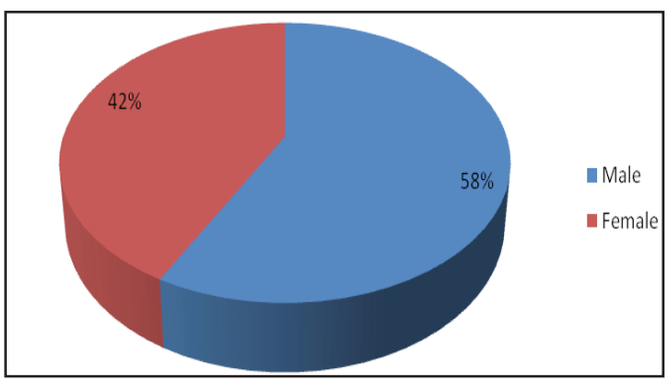
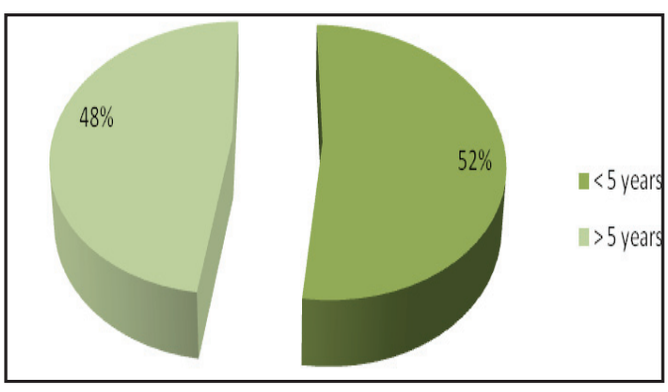


Fig 2 : Number of patients according to age group



1181 (34.4%) patients were advised for follow up (in 3 days to 2 months depending upon the type of disease) and 1411 (41.1%) patients came for follow up which included follow up with new complain (Table 1, 2).

Table 1: Showing advised follow up versus total follow up

Total patients	Advised follow up	Total follow up
3436	1181 (34.37%)	1411 (41.06%)

Table 2: Showing follow up with new complain

Total follow up	Follow up new complain	Other follow up
1411	471 (33.4%)	940 (66.6%)

Out of total follow up patients there were 866 (61%) males and 545 (39%) females (Fig 3). 769 (54.47%) were under 5 years age group and 642 (45.53%) above 5 years age group (Fig 4).

Fig 3 : Male female percentage of follow up patients

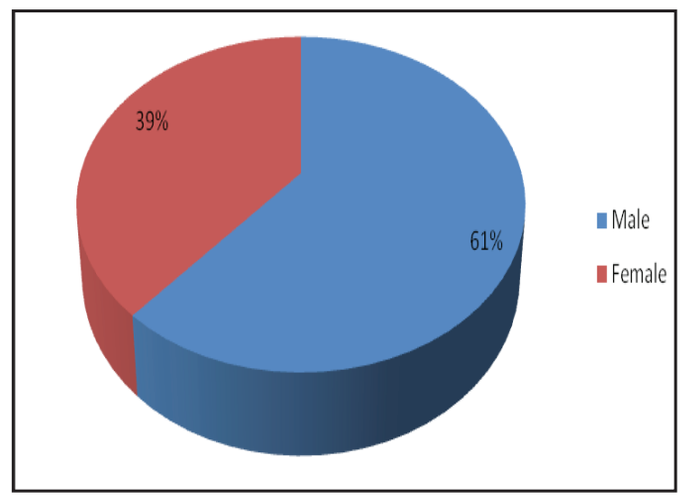
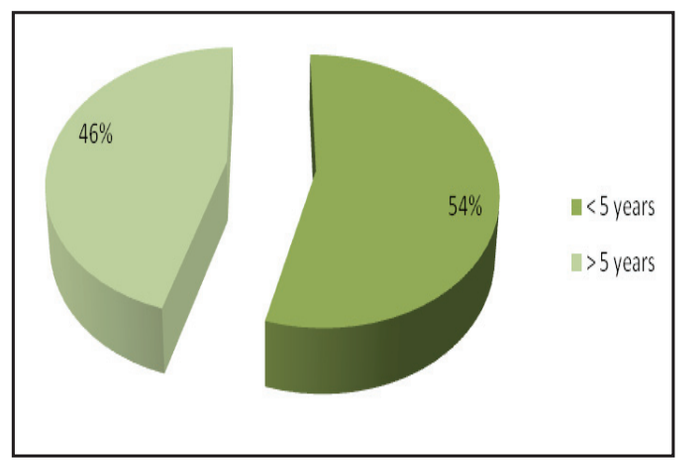


Fig 4 : Number of follow up patients according to age group



Among total follow up patients, 471 (33.4%) patients came with new complain and remaining 940 (66.6% and 79.59% of total follow up and advised follow up respectively) patients came for follow up as per advise (actual follow up) which included 848 (90.2%), 40 (4.2%) and 53 (5.6%) on date follow up, emergency follow up and delayed follow up respectively. 241 (20.41%) patients did not attend (DNA) for follow up till our study (Table 3).

Table 3: Showing different follow up categories

Advised follow up	Actual follow up			Did Not Attend
	940 (79.59%)			
	On date	Emergency	Delayed	
1181	848 (90.2%)	40 (4.2%)	53 (5.6%)	241 (20.41%)

Table 4: Total and follow up patients according to age group

Total patients	< 5 years	>5 years	Total follow up	< 5 years	>5 years
3436	1791	1645	1411	769	642
Percentage (%)	52.12%	47.88%		54.47%	45.53%

DISCUSSION

Follow up is an important aspect of clinical practice which directly concerns with the patient's management and health care but nonattendance of the patients for follow up is very common globally and is a difficulty that affects all medical specialties. Patients with treatable morbidity may fail to receive care from which they would benefit.

In our study, we found that 20.41% of patients did not attend (DNA) for follow up. This result is significantly higher than the study done in United Kingdom and Denmark where in general, nonattendance rates were 3 - 12% and 4% respectively but is comparable with result of United States[2]. A study conducted in the paediatric pulmonary clinics in Israel showed overall non-attendance was 30.7%[3] showing not attending follow up is a universal problem in all specialties. However, relevant studies were not done in Nepal till now so data of nonattendance rate of the patients in the hospitals of Nepal is unknown. Studies were done on follow up and outcome of some specific diseases but no studies were done on follow up and nonattendance rate in general. A study done at Kathmandu Medical College mentioned that among 117 asthmatic children, 13 patients lost to follow up[4]. Similar types of studies were done in different specialties.

The determinants of nonattendance include disease-related factors (e.g. acute versus chronic disease), patient-related factors (e.g. patients forgetting their appointment, transportation difficulties, inability of the child or his parent to leave school or work, inadequate communication between the medical personnel and patients, including mix up over the date or time or unexpected events), demographic and socioeconomic factors, office accessibility and factors related to the health care provider[5-11].

In our study, we mainly concerned with the number and patterns of follow up in paediatric OPD and also tried to investigate some factors relating to nonattendance. Among actual follow up, 5.6% of patients delayed for follow up. Both DNA (Did not attend) and delayed follow up patients (about 25%) with treatable morbidity will fail to receive care from which they would benefit.

There are multiple factors responsible for DNA (Did not attend) or delayed follow up as we had discussed earlier. In this current study, we investigated age, sex, demographic and educational status of parents as some factors responsible for DNA (Did not attend) or delayed follow up and we found following results.

In our study, we found that male patients were dominant over females as shown in figures 1, and 2. The male and female ratio was 1.37 : 1 in the total patients attended to our OPD. This ratio became even higher 1.59 : 1 during follow up showing female patients came less for follow up in comparison to males. This may be due to the parents' preferences on boys over girls to bring them to hospital in Nepal.

As shown in Table 4 and figure 3, and 4, the number of patients under 5 years were slightly higher than above 5 years age group patients during their first visit as well as their follow up but the difference was not significant.

Gandaki Medical College Teaching Hospital is situated at Prithivi Chowk, Pokhara, Kaski. Besides from Kaski district, patients come for the consultations from neighboring districts like Syangja, Tanahun, Parbat, Baglung and other. Most of the patients from neighboring districts failed to follow up or delayed to follow up.

Uneducated parents like farmers and drivers missed follow up but we also found that some highly educated parents like teachers and engineers also missed follow up. This may be due to their inability to manage time from their work.

In this study, we found patients with acute illnesses like respiratory tract infection, acute gastroenteritis missed follow up or came for emergency follow up. While chronic illnesses like neurocysticercosis, seizure disorders, nephrotic syndrome, and acute glomerulonephritis came for regular follow up on date.

Among the actual follow up patients (excluding follow up with new complain), 848 (90.2%) and 40 (4.2%) patients came to follow up on date and emergency follow up respectively; among the total follow up patients, 33.4% patients came with new complain. These significant number of the patients and their parents might have either trusted in us, satisfied with our management, counseling, behavior and attitude or they have no other options.

Those 241 (20.41%) patients, who did not attend (DNA) for follow up are either lost or improved as we have found several patients coming to our OPD after more than a year without any

illness in between.

40 (4.2%) patients came for emergency follow up (Table 3). Emergency follow up were mostly acute illnesses like respiratory tract infection, acute gastroenteritis and drug allergy.

Several studies were done to investigate the factors for nonattendance of the patients in different specialties. Penneys *et al*[12], who described nonattendance in 4876 dermatological patients, observed that the payer type was significantly associated with nonattendance; nonattendance proportion was 26% in patients with public insurance as compared with 13% in patients with private insurance. Hon *et al*[13,14] found that referrals from the emergency department to dermatology clinics were associated with higher proportions of nonattendance as compared with referrals from private physicians. Dickey *et al*[15] found that patients who waited less than 2 months for an appointment for a neurologist had a nonattendance proportion of 17%, as compared with 32% if the waiting period exceeded 2 months. In a study of paediatric asthma clinics[16], factors associated with non attendance were the type of insurance and seasonality: a higher rate of nonattendance was associated with Medicaid insurance and visits scheduled in September–December. Aviv *et al*[3] observed that the origin of patients was a significant factor for clinic nonattendance. Jewish rural patients had a lower nonattendance proportion (15.4%) than Jewish urban (31.2%) and Bedouin (32.9%).

CONCLUSIONS

A significant number of patients do follow up in our paediatric OPD. Among them satisfactory numbers of the patients did follow up on date. Some portion of the patients did not attend (DNA) for follow up. About one fourth of the patients (advised for follow up) who did not attend (DNA) and delay for follow up with treatable morbidity failed to receive care from which they would benefit. Some factors like sex, demographic and educational status of parents are some factors responsible for those who did not attend (DNA) or delayed follow up. Further detail study should be done to analyze more factors responsible for DNA or delayed follow up.

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Breast Feeding Patterns and Factors Influencing Exclusive Breast Feeding Practice

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Key words:
Breast feeding (BF),
Exclusive breast feeding (EBF),
Mothers,
Children.

ABSTRACT

Background: Proper breast feeding provides all essential nutrients for the first 6 months and is the most cost-effective intervention for reducing childhood morbidity and mortality. However, despite the demonstrated benefits of breast feeding, breast feeding prevalence and duration are still lower than the International recommendations of exclusive breast feeding (EBF) for the first 6 months of life in many developing countries.

Objectives: The aims of the study were to determine feeding practices of mothers with a view to strengthen these practices for improving the health of infants and to assess the factors influencing exclusive breast feeding practices.

Methods: In this prospective study, mothers were interviewed on details regarding feeding of their children at Gandaki Medical College Teaching Hospital who brought their children for treatment. The interviews were conducted in a questionnaire format.

Results: The rate of EBF at 1, 4, and 6 months was 314 (98.12%), 267 (83.43%), and 144 (45%), whereas partial feeding was introduced during this period by 6 (1.85%), 113 (35.31%), and 176 (55%) of mothers, respectively. Housewife/agriculture mothers had significant EBF in comparision to working mothers and mothers who delivered at home ($p < 0.001$). Similarly mothers having adequate knowledge of EBF have a significant level of practice on EBF ($p < 0.001$). Women had higher odds of exclusive breast feeding if they were; housewife/agriculture, had adequate knowledge of EBF, had delivered at home (OR= 8.79, OR=2.76, OR=3.7143 respectively). However, mother's age, occupation and perinatal conditions like types of delivery, mothers who received counseling on BF, having knowledge on importance of early breast feeding were not significantly associated with EBF.

Conclusions: The rate of EBF for up to 6 months of age was still low. Most of the mothers did not receive any information on breast feeding. So it is advisable to focus on establishing appropriate breast feeding techniques, and the benefits of adopting exclusive breast feeding and the risks of not doing so.

INTRODUCTION

Proper breast feeding provides all essential nutrients for the first 6 months and is the most cost-effective intervention for reducing childhood morbidity and mortality. The breast feeding practices adopted in terms of duration, frequency and exclusiveness is essential for our understanding of impact of breast feeding on complete physical, mental and psycho-social development of the child. Despite the demonstrated benefits of breast feeding, breast feeding prevalence and duration in many countries are still lower than the International recommendations of exclusive breast feeding for the first 6 months of life[1]. The World Health Organization (WHO) recommends exclusive breast feeding (EBF) for the first 6 months of life[2]. After 6

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months, infants should receive nutritionally adequate and safe complementary foods while continuing to be breastfed until the age of 2 years or beyond[3,4].

Introduction of foods other than breast milk before 6 months of life is not only undesirable, but could also be harmful[5]. These foods not only displace nutritious mother's milk, but also serve as a vehicle for infectious pathogens that can lead to severe illnesses[6,7,8]. Childhood malnutrition and growth faltering affects more than half of children under five in developing countries, and usually starts during infancy, possibly due to improper breast feeding and mixed feeding practices[9].

METHODS

The present study was conducted in Gandaki Medical College Teaching Hospital amongst mothers having children between 0 - 8 months of age group, who brought their children for treatment. The interviews were conducted in a questionnaire format. Informed verbal consent was taken from each of the participants. The related information regarding appropriate breast feeding practices in the initial 6 months was taken along with some other information. For example, advice on EBF received during pregnancy, advice received after birth of baby as well as during immunization and knowledge and importance of exclusive breast feeding and early breast feeding. Knowledge of EBF was assessed using two questions: meaning or definition of EBF and recommended duration of six months. The study was carried out during March to October, 2012.

Exclusive breast feeding (EBF) means the infant had received only breast milk or expressed breast milk and no other liquids or solids with the exception of drops of syrup consisting of vitamins, mineral supplements or medicines. Partial breast feeding means, when infant's feeding included non-breast milk foods such as animal/powdered/condensed milk and/or solid/ semi-solid food (i.e. cereals, vegetables, fruits, lentils or meat).

Qualitative as well as quantitative data were calculated. Factors associated with exclusive breast feeding were tested using Chi-square test. The Odds ratio (OR) and their 95% confidence intervals (CI) were used to assess the strength of association between several factors to EBF. All of the predictor variables with p value of <0.05 were taken as significant.

