

Original Research Article

Spectrum of ear, nose and throat disorders among children reporting to the out-patient department of a tertiary care center, Nepal

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ABSTRACT

Background: Ear, nose and throat (ENT) problems are more common in children than adults. The objective of this study was to know the occurrence of various ENT disorders among children reporting to the out-patient department of a tertiary care center and to see their associations with three age-groups.

Methods: A prospective cross-sectional study was conducted in the Out-Patient Department of Ear, Nose and Throat from 2016 to 2017. All the patients of age group 0-16yrs were included in the study. Informed consent or ascent from the patients and permission from their parents were taken. Detailed history taking, clinical examinations and appropriate investigations were performed and recorded in a pre-formed proforma. Data were entered into Microsoft Excel format 2013 and statistical analysis was done with SPSS 20 version.

Results: A total of 968 patients were examined, males 633(65.4%) and females 335(34.6%). The spectrum of ENT disorders reported were chronic suppurative otitis media (CSOM) 126 (13.0%), Otitis media with effusion (OME) 113 (11.7%), acute otitis media (AOM) 98 (10.1%), otomycosis with otitis externa 59 (6.1%), wax 36 (3.7%), foreign body ear (FB ear) 11 (1.1%), acute mastoiditis 22 (2.3%), acute rhinitis 35(3.6%), chronic sinusitis 33(3.4%), deviated nasal septum (DNS) 34 (3.5%), FB nose 21 (2.2%), vestibulitis with epistaxis 20 (2.1%), injury/trauma 11 (1.1%), tonsillitis 89 (9.2%), adenoid hypertrophy 71 (7.3%), acute pharyngitis 52 (5.4%), chronic pharyngitis 46 (4.7%), cervical lymphadenitis 37 (3.8%), FB esophagus 8 (0.8%) and laryngitis 12 (1.2%). CSOM was significantly associated with the age-groups 5-9 yrs whereas, AOM with 0-4 yrs. Adenoid hypertrophy was significantly associated with 0-4 yrs whereas, pharyngitis with 10-16 yrs.

Conclusions: Most common ENT disorders reported were ear disorders and second most common throat disorders. Significant associations were found between disorders and age-groups.

Keywords: Otitis media, Otological disorders, Otorhinolaryngology, Rhinological disorders

INTRODUCTION

ENT problems are one of the most common causes among children that warrant a visit to the doctor. Paediatric population forms a considerable proportion of the total world's population.¹ Seasonal cough and cold, earache, sore throat are very common in children. Many of the times, the treatments for these are done at home.

When the symptoms become more serious, then only the children are normally brought to the doctor. Fortunately, fatality is very low in such cases except in cases of emergencies, but complications do occur.^{2,3} Ear, Nose, Throat problems are more common in children than adults. This could be due to various factors such as wider and horizontal Eustachian tube, under developed immunity, malnourishment, poor hygiene and sanitary

conditions, overcrowding, lower socioeconomic status etc.⁴

The pattern of these diseases may vary from community to community or hospital to hospital based on the availability of specialist personnel or facilities for the management of such diseases which are either congenital or acquired in origin.

The objective of this study was to know the various ENT disorders among children reporting to the out-patient department of a tertiary care center and to see their associations with age and gender so that an idea of the prevalent ENT disorders can be drawn.

METHODS

A prospective cross-sectional study was conducted in the Out-Patient Department of Ear, Nose and Throat at a tertiary care center, Kathmandu, Nepal. Duration of study was one year from June 2016 to June 2017. All patients presenting with ENT problems and ranging in age-group from 0-16 yrs were included in the study with their ascent and permission of their parents. Where appropriate informed consent was taken from the patients.

Detailed history taking and clinical examinations were performed and recorded in a pre-formed proforma. Where necessary, otoscopy, rhinoscopy, throat examination, appropriate x-rays, culture sensitivity etc. were done depending on the need of the presenting complaint.

All the data were entered into Microsoft Excel format 2013 and statistical analysis was done with SPSS 20 version. Descriptive analysis was done and Chi-square test was used to see associations.

RESULTS

Table 1: Demographic structure.

| Characteristics | N (%) |
|--------------------|------------|
| Age | |
| 0-4yrs | 320 (33.1) |
| 5-9yrs | 364 (37.6) |
| 10-16yrs | 284 (29.3) |
| Sex | |
| Male | 633 (65.4) |
| Female | 335 (34.6) |
| Family type | |
| Joint family | 673 (69.5) |
| Nuclear family | 295 (30.5) |
| Total: | 968 (100) |

A total of 968 patients were examined ranging in age from 0-16 yrs during the year 2016-2017. Among them males were 633 (65.4%) and females 335 (34.6%) (Table 1). Otolological disorders were the most commonly

reported 482 (49.8%), followed by throat and Neck disorders 322 (33.2%) (Table 2).

Ear disorders as a whole was more common among the age-group 0-4 yrs, after that among 5-9 yrs. Throat disorders as a whole was more common among the age-group 10-16 yrs, then 5-9 yrs (Figure 1). Sixty nine and half percentage of the patients who reported during the year were from joint family (Table 1).

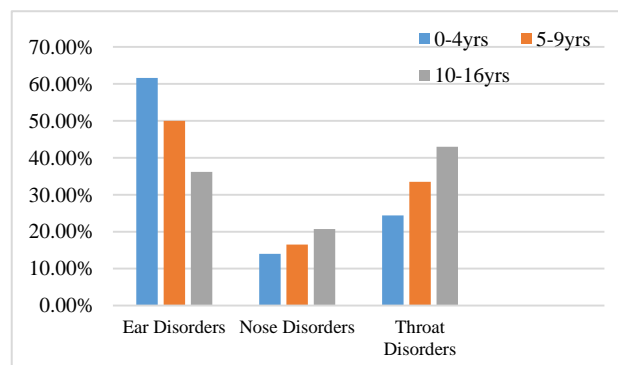


Figure 1: ENT disorders among various age-groups of children.