RESULTS

This study was conducted in Gandaki Medical College Teaching Hospital amongst mothers having children (total 320) between 0 - 8 months of age group, who brought their children for treatment. Out of the surveyed 320 mothers, 221 (69.06%) of them fell under the <25 years age range followed by 99 (30.93%) in >25 years of age. There were none in the under 18 category. Of which 252 (78.75%) were housewives/ agricultural occupation mothers whereas there were 68 (21.25%) working (jobholders/working away from home). Out of total 320 children 171 (53.12%) of the children were males and 149 (46.56%) females (Table 1).

Table 1: General characteristics of mothers and children (n=320)

	n=320	Percentage (%)
Gender of children		
Males	171	53.12%
Females	149	46.56%
Age of mothers		
<25	221	69.06%
>25	99	30.93%
Status of mothers		
Housewife /Agriculture	252	78.75%
Working	68	21.25%
Type of delivery		
Normal	232	72.5%
Cesarian	88	27.5%
Place of Birth		
Hospital	265	82.81%
Home	55	17.18%

Most of the mothers had regular antenatal visit 280 (87.5%) and 37 (11.56%) had irregular antenatal visit and very few 3 (0.93%) had no antenatal visit. However, only 53 (16.56%) reported that they received some information on breast feeding during their antenatal visit where as some of them received after birth of child 69 (21.56%), during immunization 28 (8.75%) and through other media (books, Radio/TV) 12 (3.75%) but 158 (49.37%) mothers did not receive any information regarding breast feeding. 35.31% and 38.44% of the participants had adequate knowledge on EBF and importance of early breast feeding respectively.

A total of 176 (55%) infants were introduced to other foods (semi/solid or animal milk) before six months of age. Of which 113 (64.2%) assumed due to insufficient breast milk production, 18 (10.23%) of them mention due to some feeding problem (illness of mother, inverted nipple etc) and working (Job holders/ Working outside home) was reported by 43 (24.43%) of mothers, and mentioned that this was the reason for not exclusively breast feeding (Table 2).

Table 2: Factors influencing knowledge on breast feeding (BF) (n= 320)

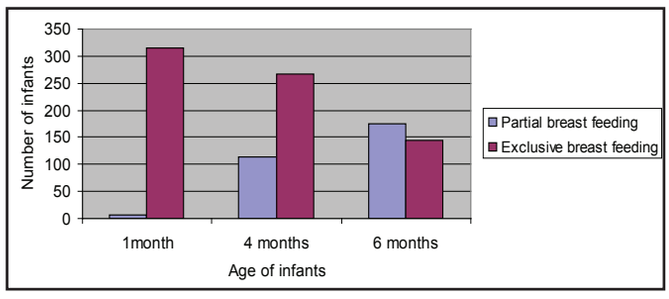
Characteristics	Number	Percentage %
Received counseling on BF (n=320)		
Antenatal counseling	53	16.56%
After birth of child	69	21.56%
During Immunization	28	8.75%
Others (Book/ Media)	12	3.75%
None	158	49.37%
Reason for introducing other foods <6mth (n=176)*		
Insufficient	113	64.2%
Feeding problem (illness, breast problem)	18	10.23%
Working	43	24.43%

others	2	1.14%
Knowledge on breast feeding (n=320)		
Yes	113	35.31%
No	207	64.69%
Knowledge on importance of early breast feeding (n=320)		
Yes	123	38.44%
No	197	61.56%

*Based on 176 infants who had other foods introduced before 6 months

The rate of EBF at 1, 4 and 6 months was 314 (98.12%), 267 (83.43%) and 144 (45%), whereas partial feeding was introduced during these periods by 6 (1.85%), 113 (35.31%) and 176 (55%) of mothers, respectively (Fig 1). Out of total 320 children 6 (1.88%) were never breast fed.

Fig 1: Proportion of exclusive and partial breast feeding patterns among infants



Housewife/agriculture mothers had significant to have EBF when compared to working mothers and mothers who delivered at home (p <0.001). Similarly mothers having adequate knowledge of EBF have a significant level of practice on EBF (p <0.001). Women had higher odds of exclusive breast feeding if they were housewife/agriculture, had adequate knowledge of EBF, had delivered at home (OR= 8.79, OR=2.76, OR=3.7143 respectively). However, mother's age, occupation and perinatal conditions like types of delivery, mothers who received counseling on BF, having knowledge on importance of early breast feeding were not significantly associated with EBF.

Table 3: Factors associated with exclusive breast feeding (6 months)

Variable	Exclusive breast feeding		P value	OR	(95% CI)
	Yes	No			
	n=144 (%)	n=176 (%)			
Age of mothers (Years)					
<25	99 (68.75)	122(69.31)	0.9129	0.9738	0.6048 - 1.5678
>25	45 (31.25)	54 (30.68)			
Occupation of mothers					
Housewife/agriculture	136 (94.44)	116 (65.90)	< 0.0001	8.79	4.0381-19.1474
Working	8 (5.55)	60 (34.09)			
Type of delivery					
Normal	99 (68.75)	133 (75.56)	0.1742	0.7113	0.4347 - 1.1637
Cesarian	45 (31.25)	43 (24.43)			
Place of Birth					
Home	39 (27.08)	16 (9.09)	< 0.0001	3.7143	1.9746 - 6.9867
Hospital	105 (72.92)	160 (90.90)			
Received counseling on BF					
Yes	79 (54.86)	83 (47.16)	0.1704	1.3618	0.8753 - 2.1186
No	65 (45.14)	93 (52.84)			
Knowledge on breast feeding					
Yes	69 (47.92)	44 (25)	< 0.0001	2.76	1.7206 -4.4273
No	75 (52.08)	132 (75)			
Knowledge on importance of early breast feeding					
Yes	47 (32.63)	76 (43.18)	0.0538	0.6375	0.403 - 1.0085
No	97 (67.36)	100 (56.82)			

DISCUSSION

Breast milk has just the right amount of fat, sugar, water, and protein that is needed for a young baby's growth and development. Promotion of EBF practice has significant impact on child survival and mortality[10,11]. However the coverage of 90% has to be reached to benefit from this intervention[12,13]. This study enabled to evaluate the rate of exclusive breast feeding and to determine factors associated with cessation of exclusive breastfeeding within first 6 months of life.

The low rate of EBF at six months of age in our study (45%) was substantially lower than the 53% finding in the National Demographic Health Survey (NDHS) in 2006[14]. In a study by Chudasma RK *et al* in Rajkot also showed the prevalence of exclusive breast feeding at 6 months of age of infants was found to be 62%[15]. Foo LL *et al* reported prevalence rate of 21% which is very low compared to present study[16]. However, the prevalence of EBF at 4 months was 267 (83.43%), which was much more higher in our study than the studies in many countries, which reveal that only 35% of the children are exclusively breast-fed during the time after birth to 4 months of age[17]. Whereas the study done by Yadavannavar MC and Shailaja S Patil showed only 13.36% of mothers practiced almost exclusive breast feeding up to 4 months[18]. This shows despite the demonstrated benefits of breast feeding, breast feeding prevalence and duration in many countries exclusive breast feeding for the first 6 months of life are still lower than the International recommendations of WHO[1]. But it should also consider that prevalence of EBF will also depend upon the methods of data collection and definitions used in the study.

The mother's perception of "insufficient breast milk" is a well-known problem hindering optimal EBF practice in many communities[19,20]. A key reason, however, why a child could remain hungry is not because breast milk is insufficient but because women do not spend adequate time on breast feeding due to the pressure of house work or are not aware that the milk should be exhausted from one breast before feeding from the second breast[21]. In our study too, "Insufficient breast milk" was also the main reason for introducing other foods,

especially other milk, semi-solid porridge, before six months of age. A total of 176 (55%) infants were introduced to other foods (semi/solid or animal milk) before six months of age. Of which 113 (64.2%) reported due to insufficient breast milk production. This finding is concordant with another breast feeding study conducted among employed women in peri-urban areas of Kathmandu[22], and a quantitative and qualitative study conducted among 750 young children residing in Far Western district of Baitadi, Nepal[23]. It is also noteworthy to mention that in our setting, rice is introduced at 5 - 6 months of age with a special ceremony called Pasni, or the rice feeding ceremony, which also seems to interfere with EBF for up to six months of age[24].

The promotion of EBF could be done within the present health care framework during antenatal visits, after delivery and/or vaccination clinics. In our study, Most of the mothers had regular antenatal visit 280 (87.5%). However, only 53 (16.56%) reported that they received some information on breast feeding during their antenatal visit because in our setting antenatal visit mainly focuses on pregnancy, and there is no system or guidelines for breast feeding education. This opportunity should be used to intensify efforts at informing women about the importance of breast feeding, especially EBF. Printed materials with simple message (brochure and pictures), and mass media can also be used, as it has shown to increase knowledge and positive attitudes towards EBF[25,26]. Likewise some of them received after birth of child 69 (21.56%), during immunization 28 (8.75%) and through other media (books, Radio/TV) 12 (3.75%), but 158 (49.37%) mothers did not receive any information regarding breast feeding. This shows that the more effort should be made regarding establishing appropriate breast feeding techniques, and the benefits of adopting exclusive breast feeding and the risks of not adopting EBF. More practical demonstrations and information on EBF given immediately after delivery make more sense to women and are easier to follow than information given during pregnancy[25-28]. Therefore breast feeding counseling/education should be particularly focused during antenatal check up, after delivery in hospitals and if missed it, it should be during the infant first vaccination. Our little effort may benefit both the mothers and infants.

In the present study, mothers having adequate knowledge of EBF influenced the prevalence of EBF; the higher the level of adequate knowledge of EBF among women, the higher the prevalence of EBF (OD=2.76), which was more similar to the study done by Nkala and Msuya[29]. One other study in Australia also has shown that mothers who were aware and had knowledge of the WHO EBF recommendations were about five times more likely to intend to breast feed exclusively compared to those without EBF awareness[30]. In some studies, it showed that women delivering at the health facilities had three times the odds of reporting practicing EBF compared to those who delivered at home[29], but which was different in present study where the odds of having exclusive feeding practices in home delivery is 3.71 times greater than hospital delivery. This might be mothers getting support and help with breast feeding issue from the family members. Although these diverging results cannot be fully explained, which needs to be further evaluated. Working outside home was reported by one third of mothers, and half of them also mentioned that this was the reason for not exclusively breast feeding[24] which was similar with our study where housewife/agriculture mothers had significant to have EBF in comparison to working mothers with the higher odds (OR=8.79). There are also studies that relate factors leading to interruption of exclusive breast feeding such as low family income, low maternal age, primi parity and mothers returning to work[31].

In the present study, several limitations should be considered which depend upon the methods of data collection. Measuring EBF prevalence using recall since birth is difficult and may be inaccurate. This required a long recall period and some women might have forgotten the time when liquids including water or semi-solids were introduced and given wrong accounts, which can be overcome only by a prospective design followed from birth with frequent recording of breast feeding that would have given a reliable estimate[32,33].

CONCLUSIONS

The prevalence of EBF for up to 6 months of age was still low. The mother's perception of "insufficient breast milk" was also the main reason for introducing other foods. Most of the mothers did not receive any information on breast feeding and even hospital delivered babies have a low rate of EBF. So it is advisable to carry out for EBF promotion by making a guideline for breast feeding education focusing that 'mother's milk - a life milk' within the existing health care system such as the antenatal, after delivery and vaccination clinics.

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Study of ENT Diseases in Geriatric Population at Gandaki Medical College Teaching Hospital

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Key words:
Geriatric population,
Epistaxis,
Otorhinolaryngological diseases.

ABSTRACT

Background: There is an emerging population of elder people rising steadily. The population of geriatric people above 60 years is 4.4% in Nepal from its 30 million people.

Objectives: The present study was undertaken to determine the prevalence of otorhino-laryngological disorders in geriatric population and their relationship with sociodemographic factors in Gandaki Medical College Teaching Hospital in Nepal.

Methods: This study was conducted between January 2010 and December 2010 in the Ear, Nose and Throat (ENT) Department, Gandaki Medical College Teaching Hospital, Pokhara, Nepal. All patients aged 60 years and above attending the outpatient otorhinolaryngology clinic presenting with ENT diseases seen by ENT surgeons were enrolled in the study. The information included demographic data like age, sex, and history of ENT disease, duration of complaint and physical examination were noted.

Results: The geriatric population was 8.18% of our total patients. Otological disease predominated with 217 (43.4%), followed by pharyngo-esophageal 195 (39%) and rhinological disorders 88 (17.6%). Presbycusis was the commonest otological disorder 65 (29.9%) followed by CSOM 42 (19.4%). Among pharyngo-esophageal disorders, chronic pharyngitis formed the most common 95 (48.7%) throat morbidity followed by neck abscess 23 (11.8%). Epistaxis was the commonest rhinological pathology with 29 (32.9%).

Conclusions: This study suggests that hearing loss is the most common geriatric otorhinolaryngological problem, and epistaxis, the most common rhinological disease.

INTRODUCTION

Nepal is a developing country, surrounded by Himalayas and in between India and China. Majority of Nepalese people rely on agriculture. The population of Nepal is 30 million[1]. The population of geriatric above 60 years is 4.4%[2]. There is still a big population of 30.9% who are under the line of poverty[1]. As we live in an ageing world with the population of elder people rising steadily. The ageing process and the last stage of life is satisfying for some and disappointing for others. About two thirds of all older people are concentrated in the developing world and by 2025 this figure is projected to rise further[3]. In Nepal 60th year can be taken as the beginning of old age. Instead of strong family ties in Nepal, the position of a large number of old persons have become vulnerable due to which they cannot take for granted that their children will be able to look after them. The people above 60 years are considered as economically dependent population. Geriatric patients present 3.5 times more health problems as compared to young population[4].

The present study was undertaken to determine the prevalence of otorhinolaryngological disorders in geriatric population and their relationship with sociodemographic factors in Gandaki Medical College Teaching Hospital in Nepal.

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METHODS

This Study was conducted at Department of ENT, Head and Neck Surgery between January 2010 and December 2010 in the Ear, Nose and Throat (ENT) Department, Gandaki Medical College Teaching Hospital, Pokhara, Nepal. All patients aged 60 years and above attending the outpatient otorhinolaryngology clinic presenting with ENT diseases seen by ENT surgeons were enrolled in the study. The information included demographic data like age, sex, and history of ENT disease was noted, duration of complaint and physical examination. Otoscopic examination was done using Welch Allyn otoscope REF 71045 (made in USA).

Wax obstructing at least one quadrant of pars tensa was considered as significant and included in the study. It was considered impacted when the wax covers the whole of external auditory canal and tympanic membrane is not visible at all. Chronic suppurative otitis media (CSOM) implies to a permanent abnormality of the pars tensa or pars flaccida. The project was initiated after the clearance from the Institutional Ethical Committee. Results were analyzed by using percentage and proportion.

RESULTS

During the study period 6113 patients with ENT diseases were registered in OPD and 8.18% (n = 500) aged 60 years and above. Majority of them were females 260 (52%) while males were 240 (48%). The female to male ratio is 1 : 0.9 with a male mean of 69.08 (SD 7.2) and female mean of 67.72 (SD 7.1). The socio-demographic profile of the study population is shown in Table1 and Table 2.

Table 1: Demographic characterstics

	No of geriatric people	Percentage %
Females (Total)	260	52%
60 - 69 years	173	34.6%
70 - 79 years	62	12.4%
80 years and over	25	5%
Males (Total)	240	48%
60 - 69 years	129	25.8%
70 - 79 years	86	17.2%
80 years and over	25	5%

Table 2: Distribution of the patients according to type of family

Family type	Males	Females	Total
Joint	191 (79.58%)	223 (85.77%)	414 (82.8%)
Nuclear	49 (20.42%)	37 (14.23%)	86 (17.2%)
Total	240 (100%)	260 (100%)	500 (100%)

Otorhinolaryngological diseases in our geriatric study population were found to be more common among females (52%) than in males (48%). However this difference was not statistically significant, as well ear diseases were most common in females 121 (24.2%). Mostly 60 - 69 age groups were more affected by ENT diseases (60.4%). 414 (82.8%) were living in joint family. Diseases of auditory system 217 (43.4%) were the most common group of ENT problems among the geriatric population, followed by pharyngo-esophageal 195 (39%) and nasal disorders 88 (17.6%) (Table 3).

Table 3: Age and sex wise distribution of different ENT disorders in study population

	Age	Males	Females	Total
Ear Disorder	60 - 69 years	43	74	117
	70 - 79 years	43	33	76
	Over 80 years	10	14	24
	Total	96	121	217 (43.4%)
Throat Disorder	60 - 69 years	54	76	130
	70 - 79 years	32	16	48
	Over 80 years	12	5	17
	Total	98	97	195 (39%)
Nose Disorder	60 - 69 years	32	23	55
	70 - 79 years	11	13	24
	Over 80 years	3	6	9
	Total	46	42	88 (17.6%)

Most common otologic disorder comprised mainly of presbycusis (29.9%; n = 65), followed by chronic suppurative otitis media (19.4%), and ear wax, which was the third most common ear morbid condition (15.7%). Benign paroxysmal positional vertigo (BPPV) was evident in 13.8%. Tinnitus was evaluated in 12.9% elderly patients and also otomycosis was seen in 8.3%. The prevalence of presbycusis among elderly females was slightly higher (16.6%) than males (13.4%). Among pharyngo-esophageal disorders, chronic pharyngitis formed the most common (48.7%) throat morbidity followed by neck abscess troubling 11.8% of our study population. Chronic ulcer oral cavity was noted in 9.2%, foreign body esophagous was evident in 8.7% and tonsillitis was visualised in 7.7%. Malignant lesions in the head and neck region were seen in 7.2%. Other conditions cervical lymphadenitis, halitosis accounted for 6.2% patients. Among problems associated

with nose, epistaxis (32.9%) was most common, followed by chronic sinusitis (31.8%), nasal polyp (23.9%), and rhinitis (11.4%) (Table 4).

Table 4: Distribution of various morbid conditions among study population

Disorders		Males	Females	Total	Percentage %
Ear disorders (n=217)	Presbycusis	29	36	65	29.9%
	Chronic suppurative otitis media	17	25	42	19.4%
	Ear Wax	18	16	34	15.7%
	BPPV	11	19	30	13.8%
	Tinnitus	11	17	28	12.9%
	Otomycosis	10	8	18	8.3%
	Total	96	121	217	100%
Throat disorders (n=195)	Chronic pharyngitis	44	51	95	48.7%
	Neck abscess	12	11	23	11.8%
	Ch ulcer oral cavity	10	8	18	9.2%
	FB esophagous	8	9	17	8.7%
	Tonsillitis	10	5	15	7.7%
	Malignancy head & neck	8	6	14	7.2%
	Others	6	7	13	6.7%
	Total	98	97	195	100%
Nose disorders (n=88)	Epistaxis	16	13	29	32.9%
	Chronic sinusitis	13	15	28	31.8%
	Nasal polyp	11	10	21	23.9%
	Rhinitis	6	4	10	11.4%
	Total	46	42	88	100%

DISCUSSION

Ageing is the ultimate manifestation of biological and demographical activities in individual human beings and population at large. Conceptually, ageing is progressive attainment of ages of last stage of maximum life span of human being, 100 to 110 years as general[13]. Ageing process is associated with degeneration in different parts of the body and affects all the organs, including the ear, throat and nose. As most of these diseases are usually not life threatening, little or no attention is paid to them and hence, there is scarcity of information about the pattern of ENT diseases in elderly Nepalese population. Ear diseases and hearing loss associated with ageing is common among older people[5]. The female to male ratio found in this study is 1 : 0.9 which differ from the ratio found by Giri PA[6]. This may be associated to the difference in regional coverage as our center is a referral centre. Mostly 60 - 69 age groups were more affected by ENT diseases (60.4%), the reason being the geriatric patients in age group 60 - 70 years can report the hospital themselves whereas the patients above 70 years needs helper to reach the hospital. Ageing in US, this is the commonest cause of hearing impairment among the older people[4,5] compared to our environment where presbycusis is the most common morbidity of ear. The high prevalence of presbycusis in this study corresponds to the results obtained elsewhere in similar study populations[7,8]. World Health Organization (WHO) reports that 30 – 35% patients above 60 years suffer from presbycusis and this increases to 40 - 45% in patients above 70 years of age[4,9]. Hearing loss severely affects the quality of life especially in the background of low socioeconomic status where the access to health care facilities are restricted due to various reasons. It increases the disability burden on society and could be a cause of depression, isolation and suicidal tendencies. Overall incidence of chronic suppurative otitis media in our study was 19.4%. Ear wax is the third most common disorder in otologic group (15.7%) which is nearly similar compared to 14.4% found in the population studies done in Thailand[10,12]. In our study there were 13.8% patients with vertigo. Singh and Chaturvedi[11] found that vertigo is prevalent in 9.77% of patients which is slightly similar to our study.

Throat disorder, chronic pharyngitis have been found bothering 48.7% most commonly. It could be due to age related changes like degenerative and atrophic changes in the pharyngeal wall and muscle and poor mucosal hygiene. This is similar to findings of Okoye BC[12], in which chronic pharyngitis was most common. Malignancy was discovered in 7.2%. Head and neck cancers constitute a major health problem in geriatric population.

Like all body systems, the nose changes both internally and externally with age due to mucus variations, airflow patterns, inflammatory or infectious stimuli. A comparatively low prevalence of nasal problems like epistaxis, chronic sinusitis, nasal polyps and rhinitis has been seen. The factors which change the viscoelastic properties of the nasal mucosa may predispose the elderly to nasal crusting leading to nasal problems[3].

The results from this study are only applicable to the geriatric population attending the otorhinolaryngology outpatient department of our Gandaki Medical College Teaching Hospital. The prevalence of the geriatric otorhinolaryngological morbidity could be much higher as all patients can't reach health center and all do not seek health care. Community based study of otorhinolaryngological health problems among geriatric population would reveal the true magnitude of the problem.

CONCLUSIONS

This study suggests that hearing loss is the most common geriatric otorhinolaryngological problem. This report does not differ significantly from what is reported elsewhere. The only outstanding difference is the emergence of epistaxis as the most common rhinological disease. The challenges of population ageing are global, national and local. General practitioners should be able to recognize otorhinolaryngological problems in geriatrics and possess adequate skills to deal with them. Developing countries including Nepal face a daunting task ahead to make substantive policy reforms and innovative planning to cope up with the increasing old age population and their problems. The motto should be, to change the quality

of life and add life to years increasing longevity by reducing morbidity and mortality.

Conflicts of interest

The authors declare that they have no competing interests.

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A Study of Relationship Between Body Mass Index (BMI) and Emergence of Permanent Teeth in Children of Aryan and Mongoloid Races

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Key words:
Body mass index,
Tooth emergence,
Mongoloid race,
Aryan race.

ABSTRACT

Background: Body mass index (BMI) is the relation of weight and height of person. Tooth emergence or eruption into oral cavity means appearance of incisal edge or cusp tip of tooth through gingiva.

Objectives: To explore the effect of BMI on tooth emergence in Nepalese children belonging to Aryan and Mongoloid races.

Methods: The clinical dental examination of the children was carried out in Brahmin, Chhetri belonging to Aryan race, Rai and Limbu belonging to Mongoloid race residing in Sunsari district of Eastern Nepal. A total of 857 healthy children of pure Mongoloid and Aryan races were included in the study. Children were grouped age, sex and community wise. The following age groups were considered: 3.5 – 5 years, 6.5 – 8 years, 9.5 – 11 years, and 15 – 16 years. Patients age, sex, height, weight, community, type of school whether Government or private and emergence of incisal tip to incisal margin of incisors and canine or cusp tip to occlusal margin of molars visible through gingiva were noted.

Results: The results showed that there is no significant difference in BMI among children belonging to Mongoloid and Aryan races but children of Mongoloid races showed earlier emergence of teeth as compared to those of Aryan races.

Conclusions: Children of Mongoloid races showed earlier emergence of teeth as compared to those of Aryan races. Males were having higher BMI index than females but in all communities, females showed earlier emergence of all permanent teeth except first molars.

INTRODUCTION

Body mass index (BMI) is the relation of weight and height of person. It is calculated by weight in kg/height in meter square (in SI unit). Tooth emergence or eruption into oral cavity means appearance of incisal edge or cusp tip of tooth through gingiva. Body mass index is influenced by development of body which also influence teeth emergence. So far definite relationship has not been established between BMI and teeth emergence.

Although permanent teeth eruption is under significant genetic control, various general factors such as gender, socio-economic status, cranio-facial morphology body composition and body mass index can influence eruption process[1].

A positive correlation between body height and weight and teeth emergence has been established in earlier studies[2,3]. The

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taller and heavier children are slightly advanced dentally while it is apparent that stunting (retarded linear growth) is more strongly associated with delayed tooth eruption. Research on children obesity and dental development also showed a positive correlation; obese children mature earlier and teeth tend to erupt on average 1.2 to 1.5 years earlier as compared to children with normal body mass index[4].

OBJECTIVES

The present study has tried to explore the relationship between BMI and permanent teeth emergence in children of four Nepalese communities belonging to Aryan and Mongoloid races.

METHODS

A total of 857 healthy children of pure Mongoloid and Aryan races were included in the study. Mongoloid race include Rai and Limbu communities whereas Aryan race include Brahmin and Chhetri communities. Children were grouped age, sex and community wise. The following age groups were considered: 3.5 – 5 years, 6.5 – 8 years, 9.5 – 11 years, and 15 – 16 years. Healthy children are defined as those without any growth related disorders, any genetic abnormalities having no prolonged disease like diabetes mellitus, endocrine disorders, cardiac, renal and intestinal disorders. Pure race means no intermingling i.e. children whose parents and grand parents did not make inter caste marriage. The data covered all urban and rural children of high, medium and low economic status. Data was collected from community including those attending dental camps, school children in their schools and attendants of patients coming to the Pedodontics Department of College of Dental surgery. Age of the patient was recorded by birth certificates or looking at birth register in school.

Patients age, sex, height, weight, community, type of school whether Government or private and emergence of incisal tip to incisal margin of incisors and canine or cusp tip to occlusal margin of molars visible through gingiva were noted.

Statistical design and analysis

This was cross sectional study. Sample number and sampling design were first discussed with statistician and accordingly, multistage random sampling technique was adopted. The collected data was entered into computer using microsoft windows' access software and after purification of data, analysis was done into SPSS (Statistical Package for Social Sciences) version 10:00 software. Frequency, proportion and percentage were calculated to summarize the collected information. Student's 't', 'Z' test and 'chi-square' statistical tests were used to test the significance of the variables depending upon the nature of data collected. Date of emergence of individual teeth was calculated by probit analysis. Evidence based conclusions were drawn from the study based results.

RESULTS

Table 1: Comparison of BMI score among four communities of Mongoloid and Aryan races

Communities	BMI Score (Mean +_SD)
Rai	16.13+_1.8
Limbu	16.25+_2.2
Chhetri	16.22+_1.3
Brahmin	16.12+_1.5
P value	>0.05

There was no significant difference in BMI Score (p>0.05) among children of four communities belonging to Mongoloid and Aryan races.

Table 2: Comparison of BMI Score between males and females in four communities of Mongoloid and Aryan races

Communities	Male	Female	P value
Rai	16.88+_1.7	15.29+_1.6	<0.05
Limbu	16.89+_1.9	15.35+_1.5	<0.05
Chhetri	16.75+_1.6	15.23+_1.3	<0.05
Brahmin	16.76+_1.4	15.31+_1.9	<0.05

There was significant difference in BMI score (p<0.05) between male and female children in all communities belonging to Mongoloid and Aryan races. Males had high BMI score than females.

Table 3: Comparision of BMI Scores between Government and private boarding school children of four communities of Mongoloid and Aryan races

Communities	Government school children	Private boarding school children	P value
Rai	15.53+_1.8	16.94+_1.7	<0.05
Limbu	15.54+_1.4	16.89+_1.6	<0.05
Chhetri	15.31+_1.9	16.83+_1.9	<0.05
Brahmin	15.43+_1.7	16.71+_1.6	<0.05

There was significant difference in BMI score (p<0.05) between Government and private boarding school children in all communities belonging to Mongoloid and Aryan races. Private boarding school children had high BMI score than Government school children.

Table 4: Mean age of emergence of teeth among four communities belonging to Mongoloid and Aryan races.

Communities	Mean age of teeth emergence in years													
	Maxillary teeth							Mandibular teeth						
	CI	LI	C	PM1	PM2	M1	M2	CI	LI	C	PM1	PM2	M1	M2
Brahmin	8.5	9.0	11.8	10.5	11.5	6.5	12.9	7.8	8.8	9.5	10.4	11.2	6.2	12.8
Chhetri	8.5	8.9	11.9	10.4	11.4	6.4	13.0	7.7	8.9	9.4	10.3	11.1	6.3	12.9
Rai	7.8	8.5	11.2	10.0	10.8	5.9	12.6	7.2	8.3	9.0	9.9	10.5	5.9	12.5
Limbu	7.7	8.5	11.1	10.0	10.7	6.0	12.5	7.3	8.4	9.1	9.9	10.5	5.9	12.4

CI = Central incisor, LI = Lateral incisor, C = Canine, PM1 = First premolar, PM2 = Second premolar, M1 = First molar, M2 = Second molar

Results show that children of Mongoloid races like Rai and Limbu had less mean age of teeth emergence as compared to children of Aryan races like Brahmin and chhetri. It suggested that there was earlier emergence of permanent teeth in Mongoloid children than Aryan children.

Table 5: Mean age of emergence of teeth between males and females in four communities belonging to Mongoloid and Aryan races

Communities	Sex	Mean age of tooth emergence in years													
		Maxillary teeth							Mandibular teeth						
		CI	LI	C	PM1	PM2	M1	M2	CI	LI	C	PM1	PM2	M1	M2
Brahmin	Males	8.7	9.2	12.0	10.6	11.9	6.6	13.4	8.3	9.2	9.8	10.8	11.6	6.6	13.2
	Females	8.2	8.5	11.6	10.1	11.3	6.0	12.8	7.5	8.6	9.2	10.2	10.8	5.8	12.6
Chhetri	Males	8.6	9.3	12.3	10.7	11.8	6.7	13.5	8.3	9.3	9.7	10.7	11.5	6.7	13.3
	Females	8.2	8.7	11.7	10.1	11.2	6.1	12.8	7.4	8.3	9.0	10.2	10.8	5.8	12.6
Rai	Males	7.9	8.6	11.7	10.3	11.4	6.3	12.9	7.7	8.9	9.3	10.5	10.9	6.5	12.9
	Females	7.4	8.1	10.9	9.8	10.6	5.8	12.3	6.9	8.0	8.8	9.7	10.3	5.7	12.2
Limbu	Males	7.8	8.6	11.7	10.4	11.2	6.2	12.8	7.7	8.9	9.4	10.4	10.8	6.4	12.8
	Females	7.4	8.2	10.9	9.8	10.5	5.7	12.2	6.8	8.2	8.8	9.8	10.2	5.8	12.1

CI = Central incisor, LI = Lateral incisor, C = Canine, PM1 = First premolar, PM2 = Second premolar, M1 = First molar, M2 = Second molar

Results show that in all four communities belonging to Mongoloid and Aryan races, females showed earlier emergence of teeth except first molars, as compared to males.

Table 6: Mean age of emergence of teeth between children of Government school and private boarding school in all four communities belonging to Mongoloid and Aryan races

Communities	School	Mean age of tooth emergence in years													
		Maxillary teeth							Mandibular teeth						
		CI	LI	C	PM1	PM2	M1	M2	CI	LI	C	PM1	PM2	M1	M2
Brahmin	Government	8.5	9.1	11.9	10.6	11.6	6.6	13.1	7.9	8.9	9.5	10.5	11.3	6.3	12.9
	Private boarding	8.4	8.9	11.8	10.5	11.5	6.4	12.9	7.7	8.8	9.4	10.3	11.1	6.2	12.7
Chhetri	Government	8.4	8.9	11.8	10.4	11.4	6.4	13.0	7.7	8.8	9.3	10.5	11.2	6.1	12.7
	Private boarding	8.6	9.1	11.9	10.6	11.7	6.5	13.0	8.0	8.9	9.5	10.4	11.0	6.3	12.8
Rai	Government	7.9	8.6	11.1	10.1	10.8	5.9	12.6	7.3	8.3	9.1	10.0	10.6	6.1	12.6
	Private boarding	7.7	8.4	11.2	10.0	10.7	6.0	12.5	7.2	8.4	9.0	9.9	10.4	5.8	12.4
Limbu	Government	7.7	8.5	11.2	10.0	10.7	6.0	12.5	7.1	8.3	9.0	9.9	10.5	5.9	12.4
	Private boarding	7.9	8.6	11.1	10.1	10.7	5.8	12.6	7.2	8.2	9.1	10.1	10.6	6.0	12.5

CI = Central incisor, LI = Lateral incisor, C = Canine, PM1 = First premolar, PM2 = Second premolar, M1 = First molar, M2 = Second molar

Results shows that in all four communities belonging to Mongoloid and Aryan races, Government and private boarding school children showed no difference in mean age of teeth emergence.

DISCUSSION

Sex difference in body size and shape is a common phenomenon in human population. But the degree of sex difference varies from population to population. All most all the studies examining the gender differences in body size show that males are significantly heavier and taller than the females[5]. The present study also showed that males had higher BMI index than females.

There was no significant correlation observed between eruption times with BMI, except for left mandibular lateral incisor (Tooth no. 32). However, more negative correlation than positive indicates an inverse relationship may exist between the eruption time and BMI[6]. Despite the rapid physical growth of American and British girls, Indian girls are ahead in dental emergence and show earlier emergence of maxillary and mandibular permanent premolars suggesting a genetic basis for the emergence of deciduous and permanent teeth. Partial correlation coefficients with age constant between height and the number of erupted deciduous and permanent teeth are positive and significant, reflecting an association, to same degree, with height and weight[7]. There was an association between the number of teeth erupted at a given age and height and weight of the children. Children with fewer teeth at a given age contain a greater proportion of children below standard weight or height for that age. This effect disappeared when children were classified in terms of weight for height[8]. Khan NB[6] observed only three teeth showed significant difference of eruption time between the genders. Children of private schools showed early eruption than the children of public schools. The pearson and partial correlation were significant positively correlated with height. Eruption time of all the teeth, except one, showed positive correlation with weight[9].

However the present study showed there was no significant difference in BMI in all four communities belonging to Mongoloid i.e. Rai and Limbu and Aryan races i.e. Brahmin and Chhetri but children of Mongoloid races showed earlier emergence of teeth as compared to those of Aryan races. There was significant difference in BMI between males and females

in all four communities; males were having higher BMI index than females but in all communities, females showed earlier emergence of all permanent teeth except first molars. There was significant difference in BMI between Government and private boarding school children in all four communities; private boarding school children had significantly high BMI score but there was no difference in mean age of teeth emergence. From all this what can be said is emergence of teeth depends on developmental maturity. Girls reach maturity earlier than boys so teeth emerge earlier despite they have low BMI score.

Khan NB *et al* found no significant correlation between BMI and eruption time except for left mandibular lateral incisor that exhibited an inverse relationship between BMI and eruption time as there was more negative correlation than positive[6]. Nishwander and Sujaku reported that a trend was observed of general advancement in physical development with early eruption[10]. Hoffding *et al* reported that only minor changes in tooth emergence was observed with pronounced acceleration in physical development[11]. Clemens *et al* claimed in his study that mean emergence time was earlier in the children with higher socio-economic status[12]. Sanchez-perez L *et al* explored the effects of BMI on tooth eruption in a cohort of elementary school children and found that the overweight children had more erupted teeth[13]. Maryam Zangouei-Booshehri *et al* reported that there was a significant direct relationship between dental development and BMI ($P<0.01$), obese children have a higher rate of dental development compared to normal children[14].

CONCLUSIONS

There was no significant difference in BMI in all four communities belonging to Mongoloid and Aryan races but children of Mongoloid races showed earlier emergence of teeth as compared to those of Aryan races. There was significant difference in BMI between males and females in all four communities; males having higher BMI index than females but in all communities, females showed earlier emergence of all permanent teeth except first molars. There was significant difference in BMI between Government and private boarding school children in all four communities; private boarding school children have significantly high BMI score but there was no difference in mean age of teeth emergence. From all this what can be said is emergence of teeth depends on developmental maturity. Girls reach maturity earlier than boys so teeth emerge earlier in them despite they have low BMI score.

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Speciation of *Candida* Isolated in Significant Count from Urine Samples

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Key words:
Candiduria,
Candida albicans,
Non-*albicans Candida*,
Significant count.

ABSTRACT

Background: *Candida* species are the most common etiological agents of fungal infections of urinary tract and usually presents as complicated nosocomial infection. The increase in incidence of *Candida* species over the past two decades is significant and non-*albicans Candida* species continue to replace *Candida albicans* at most of the clinical sites.

Objectives: The aim of the present study is to speciate *Candida* isolated in significant count from urine samples (i.e. $>10^5$ CFU / ml) to assess the occurrence of non-*albicans Candida* and to investigate the risk factors associated with candiduria.

Methods: In this study a total of 200 isolates of *Candida species* isolated from urine samples of urinary tract infection (UTI) patients who visited at St. John's Medical College and Hospital during 2009 to 2010, were characterized and identified at species level by using a panel of routine diagnostic tests and biochemical tests.

Results: Out of 200 *Candida* isolates, 168 (84%) were identified as *Candida tropicalis,* followed by *Candida albicans* 27 (13.5%), *C. kefyer* 3 (1.5%), and *C. glabrata* 2 (1%). Occurrence of candiduria in males was 43% and in females 57% with a male to female ratio of 1 : 1.3. The most predominant risk factors observed in patients with candiduria were diabetes mellitus (DM), treatment with more than three antibiotics, urinary catheter, pregnancy, renal disease and HIV with an incidence of 45%, 18%, 15%, 11%, 10% and 1% respectively.

Conclusions: Non-*albicans Candida* spp (such as *C. tropicalis*) are replacing *Candida albicans* as the predominant pathogen for nosocomial UTI. Diabetes mellitus was accounted as main predisposing factor associated with candiduria.

INTRODUCTION

Fungal diseases were recognized as being of clinical importance in the second half of last century mainly due to advances in medical technologies. However, within the last 20 years, the advent of the AIDS epidemic has opened up the clinical mycology field[1]. *Candida* species are ubiquitous yeasts, found as normal flora of gastrointestinal tract in healthy individuals. They are opportunistic pathogens in immunocompromised patients[2]. *Candida* spp account for almost 10 - 15% of nosocomial urinary tract infections[3,4,5]. Fungal urinary tract infections have become frequent as a result of increased use of broad spectrum antibiotics, corticosteroids, immunosuppressive agents and bladder catheters in acute care settings. Other factors like female gender, disturbance of urine flow, diabetes mellitus, AIDS have also been associated with candiduria[2,6]. Although there are about 150 species of *Candida*, it is well established that only small number are human pathogens[7]. *C. albicans* has been the species of yeast, most frequently cultured from clinical specimens[8]. It has been observed by various researchers that non-*albicans Candida* species continue to replace *C. albicans*

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at most of the clinical sites like blood stream infections[9,10,11].

This study is undertaken with the main aim to speciate *Candida* spp to assess the incidence of non-*albicans Candida* spp in significant count from urine samples.

METHODS

A prospective study was done in the Microbiology Laboratory at St. John's Medical College and Hospital, Bangalore, India during March 2009 to April 2010. A total of 200 isolates of *Candida* spp from the patients with significant candiduria (i.e. $>10^5$ CFU of *Candida* per ml of urine) were included.

All the samples were received in sterile containers with a request for routine bacterial and fungal culture. Immediately after collection, the urine samples were processed according to the recommended procedures[9,12].

1. **Gram staining:** Smear of a loop full of uncentrifuged, well mixed urine sample was prepared, stained and examined for the presence of pus cells, bacteria and Gram positive budding yeast cells as well.
2. **Culture:** All the samples were inoculated on Cysteine Lactose Electrolyte-Deficient (CLED) medium and on Sabouraud's dextrose agar (only when fungal culture was requested) by using calibrated inoculating loop of 2 mm diameter. Those plates were incubated at 37°C and examined after 24 hrs and 28 hrs of incubation. Only those pure isolates on CLED media with significant count i.e. $>10^5$ CFU were included in this study.

For the identification of *Candida*, the colonies from CLED agar medium were processed for Gram stain, subculture on Sabouraud's dextrose agar (SDA), germ tube test, production of chlamydospores, sugar assimilation tests and sugar fermentation tests[9].

Gram stain: A smear made from an isolated colony was stained with Gram stain. Yeast cells appear as Gram positive oval to elongated forms of varying sizes, with or without pseudohyphae.

Subculture on SDA: The colonies on SDA varied depending on the duration of incubation. Usually they were white to cream colored, waxy or soft, smooth or wrinkled.

Germ tube formation: A single colony was inoculated in human serum and incubated at 37˚C. After 2 - 4 hours, wet mount was prepared and examined under the microscope to look for the presence of germ tube. The germ tube appeared as short lateral hyphen filament. There is no point of constriction at the origin of the germ tube and is classically described as hand mirror appearance[9,12].

Chlamydospore formation (Dalmau technique): All *Candida* isolates were tested for the production of chlamydospores in corn meal agar with Tween 80 by making one streak of young, actively growing yeast down the centre of the area. Then three or four streaks are made across the first to dilute the inoculum and covered with a 22 x 22 mm cover slip (sterilized with alcohol and passing over flame). The inoculated medium was incubated at room temperature in dark for 3 days. The plates were examined under the microscope for the presence of chlamydospores. The characteristic morphology of terminal chlamydospores (thick double walled) of *C. albicans* are seen near the edge of the cover slip[8,13].

Carbohydrate assimilation test (Auxanographics plate method)[8]: All *Candida* isolates were subjected to sugar assimilation test on yeast nitrogen base media by using Whatmann no. 1 filter paper discs impregnated with glucose, maltose, sucrose, lactose, galactose, xylose, inositol, dulcitol, raffinose, melibiose, cellibiose, and ribose. Assimilation pattern of different *Candida* species were read by comparing with a standard table[13].

Sugar fermentation: Carbohydrate fermentation test was performed for all the 200 isolates of *Candida* by using 1% carbohydrate (Glucose, maltose, sucrose, lactose, galactose, cellobiose) in yeast extract and peptone water. Individual sugar solutions were distributed in test tubes with inverted Durham's tubes inside. A 0.2 ml of nutrient broth suspension of the test isolate was inoculated into each of the sugar tubes and incubated at 37°C for 10 days. Acid and gas production was taken as a positive fermentation test. This was denoted by a change in the color of indicator bromothymol blue to yellow color and accumulation of gas within the Durham's tube. Sugar fermentation pattern for *Candida* species was compared with a standard table[13,14].

RESULTS

Out of 200 samples (isolates of *Candida*) received, 43% were males and remaining 57% of females, with a male to female distribution ratio of 1 : 1.3. Majority of the patients with Candidiuria belonged to the age group of more than 40 years (60.5%). Candidiuria was found to be low among the children and adolescents.

Table 1: Gender and age wise distribution of the cases

	Characteristics	No of patients (n = 200)	Percentage (%)
1	**Sex**		
	Males	86	43%
	Females	114	57%
2	**Age (years)**		
	0 - 10	12	6%
	11 - 20	10	5%
	21 - 30	22	11%
	31 - 40	35	17.5%
	41 - 50	48	24%
	>50	73	36.5%

In the study patients of diabetes mellitus were at most (45%) to suffer from candiduria followed by those in treatment with more than three antibiotics (18%). The use of urinary catheter accounted for 15% of cases. Out of 200 patients, 20 patients were suffering from some sort of renal diseases. Pregnancy, accounting for 11% of cases may also be considered a risk factor of candiduria. 2 out of 200 patients were suffering from HIV infection.

Table 2: Predisposing factors among UTI cases with candiduria

Risk factors	No of patients (n = 200)	Percentage (%)
Urinary catheter	30	15%
Diabetes mellitus	90	45%
Renal disease	20	10%
Pregnancy	22	11%
HIV	02	1.0%
Treatment with > 3 antibiotics	36	18%

After speciation of *Candida*, 4 species were found to be prevalent- *C. tropicalis, C. albicans, C. kefyer,* and *C. glabrata.* Among these four, majority of infections were due to *C. tropicalis* accounting for 84% (168/200) of cases, followed by that of *C. albicans* responsible for 27 out of 200 (13.5%) samples studied. The other species *C. kefyer*, and *C. glabrata* caused 1.5% and 1.0% of candiduria cases respectively.

Table 3: Distribution of different species of *Candida*

Candida species	No of isolates (n = 200)	Percentage (%)
C. tropicalis	168	84%
C. albicans	27	13.5%
C. kefyer	03	1.5%
C. glabrata	02	1.0%

DISCUSSION

Fungal infections of the urinary tract, especially those caused by *Candida* species, are becoming increasingly common[15]. *Candida* spp account for almost 10 - 15% of hospital acquired UTIs[3,4,5]. Analytic data of United States of America National Nosocomial Infection Surveillance System showed *Candida* spp ranking as the 7th among all nosocomial pathogens of UTI[16].

This study included total 200 urine isolates of *Candida*. Of these 86 (43%) were males and 114 (57%) were females with male to female ratio 1 : 1.3 is similar to the findings of Anandkumar *et al*[17] with male to female ratio was 1 : 1.3 (42.8% males; 57.1% females), Kandhari *et al*[18], the ratio was 1 : 1.57 and Rizvi MW *et al*[19] also reported female preponderance with a ratio of 0.85 : 1. Since colonization of vulvo-vestibular area with *Candida* spp is frequent in females, they are more at risk of developing candiduria due to ascending infection[4,20].

Majority of patients with candiduria belonged to the age group of above 40 years (60.5%) were observed in this study. This finding is supported by Jain M *et al*[21] who reported high prevalence (71%) of UTI by *Candida* spp in the patients above 46 years of age. This could be due to lowered host defenses at extremes of age.

Other risk factors that were present includes diabetes mellitus which was seen in 45% of our patients. Diabetes is a well-known risk factor for developing nosocomial UTI due to *Candida* spp[3,4,20]. This is because diabetes lowers host resistance to invasion by fungi and also promotes stasis of urine in neurogenic bladder, thus further increasing the chances of colonization of *Candida* spp[22].

The specific identification of yeast helps in guiding the clinicians for proper management of candiduria. Many studies have reported *C. albicans* to be the most frequent species isolated from nosocomial UTI[23,24,25]. However several reports shown that non-*albicans Candida* species, especially *C. tropicalis* and *C. glabrata* are now predominate in many regions[26]. In our study, we found *C. tropicalis* as predominant species with 168/200 (84%) cases of candiduria. In 1997, Chakrabarthy *et al*[27] reported *C. tropicalis* as the predominant species found in 58.7% of the candiduria cases, whereas *C. albicans* was isolated from only 19% of them. De Oliviera *et al*[11] found *C. tropicalis* in 53% of the patients and *C. albicans* in 36% of candiduria patients. High incidence of *C. tropicalis* in patients with candiduria has also been reported by Paul N *et al*[28] and Jain M *et al*[21]. Even though patient characteristics in our study were similar to those previously observed, *C. albicans* was the species isolated from only 13.5% of cases. It has been observed by various researchers that non-*albicans Candida* species continue to replace *C. albicans* at most of the clinical sites also, like blood stream infections[9,10,11].

CONCLUSIONS

The present study along with the findings of other researchers suggest that the fungal species causing candiduria might be shifting to the non-*albicans* spectrum. *C. tropicalis* was found to be most prevalent species of *Candida* in patients with candiduria. Diabetes mellitus was accounted as main predisposing factor associated with candiduria.

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Study on Risk Takinig Behavior to HIV/AIDs Among Injecting Drug Users in Eastern Region of Nepal

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Key words:
Injecting drug users (IDUs),
Unsafe sex,
Needles/Syringes,
Risk taking behavior.

ABSTRACT

Background: Drug abuse is the Universal problem and Nepal is not the exception. Different studies and reports have reported high prevalence of HIV/AIDS among the injecting drug users (IDUs) in Nepal. According to the estimated data, there are 80,000 drug addicts in Nepal and 50% of them inject drugs through syringes. In Morang district, there are 1316 reported IDUs and 5000 to 7000 estimated IDUs.

Objectives: To assess the risk taking behavior among IDUs with respect to needle and syringe exchange and unprotected sex.

Methods: Cross sectional study design was applied to study the risk taking behavior among IDUs in Eastern region of Nepal. A non-probability, snowballing sampling technique was adopted. SPSS and Epi-Info was used to analyze the data of the study.

Results: Majority of IDUs in Eastern region were from the age group 21 - 30 years (62.7%), unmarried (64.9%) and living in nuclear family (80%). Despite the fact that most of the IDUs were unmarried, most of them were sexually active (72.7%). The study revealed that condom use during sexual intercourse was high (87.5%) but the consistent and regular use was low (57.5%). Sharing of syringes and reuse of needles was high among the IDUs i.e. 40% of the respondents. In general, the study had revealed that the harm reduction approaches among IDUs were low.

Conclusions: The findings suggest that the majority of injecting drug users in Eastern region were from the age group 21 - 30 years, unmarried and living in nuclear family. The study had further highlighted that unsafe sex, sharing of syringes and needles and improper cleaning of needles and syringes before sharing is indication of unsafe behavior practices by IDUs. Finally, the study highlighted statistically significant relationship between HIV/AIDS knowledge and use of condoms during sexual intercourse and high rate of syringe sharing among married respondents.

INTRODUCTION

Drug abuse is the universal problem affecting all of the developed and developing countries. Since 1980, there has been a major change in trends and patterns of drug use globally, i.e. global increase in the population, types of use and way of taking drugs. The injecting drug has become a major transmission route of Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS)[1]. There is no country in the world without the problem of drug abuse. The drug taking route has been changed dramatically. Parenteral route is replacing the traditional way of taking drug in Nepal as in the rest of the world. Later the drug use problem has been intensified by the additional hazard of conditions such as Sexually Transmitted Diseases (STD) and HIV/AIDS[1].

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World drug report 2008 estimates 200 million (3% of the global population) and 5% of the population aged 15 - 64 years are drug addicts[2]. Worldwide, 11% of AIDS cases are estimated to be due to drug injecting with dirty needles- particularly heroin addicts. By 2008, injection of illicit drugs has been reported from 121 countries and by 2006 HIV infection among drug injectors had been reported in 82 different countries worldwide[2]. According to the estimated data, there are 80,000 drug addicts in Nepal and 50% of them inject drugs through syringes[3]. In Morang district, there are 1316 reported IDUs and 5000 to 7000 estimated IDUs[4]. The estimated number of drug users in Nepal reflect a steep increase i.e. 1987 cases in 1978, 25,000 cases in 2005, 60,000 cases in 2007 and 80,000 cases in 2009[5].

Transmission of HIV among IDUs occurs primarily through behavior like needle/syringe exchange/sharing and practices of unsafe sex. Frequency and magnitude of exposure to infected blood increases the risk of HIV transmission. The frequency of needle sharing, the number of partners with whom needles are shared, the probability that those partners are HIV- infected and the manner in which sharing occurs, all influence HIV risk.

OBJECTIVES

To assess the risk taking behavior among IDUs with respect to needle/syringe exchange and unprotected sex.

METHODS

Cross sectional study design was applied to study the risk taking behavior among IDUs in Eastern region of Nepal during the period of September 2009 to February 2010. A non-probability, snowball sampling technique was adopted where the first contact points being the key workers. The samples were approached from a variety of settings, like drop in center, local tea shops, bhatti (small alcohol shop), corner of quite areas, under the chautara, back of the street and interviewees homes. Considering a total of 1316 reported cases in Morang district (transit), 34.4% HIV prevalence among IDUs and 8% desired precision and 95% confidence interval, a total of 135 IDUs were selected as total sample size.

The collected data was edited, coded and categorized, then master chart was prepared in the electronic data sheet in Microsoft Excel 2007. Then the excel data file was transferred to SPSS 11.5 version and Epi-Info for analysis. Microsoft word 2007 was used for tabulation and graphical representation of the data.

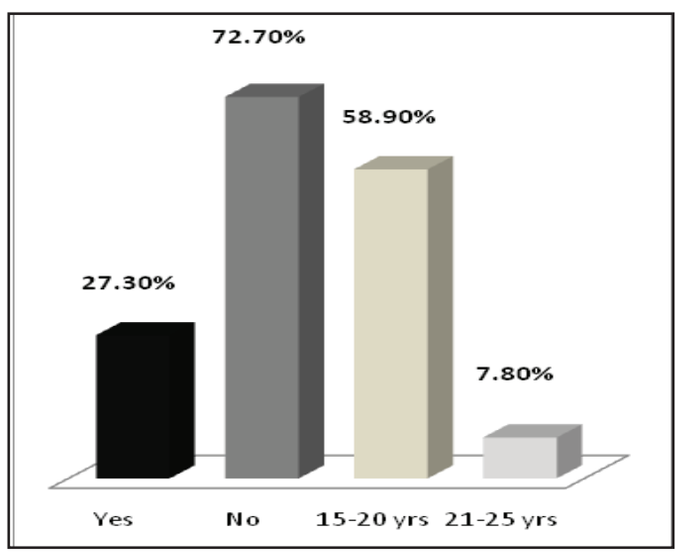
RESULTS

Table 1: Demographic characters

Characteristics	Frequencies (n=135)	Percentage (%)
Sex		
Males	132	97.8
Females	3	2.2
Age		
10 - 20 years	15	10.4
21 - 30 years	84	62.7
31 - 40 years	35	26.1
40+ years	1	0.7
Education		
Illiterate	8	5.9
Literate	6	4.4
Primary	42	31.1
Secondary and above	79	58.4
Marital Status		
Single	87	64.9
Married	39	29.1
Divorced	9	6

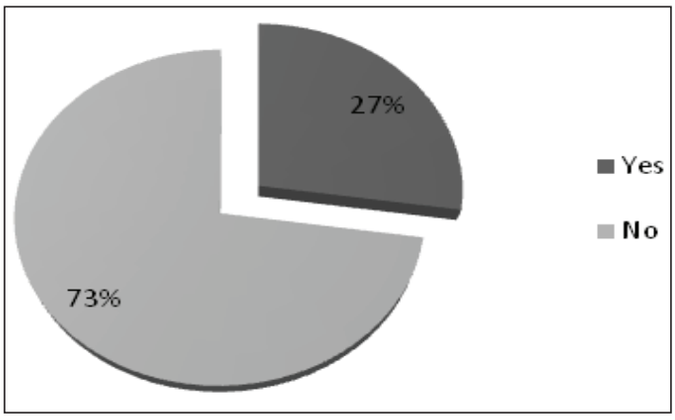
The majority of the respondents were males (97.8%) and the majority (62.7%) were from the age group of 21 - 30 years. Only 8 (5.9%) respondents were illiterate and 79 (58.4%) of the respondents were with secondary or higher education. Similarly majority 87 (64.9%) of the respondents were single or unmarried followed by 39 (29.1%) married and 9 (6%) being divorced (Table 1).

Fig 1: Age at first start of drugs



The figure 1 revealed that the most of the respondents were started taking drug at teenage i.e. 59% of them started taking drug at the age of 15 - 20 years. Very surprisingly, 6.2% of the respondents were started taking drugs as early as less than 10 years of age. In response to another question asked regarding the first contact with drug almost all (93.8%) said their friends are the first contacts. Similarly the study revealed that more than 50% of the IDUs first started taking drug as curiosity and almost 25% as peer pressure.

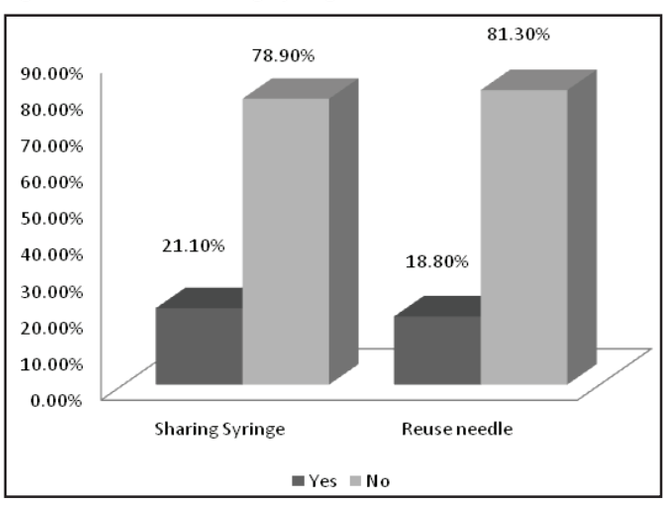
Fig 2: Involvement in sexual relation



The figure 2 illustrates the sexual behavior of the respondents. It is clear that most of the respondents (72.7%) were involved in sexual contact. Among them 56.5% were sometimes involved in sex whereas 43.5% of the respondents were regularly involved in sex.

In response to the question asked on the frequency of sexual contact during last seven days, majority of the respondents (63.4%) had sexual contact 1 - 5 times. Similarly 16.9%, 8.5%, 7.0% and 4.2% replied more than 20 times, 6 - 10 times, 11 - 15 times and 15 - 20 times respectively during the last week. Ever condom use during sexual contact was found to be among 87.5% of respondents, however consistently regular use of condoms was only in 57.5% of respondents.

Fig 3: Practice of sharing syringes and needles



Similarly almost 18.8% of the respondents were reusing the used needle while taking drugs. Unexpectedly, almost 40% of the respondents were found reusing needles and syringes while taking drug. Almost one fifth (21.1%) of the respondents were reported to share syringes while taking drug.

In response to the question asked on why they were sharing syringes, almost 17% of respondents replied due to lack of time and money. Similarly, the reason behind the reuse of needle was to prevent diseases among 18.5% of the respondents. Among those who share/reuse syringes and needles 86.8% of the respondents found cleaning them before sharing/reuse. Notable, only 38.5% of them who clean the syringes and needles before reuse/sharing found to be used perfect cleaning agents (either bleaching or spirit).

Table 2: Association between risk behavior and knowledge of HIV/AIDS

Risk behaviors	Knowledge of HIV/AIDS (%)	Total	P-value
Sharing of syringes/needles			
No	21.7%	28	0.453
Yes	78.3%	107	
Use of condoms			
No	4.9%	14	0.01
Yes	95.1%	121	
Sexual contact			
No	29.2%	15	0.457
Yes	70.8%	120	

Table 3: Association between family and social condition with risk behavior

Condition	Syringe/Needle sharing	Total	P-value
Family			
No	82.1	106	0.453
Yes	17.9	29	
Peer			
No	71.4	100	0.72
Yes	28.6	35	
Marital status			
Single	29.2	15	0.025
Married	70.8	120	
Divorced	10.7	8	

The Table 2 revealed the association between risk behavior and knowledge of HIV/AIDS among the respondents. It is clear that the knowledge of HIV/AIDS was higher (78.3%) among those who share syringes which is statistically insignificant (p=0.453). Similarly the knowledge of HIV/AIDS was high

(95%) among the respondents who use condoms during sex and the result is statistically significant (p=0.01). Similarly Table 3 revealed that neither family stress nor peer pressure is strongly associated with sharing of syringes. Notable is the sharing of syringes was high (70.8%) among those respondents who were married and the association seems statistically significant with p value 0.025.

DISCUSSION

The study revealed that most of the IDUs in Eastern region of Nepal are males and only 2.2% of them were females. This might be due to socio-cultural setting in Nepal that the female IDUs are hidden in the community. Different studies done in Nepal had revealed that there are almost 5% of the IDUs were females. Similarly the high prevalence (62.7%) of IDUs in the age group 21 - 30 years suggests that the problem of IDUs is in the economically active population in the country. The majorities of the respondents were literate and hence demand IDUs education in the formal curriculum to develop healthy lifestyle without drugs[6.]

The healthy family kinship and socio-cultural tie up in contest to Nepal had shown positive influence on developing safe behavior and practices among the adolescents and youth. This study had also found that the drug use was high in nuclear families (59.7%) and unmarried (64.9%)[7].

A study done by NCASC (1997) showed that the 40.5% of IDUs had their first sexual experience with female sex workers. This study had also reflected that the 17.9% of IDUs had sexual experience with female sex workers. Similar to the above study, this study had revealed that 72.7% of IDUs were sexually active and among them 43.5% of the respondents do have regular sexual contact while 56.5% of the respondents do have occasional sexual contact and most of the respondents had 1 - 5 times sexual contact within the last one week preceding the survey. In this study among those who were sexually active 87.5% of the respondents had ever used condoms during sexual intercourse, however regular use of condoms among those sexually active IDUs was poor i.e. 57.5%[8,9].

Similarly, this study revealed that 21.1% of the respondents had shared syringes for taking drugs while 18.8% of the respondents were reusing the used needle while taking drugs. The study done by NCASC in 2003 found 24% of the IDUs in Pokhara reported sharing the used needles/syringes is higher than findings of this study. This didn't rollout the needs of public health intervention on harm reduction. The reason behind sharing syringes/needles as identified by this study was lack of money (6.7%), lack of time (10.4%) and unavailability (3.7%)[10,11].

A report of NCASC (2007) suggests that most of the IDUs clean needles/syringes before use was not satisfactory, use of bleach and water was 30.7%. Significant numbers of IDUs (37.5%) were using their own methods i.e. saliva and urine as cleaning agents. Similar to the above findings, this study had found that 31.1% of the respondents who share and reuse syringes and needles use bleaching while majority of the respondents used own method like hot water (10.4%) and urine (5.2%) etc[12].

The cross tabulation of knowledge of HIV/AIDS and the risk behavior to HIV/AIDS revealed that the knowledge of HIV/AIDS was high among those who share syringes (78.3%), who are sexually active (70.8%) and who use condoms during sexual intercourse (95.1%). However, knowledge of HIV/AIDS and sharing of syringes and sexual contact was statistically insignificant and knowledge of HIV/AIDS and use of condoms was statistically significant[13].

Similarly the association of sharing of syringes with the condition of stress in the family and peer pressure were statistically insignificant. Notably the association of sharing of syringes and marital status was statistically significant (p=0.025) with 70.8% of the married respondents sharing syringes while taking drug[14].

CONCLUSIONS

Based on the objectives of the study, the derived findings suggest that the majority of injecting drug users in Eastern region of Nepal were from the age group 21 - 30 years, unmarried and living in nuclear families. Even though most of the respondents were literate, the dropout rate from school after the lower secondary and secondary level was high. Despite the fact that most of the IDUs were unmarried, most of them were sexually active. Although the condom use during sexual intercourse was high, the consistent and regular use was notably low. The study further highlights that unsafe sex, sharing of syringes and needles and improper cleaning of needles and syringes before sharing is indication of unsafe behavior practices by IDUs in Eastern region of Nepal, in spite of notably good awareness level. Furthermore, the study highlighted statistically significant relationship between HIV/AIDS knowledge and use of condoms during sexual intercourse and high rate of syringe sharing among married respondents.

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Aerobic Bacterial Infections of Diabetic Foot

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Key words:
Aerobic bacterial infections, Diabetic foot, Antibiotic.

ABSTRACT

Objectives: To study the occurrence and correlation of diabetic foot infections in relation to age, sex, mode of presentation of diabetic foot infections, correlation between duration of diabetes and foot infections, occurrence of diabetic foot infections in relation to occupation, to isolate and identify the aerobic bacterial species and to evaluate their *in vitro* susceptibility to antibiotics.

Methods: The study was carried out on 100 clinically diagnosed cases, during July 2008 -January, 2009, at Prathima Hospital and Government Civil Hospital, Karimnagar, Telangana, India. A detailed history of selected cases was taken with regard to name, age, sex, address, clinical history, mode of presentation, and treatment taken. Sterile cotton swabs were used for collection of pus exudates from foot infections. Samples were processed using standard bacteriological techniques.

Results: Aerobic bacterial infections of diabetic foot were more common during sixth, fifth, fourth and third decades of life with a median of 54.5 years and the mean age 53.4 years, and more common among males than females, and among farmers. Majority of patients presented diabetic foot infection as cellulitis followed by ulcer and gangrene. Infections were more common among patients with duration of 6 – 10 years of diabetes. *Pseudomonas aeruginosa* was the commonest isolate followed by *Staphylococcus aureus*, *Proteus* spp, *Klebsiella* spp, and *E.coli.*

Conclusions: Aerobic bacterial infections of diabetic foot were more common among males than females, and among farmers. This may be attributed to their frequent exposure to soil, occupationally without foot wear. Infections were more common among patients with duration of 6 – 10 years of diabetes. *Pseudomonas aeruginosa* was the commonest isolate followed by *Staphylococcus aureus*, *Proteus* spp, *Klebsiella* spp, and *E.coli.* A high degree of resistance by *E.coli* and *Citrobacter* spp to commonly used antibiotics was noticed.

INTRODUCTION

Diabetes mellitus is a chronic disorder and affects a large segment of population and is a major public health problem. Diabetes and foot problems are almost synchronous[1]. Infected foot ulcer is a common cause of morbidity in diabetic patients, ultimately leading to dreaded complications like gangrene and amputations. Lifetime risk to a person with diabetes for developing a foot ulcer could be as high as 25 percent[2].

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OBJECTIVES

The present investigations were undertaken with the following objectives: 1) To study the occurrence and correlation of diabetic foot infections in relation to age and sex. 2) To study the mode of presentation of diabetic foot infections. 3) To study the correlation between duration of diabetes and foot infections. 4) To study the occurrence of diabetic foot infections in relation to occupation. 5) To isolate and identify the aerobic bacteria associated with foot infection in diabetics. 6) To evaluate *in vitro* susceptibility of isolated bacterial strains to antibiotics so that optimal empirical antibiotic therapy in these patients could be determined.

METHODS

This study was carried out on 100 clinically diagnosed cases, during July 2008 - January, 2009, at Prathima hospital and Government Civil Hospital, Karimnagar, Telangana, India. A detailed history of selected cases was taken with regard to name, age, sex, address, clinical history, mode of presentation, and treatment taken.

Sterile swabs were used for the collection of pus exudates from foot infections in duplicate (one for smear and another for culture). Wherever necessary, pus was aspirated with a sterile needle and syringe and transported to laboratory immediately[3]. Samples were processed using standard bacteriological techniques by direct microscopic examination using Gram's stained smears and cultured on to MacConkey agar, blood agar, chocolate agar and isolates were identified by biochemical tests. Antibiotic sensitivity test was performed by disc-diffusion (Kirby-Bauer) method by using Mueller-Hinton agar medium for the antibiotics listed in Table 1.

Table 1: List of antibiotics tested

S. No	Antimicrobial agent	Disc concentration
1	Imipenem (I)	10 mcg
2	Tetracycline (T)	30 mcg
3	Piperacllin/Tazobactam (Pt)	100/10 mcg
4	Amikacin	30 mcg
5	Cefipime (Cpm)	30 mcg
6	Ofloxacin (Of)	10 mcg
7	Tobramycin (Tb)	10 mcg
8	Polymyxin B (Pb)	300 units
9	Ampicillin (A)	10 mcg
10	Azithromycin (At)	15 mcg
11	Erythromycin (E)	15 mcg
12	Gentamycin (G)	10 mcg
13	Co-Trimoxazole (Co)	23.75 mcg
14	Amoxycillin/ Clavulanic acid (Ac)	30 mcg
15	Clindamycin (Cd)	2 mcg
16	Linezolid (Lz)	30 mcg
17	Netillin (Nt)	30 mcg
18	Levofloxacillin (Le)	5 mcg
19	Cephoxitin (Cn)	30 mcg
20	Nitrofurantoin (Nf)	300 mcg
21	Gatifloxacillin (Gf)	5 mcg
22	Ciprofloxacillin (Cf)	5 mcg
23	Chloramphenicol (C)	30 mcg
24	Cefoperazone (Cs)	75 mcg
25	Ceftriaxone (Ci)	30 mcg
26	Cephalothin (Ch)	30 mcg

RESULTS

Table 2: Age wise incidence of aerobic bacterial infections of diabetic foot

Age (Years)	No of patients	Percentage (%)
0 - 10	-	-
11 - 20	-	-
21 - 30	4	4%
31 - 40	16	16%
41 - 50	20	20%
51 - 60	26	26%
61 - 70	30	30%
71 - 80	4	4%
Total	100	100%

The total 100 cases were between the range of 28 years and 78 years with a median of 54.5 years and the mean age was 53.4 years. The highest incidence was seen in the age group of 61 – 70 years with 30 cases (30%), followed by the age group of 51 – 60 years with 26 cases (26%), 41 – 50 years with 20 cases (20%) and 31 – 40 years with 16 cases (16%). The least incidence was seen in the age groups of 21 – 30 years and 71 – 80 years with 4 cases (4%) each.

Table 3: Sex wise incidence of aerobic bacterial infections of diabetic foot

	Males	Females	Total
No of cases	76	24	100
Percentage (%)	76%	24%	100%

Out of 100 cases, males were 76 (76%) and females 24 (24%) with a male to female ratio 3 : 1.

Table 4: Mode of presentation of diabetic foot infections

Mode of presentation	No of cases	Percentage (%)
Ulcer	20	20%
Gangrene	18	18%
Abscess	12	12%
Cellulitis	50	50%
Total	100	100%

Out of 100 cases of diabetic foot infections, 50 cases (50%) presented with cellulitis, 20 cases (20%) with ulcer, 18 cases with (18%) with gangrene and 12 cases (12%) with abscess.

Table 5: Duration of diabetes

Duration of diabetes in years	No of patients	Percentage (%)
0 - 1	12	12%
2 - 5	20	20%
6 - 10	34	34%
11 - 15	16	16%
16 - 20	12	12%
>20	6	6%
Total	100	100%

A few patients were unaware of being diabetic and were diagnosed as suffering from diabetes on admission with complaints of non-healing foot infections. In our study, 12 cases (12%) presented with duration less than or equal to one year, 20 cases (20%) with duration of 2 to 5 years, 34 cases (34%) with 6 to 10 years duration, 16 cases (16%) with 11 to 15 years duration, 12 cases (12%) with 16 to 20 years duration (Table 5). Only 6 patients (6%) had diabetes for more than 20 years.

Table 6: Diabetic foot infections in relation to occupation

Occupation	No of patients	Percentage (%)
Agriculture	48	48%
House wives	16	16%
Dhobies	10	10%
Business	8	8%
Laborers	8	8%
Teacher	4	4%
Contractor	4	4%
Clerk	2	2%
Total	100	100%

Persons who often expose to the risk of trauma and injuries during their work are highly susceptible to complications of diabetic foot. A correlation was made between the incidence of foot lesions in diabetics with respect to occupation of the patient (Table 6). The incidence of foot lesions in diabetics were higher among agriculturalists (farmers) with 48 cases (48%), followed by 16 cases (16%) among house wives, 10 cases (10%) among dhobis, 8 cases (8%) each among business persons and laborers, 4 cases (4%) each among teachers and contractors and 2 cases (2%) among clerks.

Table 7: Culture results from diabetic foot infections

Growth pattern	No of cases	Percentage (%)
Monomicrobial	44	44%
Polymicrobial	34	34%
No growth	24	24%
Total	100	100%

Clinical samples from all 100 cases of diabetic foot infections were subjected to aerobic bacterial cultural examination and the data was analysed in terms of single infection (monomicrobial) and mixed infection (polymicrobial i.e., more than one organism causing infection) (Table 7). 44 cases (44%) showed monomicrobial growth whereas 34 cases (34%) showed polymicrobial growth and 24 cases showed no growth on 48 hrs of aerobic incubation.

Table 8: Aerobic bacterial species isolated from diabetic foot infections

Bacteria isolated	No of isolates	Percentage (%)
Pseudomonas aeruginosa	22	19.64%
Staphylococcus aureus	20	17.85%
Proteus spp	20	17.85%
Klebsiella pneumoniae	18	16.07%
E.coli	18	16.07%
Staphylococcus epidermidis	8	7.14%
Citrobacter spp	4	3.57%
Streptococcus pyogenes	2	1.78%

The most commonest species isolated was *Pseudomonas aeruginosa* 22 (19.64%), followed by *Staphylococcus aureus* 20 (17.85%), *Proteus* spp 20 (17.85%), *Klebsiella pneumoniae* 18 (16.07%), *E.coli* 18 (16.07%), *Staphylococcus epidermidis* 8 (7.14%), *Citrobacter* spp 4 (3.57%) and *Streptococcus pyogenes* 2 (1.78%).

Table 8: Antibiotic sensitivity pattern of bacterial isolates
(R = Resistant; - = Not tested)

Antibiotic	*Pseudo monas* 22(%)	*Staph aureus 20(%)*	*Proteus*spp 20(%)	*Klebsiella* spp 18(%)	*E.coli* 18(%)	*Staph epidermidis* 8(%)	*Citrobac-ter* 4(%)	*Stre pyogenes* 2(%)
Imipenem (I)	20(90.9)	18(90)	20(100)	18(100)	18(100)	8(100)	4(100)	2(100)
Tetracycline (T)	R	14(70)	4(20)	16(88.8)	R	4(50)	R	2(100)
Piperacillin/Tazobac-tam (Pt)	18(81.8)	-	10(50)	-	8(44.4)	R	R	-
Amikacin (Ak)	16(72.7)	-	6(30)	8(44.4)	12(66.6)	4(50)	2(50)	-
Cefepime (Cpm)	12(54.5)	6(30)	6(30)	6(33.3)	R	-	-	R
Ofloxacin (Of)	18(81.8)	R	-	-	R	2(25)	R	R
Tobramycin (Tb)	14(63.6)	-	8(40)	-	-	2(25)	-	-
Polymyxin B (Pb)	10(45.4)	R	10(50)	-	10(55.5)	R	R	R
Ampicillin (A)	18(81.8)	8(40)	R	R	-	R	4(100)	2(100)
Azithromycin (At)	-	-	-	12(66.6)	12(66.6)	-	1(50)	-
Erythromycin (E)	-	10(50)	-	-	-	4(50)	-	R
Gentamycin (G)	16(72.7)	10(50)	6(30)	4(22.2)	14(77.7)	4(50)	2(50)	-
Co-Trimoxazole (Co)	-	-	-	-	-	R	R	-
Amoxycillin/Clavu-lanic acid (Ac)	R	4(20)	R	-	4(22.2)	R	4(100)	R
Clindamycin (Cd)	-	12(60)	-	R	-	-	-	2(200)
Linezolid (Lz)	-	2(10)	-	-	4(22.2)	2(25)	2(50)	R
Netillin (Nt)	-	-	8(40)	-	8(44.4)	-	4(100)	R
Levofloxacin (Le)	10(45.4)	14(70)	12(60)	4(22.2)	R	-	R	-
Cephoxitin (Cn)	-	6(30)	-	8(44.4)	R	4(50)	R	R
Gatifoxacin (Gf)	-	-	-	8(44.4)	R	6(75)	R	-
Ciprofloxacin (Cf)	20(90.9)	10(50)	10(50)	-	R	R	4(100)	-
Chloramphenicol (C)	12(54.5)	6(30)	12(60)	-	8(44.4)	-	2(50)	-
Cefoperazone (Cs)	14(63.6)	-	-	-	R	-	R	2(100)
Ceftriaxone (Ci)	20(90.9)	-	8(40)	-	8(44.4)	-	-	-
Cephalothin (Ch)	-	-	4(20)	-	6(33.3)	-	-	-

Out of 22 isolates of *Pseudomonas aeruginosa* 20 isolates (90.9%) were sensitive to imipenem, ciprofloxacin, and ceftriaxone, 18 (81.8%) were sensitive to piperacillin/ tazobactam, ofloxacin, and ampicillin, 16 (72.7%) were sensitive to amikacin and gentamycin, 14 (63.6%) were sensitive to tobramycin, and cefoperazone, 12 (54.5%) were sensitive

to cefepime, and chloramphenicol, 10 (45.4%) were sensitive to polymyxin B, and levofloxacin. All 22 (100%) isolates of *Pseudomonas aeruginosa* were resistant to tetracycline and amoxycillin.

Out of 20 isolates of *Staphylococcus aureus,* 18 (90%) were sensitive to imipenem, 14 (70%) were sensitive to tetracycline, 12 (60%) were sensitive to clindamycin, 10 (50%) were sensitive to erythromycin, gentamycin, and ciprofloxacin, 8 (40%) were sensitive to ampicillin, 6 (30%) were sensitive to cefepime, cephoxitin, and chloramphenicol, 2 (10%) were sensitive to linezolid. All 20 (100%) isolates of *Staphylococcus aureus* were resistant to ofloxacin, polymyxin-B.

All 20 (100%) isolates of *Proteus* spp were sensitive to imipenem, 12 (60%) were sensitive to levofloxacin, and chloramphenicol, 10 (50%) were sensitive to piperacillin/tazobactam, polymyxin-B, and ciprofloxacin, 8 (40%) isolates were sensitive to tobramycin, netillin, and ceftriaxone, 6 (30%) isolates were sensitive to amikacin, cefepime, and gentamycin, 4 (20%) were sensitive to tetracycline, cephalothin. All 20 (100%) isolates of *Proteus* spp were resistant to ampicillin and amoxycillin.

All 18 (100%) isolates of *Klebsiella* spp were sensitive to imipenem, 16 (88.8%) were sensitive to tetracycline, 12 (66.6%) were sensitive to azithromycin, 8 (44.4%) were sensitive to amikacin, cephoxitin, and gatifloxacin, 6 (33.3%) were sensitive to cefepime, 4 (22.2%) were sensitive to gentamycin, and levofloxacin. All 18 (100%) isolates of *Klebsiella* spp were resistant to polymyxin-B, clindamycin, ampicillin.

All 18 (100%) isolates of *E.coli* were sensitive to imipenem, 14 (77.7%) were sensitive to gentamycin, 12 (66.6%) were sensitive to amikacin, and azithromycin, 10 (55.5%) were sensitive to polymyxin-B, 8 (44.4%) were sensitive to piperacillin/tazobactam, netillin, chloramphenicol, and ceftriaxone, 6 (33.3%) were sensitive to cephalothin, 4 (22.2%) were sensitive to amoxycillin, and linezolid. All 18 (100%) isolates of *E.coli* were resistant to tetracycline, cefepime, ofloxacin, levofloxacin, cephoxitin, gatifloxacin, ciprofloxacin, and cefoperazone.

All 8 (100%) isolates of *Staphylococcus epidermidis* were sensitive to imipenem, 6 (75%) were sensitive to gatifloxacin, 4 (50%) were sensitive to tetracycline, amikacin, erythromycin, gentamycin, cephoxitin, 2 (25%) were sensitive to ofloxacin (Methicillin Sensitive *Staphylococcus epidermidis*), tobramycin, linezolid. All 8 (100%) isolates of *Staphylococcus epidermidis* were resistant to piperacillin/tazobactam, polymyxin-B, ampicillin, co-trimoxazole, amoxycillin and ciprofloxacin. Out of 8 isolates of *Staphylococcus epidermidis,* 6 (75%) were resistant to ofloxacin (Methicillin Resistant *Staphylococcus epidermidis*)

We have isolated 4 strains of *Citrobacter* spp; all (100%) of them were sensitive to imipenem, ampicillin, amoxycillin, netillin, ciprofloxacin, whereas 2 (50%) were sensitive to amikacin, azithromycin, gentamycin, linezolid, and chloramphenicol. All the 4 isolates (100%) of *Citrobacter* spp were resistant to tetracycline, piperacillin/tazobactam, ofloxacin, polymyxin-B, co-trimoxazole, levofloxacin, cephoxitin, gatifloxacin, and cefoperazone.

All 2 isolates of *Streptococcus pyogenes* were sensitive (100%) to imipenem, tetracycline, ampicillin, clindamycin, cefoperazone and were resistant (100%) to cefepime, ofloxacin, polymyxin-B, erythromycin, amoxycillin, linezolid, netillin, and cephoxitin.

DISCUSSION

Ravisekhar[4] *et al* in his clinico-microbiological study of diabetic foot ulcers in an Indian Tertiary Care Hospital on 80 cases reported that the mean age of the patients was 53.9 ± 12.1 years. Widatalla[5] made a study in 2,231 patients with diabetic foot ulcers and reported their mean age was 55 ± 12 years. Bansal[6] *et al* carried out a prospective study on 103 diabetic patients at Government Medical College, Chandigarh and reported that 81 (78.64%) were men and 22 (21.36%) were women. Chincolikar[7] *et al* investigated bacterial and fungal infections of diabetic foot among 105 patients and reported that 71 were males and 34 were females, the male female ratio being 2 : 1.

Anandi *et al*[6] by investigating bacteriology of diabetic foot lesions among 107 patients and reported that 62 patients presented with ulcers, 28 cases with cellulitis and 17 cases with gangrene. Bansal *et al*[7] made a prospective study on 103 diabetic patients and reported that 26 patients (25.24%) were with diabetes for less than or equal to 5 years duration, 27 cases (26.21%) were of 5 – 10 years duration and 50 cases (48.54%) were with diabetes for more than 10 years duration. Our results were compared with other studies. Bansal[7] reported polymicrobial infection in 35% of cases. Chincholikar[8] observed polymicrobial infection in 69.5% of cases. Anandi[6] reported polymicrobial etiology in 64.4% and monomicrobial etiology in 19.6% of cases.

Pathare *et al*[11] evaluated over a two year period of microorganisms associated with different Wagner grades of diabetic foot infections. Most of the diabetic foot wounds were found to be polymicrobic in nature with an average of 3.07 organisms isolated per case studied. Amongst a total of 775 clinical isolates, 71.09% were aerobic, whereas 28.91% were anaerobic pathogens. Gram positive organisms like *Staphylococcus* spp and *Streptococcus* spp formed almost 50% of the clinical isolates in the last two grades. There was a significant increase in the Gram negative organisms and anaerobes in the last two grades.

Anandi[6] investigated bacteriology of diabetic foot lesions among 107 patients and reported aerobic bacterial isolates *Pseudomonas* spp 20 (11.3%), *E.coli* 49 (27.7%), *Klebsiella* spp 24 (13. 6%), *Proteus* spp 30 (16.9%), *Enterobacter* spp 17 (9.6%), *Enterococcus* spp 13 (7.3%) and *Staphylococcus aureus* 24 (13.6%). Chincholikar[8] made a study on 105 cases and the

most frequently isolated organisms were *Staphylococcus aureus* 50 (31.25%), *Pseudomonas aeruginosa* 31 (19.38%), *E.coli* 25 (15.63%), *Klebsiella pneumoniae* 13 (8.13%), *Proteus* spp 10 (6.26%) and *Streptococcus pyogenes* 9 (5.63%).

Ravisekhar[4] reported that *Staphylococcus aureus* exhibited a high frequency of resistance (56%) to the antibiotics tested. In a study by Chincholikar *et al*[8] more than 74% strains of aerobic Gram positive cocci were sensitive to cephalosporins i.e. cefalothin (86.36%), cefoxitin (86.30%), and cefotaxime (74.24%). They were found to be more sensitive to chloramphenicol (95.45%) and amoxycillin (92.45%), ciprofloxacin (72.27%), penicillin (50%), and erythromycin (46.97%). Among the aerobic Gram negative bacilli, more than 70% strains were sensitive to aminoglycosides i.e. amikacin (95.74%), gentamycin (70.21%), and cefotaxime (69.14%). Bansal[7] reported that more than 75% strains of Gram positive cocci were sensitive to cephalosporins. Cefoperazone+sulbactam showed around 85% sensitivity, while ciprofloxacin and gentamycin were about 65% sensitive. Citron[9] reported that all aerobic Gram positive strains were fully susceptible to vancomycin, daptomycin, and linezolid. Piperacillin/tazobactam and amoxycillin-clavulanate were the next most active drugs against the Gram positive aerobes, with resistance noted only in oxacillin-resistant *Staphylococcus aureus* (MRSA) and certain strains of coagulase negative staphylococci. Among the Gram negative organisms, *Stenotrophomonas maltophila* was resistant to most antibiotics tested. *Pseudomonas aeruginosa* strains and the *Enterobacteriaceae* group were largely susceptible to imipenem, piperacillin/tazobactam, ceftazidime, aminoglycosides and ciprofloxacin. Piperacillin/tazobactam and the quinolones were active against more than 90% of the Gram negative organisms, while amoxycillin-clavulanate, doxycycline and cephelexin were the least active of the drugs tested. Ertapenem is known to have poor activity against *Pseudomonas aeruginosa*. Varaiya *et al*[10] reported that, of the 230 isolates of *Pseudomonas aeruginosa*, 60 (26%) were found resistant to carbapenems (both imipenem and meropenem).

CONCLUSIONS

Through the critical analysis of the observations made and results obtained from the present investigations, certain conclusions were drawn. Aerobic bacterial infections of diabetic foot were more common during sixth, fifth, fourth and third decades of life with a median of 54.5 years and the mean age 53.4 years. Infections were more common among males than females, and among farmers. This may be attributed to their frequent exposure to soil, occupationally without foot wear. Majority of patients presented diabetic foot infection as cellulitis followed by ulcer and gangrene. Infections were more common among patients with duration of 6 – 10 years of diabetes.

Pseudomonas aeruginosa was the commonest isolate followed by *Staphylococcus aureus.* For the time being, the degree of antibiotic resistance of aerobic bacterial pathogens isolated from aerobic bacterial infections of diabetic foot patients is not alarming, but global trends of increase and dissemination of resistant strains show the necessity of keeping up the monitoring the antibiotic resistance. However, we noticed a high degree of resistance by *E.coli* and *Citrobacter* spp to commonly used antibiotics.

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Review Article

Ultrasound Guided Central Venous Catheterization – A Review

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Key words: Catheterization, Central venous, Ultrasonography, Interventional.

ABSTRACT

Central venous catheter is a catheter placed in one of the three big veins in human body which are the internal jugular, the subclavian and the femoral veins. This has been used for giving fluids or medications, for sampling (mixed venous blood) and most importantly for measuring central venous pressures. Thus, it has been an essential monitoring guide for anesthesiologists and intensivists worldwide. However, it comes with equal risk of injuring the surrounding structures. Ultrasound guidance for central venous catheterization has become a rule in the west and is an upcoming topic of interest for anesthesiologists in third world countries. USG guidance is of utmost importance in cases of difficult cannulation, short neck, cases requiring inotropic support or in cases where the patient is severely dehydrated. Landmark guided technique has shown to be risky in all these cases as the normal anatomy may be distorted. This is where USG guided technique has a huge edge over the traditional landmark guided technique. This review summarizes the advantages and process of ultrasound guided central venous catheterization.

INTRODUCTION

Central venous catheterization (CVC) is an essential tool for anesthesiologists worldwide. It is used to access the central circulation in patients who require invasive hemodynamic monitoring, inotropic support, parenteral nutritional support and administration of long term medication such as chemotherapy. It is also used for temporary transvenous pacing or in patients with inadequate peripheral lines, for frequent blood sampling and also for hemodialysis[1]. However, insertion of CVC comes with associated complications which can range from 5 - 19%[2,3,4]. It is thus very important that insertion complications such as arterial puncture, nerve puncture, pneumothorax or hemothorax is minimized[2].

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METHODS

Traditionally, CVC insertion has been conducted by palpating or visualizing the anatomic structures with known relationship to the desired vein as the landmark and hence is considered "BLIND" procedure[3]. Anatomical landmarks include sternocleidomastoid muscle for internal jugular vein, clavicle for subclavian vein and inguinal ligament for femoral vein. However, this blind technique of CVC insertion comes with numerous complications as mentioned earlier especially if the operator is inexperienced. Patients with certain medical conditions such as coagulopathies, Cushing`s disease, morbid obesity, hypovolemic or with severe respiratory compromise, prove to be difficult case even for an experienced anesthesiologist[5]. In patients with head and neck malignancies who have undergone radiation therapy leading to distortion of the normal anatomic structures in the neck, patients who are unable to assume supine position, traditional method as described, carries a high risk for creating complications.

Ultrasound has been evaluated as an adjunct to central venous

access. Several meta-analyses have reviewed the advantages of ultrasound guided CVC insertion as compared to landmark guided technique since Ullman and Stoelting described its first use back in 1978[6]. Ultrasonography has shown to facilitate higher success rate, faster insertion time, decrease the attempts before successful cannulation and lower complication rate[3,8]. In studies comparing USG guided CVC insertion and landmark guided technique, the rate of carotid artery puncture decreased approximately by 7%[3]. Similarly, in a study done by Curt *et al*, the incidence of carotid puncture was 25% by landmark technique, while no puncture occurred with the help of ultrasonography[9].

However, USG guided CVC placement costs include purchase of machine, staff training and maintenance of the machine. Although the benefit of USG in central line insertion over landmark guided technique is quite low[9], the technique is not very expensive[6].

B-mode ultrasonography for CVC insertion

This allows a detailed evaluation of vascular anatomy and structural characteristics. It helps in providing the information about vessel size, presence of any luminal obstruction and other morphological anomalies. Arteries appear to have relatively "thick" hyperechoic (white) walls and anechoic (black) lumens. Veins on the other hand, consist of less smooth muscle and compliant walls hence have hypoechoic (grey) walls and anechoic lumens[3]. Veins are compressible and collapse with the probe whereas arteries don`t. This is a useful characteristic to distinguish between venous and arterial images. 7.5 MHz linear transducer is most commonly used for ultrasound guided CVC placement. This high frequency transducer is used as it facilitates imaging of the superficial structures.

Fig 1: Longitudinal view of internal jugular vein overlying carotid artery

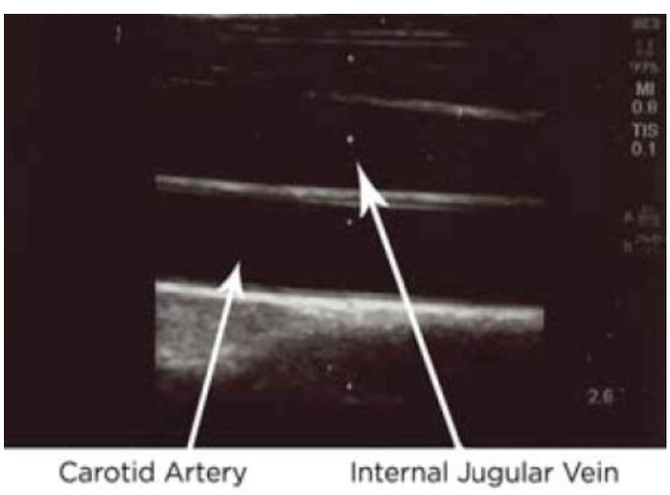
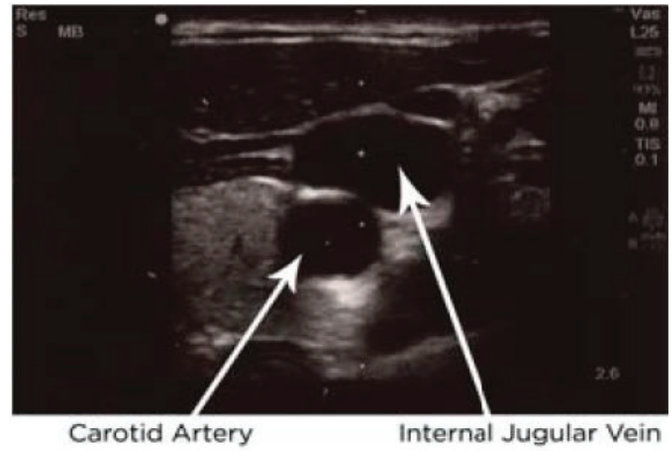


Fig 2 : Cross sectional view of internal jugular vein and carotid artery



Procedure

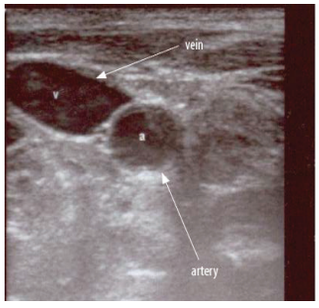
It is important that sterility is maintained while carrying out the procedure. Sterile barriers are available for use during USG guided central venous catheterization. These barriers cover the transducer and its cable and are made up of rubber or plastic materials. Alternatives such as sterile gloves can be used.

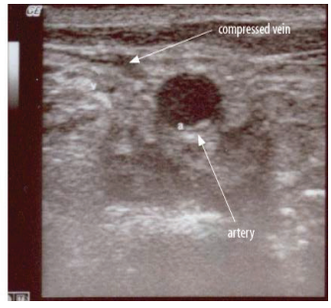
Ultrasound may be used to assist the placement of CVCs in either "Static" or "Dynamic" also known as real time method. In static method, the USG probe is used to assess for vessel location and patency prior to skin puncture which is then followed by the procedure without the sonographic assistance. In dynamic method, the probe is draped in sterile sheath and is used to guide the needle until the vessel is punctured. Comparing landmark guided technique with static and dynamic ultrasound for CVC placement, the success rate was 64%, 82% and 98% respectively. Thus 2001 AHRQ guidelines strongly recommended real time, dynamic method of USG guidance for CVC placements[10].

Vessel visualization can be done by either long axis or short axis view. The short axis view provides visualization of the vessels in the transverse plane and is produced by placing the long axis of transducer perpendicular to the long axis of the vessel. Then, the veins with its corresponding artery appear circular or oval in shape. The long axis view aids in visualization of the vessel in the longitudinal plane and is produced by placing the transducer over the vessel i.e. the long axis of the transducer is parallel to the long axis of the prospective vessel. This view allows only a single vessel to be maintained in field of vision

and the anatomic relationship between the vessels cannot be identified.

Fig 3 & 4 : Thick hyperechoic arterial vessel wall and thin compressible hypoechoic venous wall. Both the vessels have anechoic lumens





Approach

Short axis

The transducer is placed in the area above the prospective vein in sterile fashion and then the approach is planned. The skin entry should be chosen to maximize the chance of needle piercing the vessel wall. Nemcek[11] recommended the skin piercing angle be 45 degrees to the transducer and the distance between the skin piercing site and the transducer be equal to distance between the vessel and transducer.

Adequate local anesthetic is injected over the access site. Then, on puncturing the skin, the operator should identify hyperechoic needle image on monitor. It appears as hyperechoic (white) point in the field of view or as hypoechoic (grey) as the signal only interacts with the cross section of the vessel[12]. Tenting of the vessel wall is seen when the needle comes in contact with the anterior wall of the vessel. The vein slightly collapses before the puncture and re-expands after the needle enters into the vessel. A flash of blood is noted in the syringe upon aspiration. As the vessel is accessed, the transducer is released and standard aseptic catheter introduction is carried out[13,14].

Long axis approach

In this approach, Abbound *et al*[15] recommend piercing the skin just outside one edge of the transducer and inserting the needle at 30 degree angle to the skin surface. Here, the needle tip and the shaft will be visualized along their course due to wider sonographic view provided by the long axis view.

It carries certain disadvantages, as it is difficult to place the transducer longitudinally in neck or the groin region.

Central vein cannulation specific vessels

1) Internal jugular vein (IJV)

Typically, IJV lies anterior and slightly lateral to carotid artery. However, ultrasonography 54% of cases, IJV overlied carotid artery and there is high chance of puncturing of the artery if the cannulating needle transverses the vein. Patient is positioned trendelenberg and 30 degree head rotation to the opposite side is done. The transducer is then placed just cephalad to clavicle and insertion of needle is carried out between the two heads of the sternocleidomastoid muscle in short axis view.

2) Femoral vein

The femoral vein lies just medial to the femoral artery. For CVC placement, the ipsilateral hip is slightly to fully externally rotated. The transducer is placed 1 – 2 cm distal to inguinal ligament. For short axis view of the vessel, the transducer is placed parallel to the inguinal ligament. As the arterial and venous structures are identified, the transducer is placed so as the target vein appears in the center.

3) Subclavian vein

The subclavian vein lies anterior and inferior to subclavian artery. Anatomically, it lies close to important structures as lung, pleura, subclavian artery and brachial plexus. There are two approaches infraclavicular and supraclavicular. The supraclavicular approach requires holding the transducer just superior to the clavicle. This is less favorable as there is pain due to constant pressure over the clavicle. In the infraclavicular approach, cannulation may be at the level of axillary vein. Here, the patient is supine with 15 degree trendelenberg position and the ipsilateral arm is abducted by 45 degrees. Then, the axillary vessels are imaged just caudal to lateral aspect of clavicle. The artery is generally cephald to the vein.

CONCLUSIONS

Though with much advantage as mentioned earlier, USG guided CVC insertion will not be used frequently especially in the third world countries even in years to come firstly because of the lack of ultrasound equipment though it has been proven to be cost effective and secondly due to lack of familiarity of the technique among anesthesiologists.

However, there is always room for improvement and in near future USG guided CVC insertion will become standard practice. Thus, it would be necessary for every anesthetist to become familiar with the procedure and be capable enough to perform it for the benefit of the patient.

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Case Report

Myomectomy- An Early Experience

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Key words:
Myomectomy,
Uterine artery embolization,
Uterine fibroids.

ABSTRACT

Objectives: Myomectomy is a specific procedure for removal of fibroid uterus instead of hysterectomy. The skill of surgery is disseminated among the gynecologists by providing regular service for the needy patients.

Methods: Observational, cross-sectional (prevalence with individuals as unit of study). Pateint was admitted on 8th Novermber, 2011 and posted for myomectomy which was performed on 17th November, 2011. Abdomen was opened through the previous scar.

Results: Per-operatively 4 fibroids were found located in the fundus among which 2 were of orange ball size, 1 hen's egg size, and the smallest was of walnut size. Post-operative period was uneventful. Drain removed on 2nd and all stitches on the 9th post-operative day. She was followed up on 21st day in GOPD and found to be recovered fully.

Conclusions: We should start myomectomy rather than hysterectomy for young women who desire children in the future.

INTRODUCTION

Leiomyomas are the most common tumors of the uterus and the female pelvis. Leiomyomas occur in 20 - 25% of women of reproductive age, arising from the smooth muscle and soft tissue of the uterine fundus and corpus while 3% originate from the cervix and a few arise from the broad ligament.

Leiomyomas are associated with infertility. It is estimated that 2 - 3% of infertility cases are due solely to leiomyomas. Their putative effects include occlusion of tubal ostia and disruption of the normal uterine contraction that propel sperms, ova and gametes.

Distortion of the endometrial cavity may diminish implantation and sperm transport. Importantly, leiomyomas are associated with endometrial implantation and vascular changes that may disrupt implantation of the zygote.

There is stronger association of sub-fertility with submucus leiomyomas than with tumor located else-where, improved pregnancy rates following hysteroscopic resection have provided most of the indirect evidence for this link.

It has been reported that it is equally good *in vitro* fertilization success rates in women with and without submucus leiomyomas that did not distort the endometrial cavity. Both uterine leiomyomas and spontaneous miscarriages are common. Indirect evidence comes from studies that cite tumors significantly lower abortion rates following resection.

For symptomatic tumors, surgery is the definitive treatment to preserve fertilities and to limit the risk of leiomyomas recurrence.

Myomectomy, i.e. resection of tumors is an option for symptomatic women who desire future child-bearing or for those who decide hysterectomy. This can be performed laparoscopically, hysteroscopically, robotically or by

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laparotomy. Myomectomy usually improves pain and bleeding and helps in fertility[1-9].

Uterine artery embolization (UAE) is an increasingly popular alternative to hysterectomy and myomectomy as a treatment for the uterine fibroids. It was first reported as an effective primary treatment for symptomatic fibroids in 1995 by Ravina *et al*[10]. The therapeutic effect of UAE is thought to result from unrecoverable post-embolic ischaemic change within the fibroids leading to fibroid necrosis and volume reduction with subsequent symptomatic improvement. Hospital stay and recovery of the normal milestones are significantly shorter in UAE compared to surgery. But whether this procedure is safe for women desiring future fertility is controversial.

The literature on pregnancies after uterine embolization is limited to case reports or clinical studies investigating the safety and effectiveness for fibroids reduction and symptoms relief. The efficacy of *in vitro* fertilization in women having undergone embolization is also an emerging consideration for both infertile women with fibroids and treating physicians. Women desiring fertility should be apprised of potential risks of UAE, including the small chance of premature ovarian failure (1%) and even a lower possibility of hysterectomy (0.5%) because of infection following UAE.

Till date the evidence suggests that women who desire pregnancy but experience sub-fertility or recurrent miscarriages due to fibroids who are unsuitable to hysteroscopic removal or myomectomy, or whom myomectomy has failed can be offered UAE as a safe and effective alternative.

History

A 30 year old lady from Syangja presented to WRH for heavy bleeding per vagina for the preceding two weeks. Her last menstrual cycle was 3 weeks before presentation. She had undergone emergency LSCS for fetal distress 6 years ago. She does not have significant medical illness and use of contraceptives in the past.

Clinical examination

She was weak pale lady with blood pressure 100/60 mmHg and hemoglobin only 5.6 gm%. Other general findings were with in normal limits. Cardio-vascular examination was unremarkable. Per abdomen examination revealed a vertical scar of previous LSCS, a side to side mobile firm, non-tender mass of 16 weeks size in the hypogastrium. No bruit heard.

Per vaginal examination revealed active bleeding. The mass moved with the cervix and both fornices were free.

Ultrasonography

USG revealed fibroid uterus of 16 cm.

Preparation

She was admitted on 8th November, 2011. Her hemoglobin was raised to 10 gm% by transfusion. Patient posted for myomectomy which was performed on 17th November, 2011. Abdomen was opened through the previous scar.

Operation

Uterine incision was vertical on the anterior surface of the fundus over the myoma as close to the midline as possible. All myomas were removed through the single incision. Excess myometrium was trimmed out and myoma bed closed with interrupted figure of 8 stitches with 2/0 vicryl. Due precaution was taken to avoid occlusion of the uterine vessels, the endocervical canal and the interstitial portion of the fallopian tube. The serosal edge of the uterine incision was approximated with continuous stitches with 3/0 vicryl. A drain was kept in the pelvis. Abdominal wound was closed. Since the uterine cavity was opened during the procedure dilatation of the cervix and drainage the accumulated blood from the uterine cavity was done.

OBJECTIVES

Myomectomy is a specific procedure for removal of fibroid uterus instead of hysterectomy. The skill of surgery is disseminated among the gynecologists by providing regular service for the needy patients.

METHODS

Observational, cross-sectional (prevalence with individuals as unit of study).

RESULTS

Per-operatively 4 fibroids were found located in the fundus among which 2 were of orange ball size, 1 hen's egg size, and the smallest was of walnut size.

Post-operative period was uneventful. Drain removed on 2nd and all stitches on the 9th post-operative day.

She was followed up on 21st day in GOPD and found to be recovered fully.

Although she recovered from the disease the final result of a baby on her lap is yet to see.

DISCUSSION

MRI guided focused USG is the gold standard procedure for localization of the tumor and differentiation between uterine leiomyomata, diffuse and localized adenomyosis, diffuse leiomyomatosis, various degree of cellularity, degeneration, necrosis and calcification. MRI can detect sarcomatous changes in the myoma but given the greater cost of MRI we could not perform this test on her. IVU and HSG was not available in our hospital so we took risk in this regard with the back up of surgical team. It is very significant to know the number and size of the fibroids. Surgery is recommended if size of the fibroid is >7 cm and 3 in number or more than 4 cm and multiple in number. Peri-operative antibiotics coverage was given. Although there are better said approaches for the surgery,

open abdominal approach is the conventional one and that we followed because this was the very first case in our hospital. Unlike it is suggested initially, it is not necessary to perform from the anterior surface of the uterus with single incision. Surgery can be performed by multiple incisions at various sites of the uterus also by laparoscopically. Sub-mucosal fibroid can be removed by hysteroscopy with equally good success rate and better recovery (short hospital stay). Robotic surgery for myoma is equally safe, successful and established in higher centers. Laparoscopic, hysteroscopic and robotic surgeries are out of our reach till now although they are better.

CONCLUSIONS

Although we cannot afford robotic surgery but laparoscopic surgery would have been started. At least we should start myomectomy rather than hysterectomy for young women who desire children in the future. In properly selected cases the results are satisfactory.

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On the title page give: (1) the title of the article; (2) the name and initials of each author; (3) the department and institution to which the work should be attributed; (4) the name, postal and e-mail addresses, telephone and facsimile numbers of the author responsible for correspondence and to whom requests for reprints should be addressed; (5) running title; (6) sources of financial support.; and (7) the category in which the manuscript is being submitted (orginal article, review, etc.).

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