Similarly, when the relation of the disorders was seen with respect to gender, ear disorders as a whole was more common among males and throat disorders as a whole among females (Figure 2).

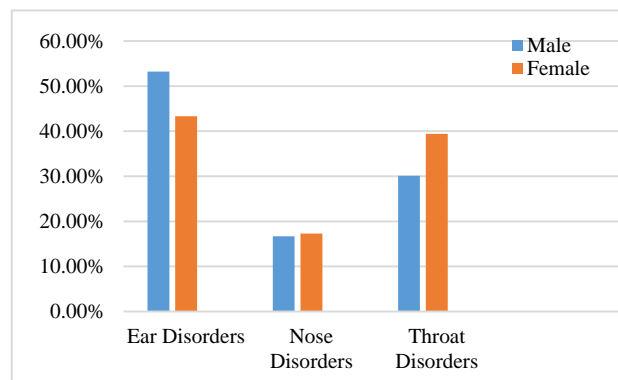


Figure 2: ENT Disorders among the two genders.

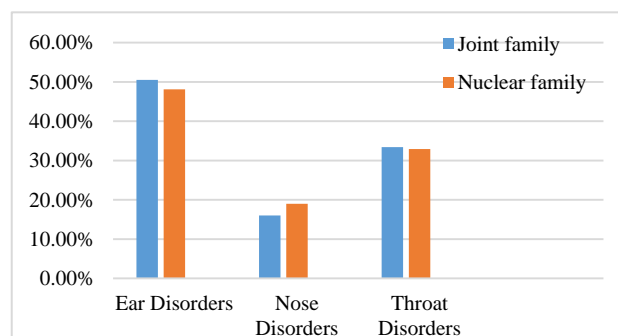


Figure 3: ENT Disorders among children of the two types of family.

The spectrum of ENT disorders, their percentage occurrence and associations with three-age-groups of children are shown in table below (Table 2).

The most common ear disorder reported was CSOM 126 (13.0%), nose disorder was acute rhinitis 35 (3.6%) and throat disorder was tonsillitis 89 (9.2%).

Among 0-4 yrs the most common ear disorder reported was AOM 62 (19.4%), 5-9 yrs CSOM 66 (18.1%), 10-16 yrs CSOM 42(14.9%).

Similarly, the most common nose disorder among 0-4 yrs was FB nose 17(5.3%), 5-9 yrs was acute rhinitis 18 (5.0%) and 10-16 yrs was chronic sinusitis 29 (10.2%).

The most common throat disorder among 0-4 yrs was adenoid hypertrophy 42 (13.1%), 5-9 yrs was cervical lymphadenitis 31 (8.5%) and tonsillitis 30 (8.2%), 10-16 yrs chronic pharyngitis 34 (12%) after that tonsillitis 31 (10.9%) and acute pharyngitis 30 (10.6%).

Table 2: Spectrum of ENT disorders among children and their association with age-groups.

| Disorders | Age (in years) | | | P value | Total N (%) |
|--|-----------------------------|--------------|----------------|-----------|----------------|
| | 0-4 N (%) | 5-9 N (%) | 10-16 N (%) | | |
| Ear disorders (n=482) | CSOM | 18 (5.6) | 66 (18.1) | 42 (14.9) | 126 (13.0) |
| | OME | 59 (18.4) | 32 (8.8) | 22 (7.7) | 113 (11.7) |
| | AOM | 62 (19.4) | 21 (5.8) | 15 (5.3) | 98 (10.1) |
| | Otomycosis & Otitis Externa | 18 (5.6) | 32 (8.8) | 9 (3.2) | 59 (6.1) |
| | Wax | 12 (3.8) | 18 (5.0) | 6 (2.1) | 36 (3.7) |
| | FB ear | 5 (1.6) | 3 (0.8) | 3 (1.0) | 11 (1.1) |
| | Acute Mastoiditis | 18 (5.6) | 4 (1.1) | 0 (0.0) | 22 (2.3) |
| | Others | 5 (1.6) | 6 (1.6) | 6 (2.1) | 17 (1.7) |
| Nose disorders (n=164) | Acute Rhinitis | 7 (2.2) | 18 (5.0) | 10 (3.5) | 35 (3.6) |
| | Chronic sinusitis | 0 (0.0) | 4 (1.1) | 29 (10.2) | 33 (3.4) |
| | DNS | 12 (3.8) | 16 (4.4) | 6 (2.1) | 34 (3.5) |
| | FB nose | 17 (5.3) | 4 (1.1) | 0 (0.0) | 21 (2.2) |
| | Vestibulitis with Epistaxis | 7 (2.2) | 8 (2.2) | 5 (1.8) | 20 (2.1) |
| | Injury/trauma | 0 (0.0) | 6 (1.6) | 5 (1.8) | 11 (1.1) |
| | Others | 2 (0.6) | 4 (1.1) | 4 (1.4) | 10 (1.0) |
| Throat and neck disorders (n=322) | Tonsillitis | 28 (8.7) | 30 (8.2) | 31 (10.9) | 89 (9.2) |
| | Adenoid hypertrophy | 42 (13.1) | 22 (6.0) | 7 (2.5) | 71 (7.3) |
| | Acute pharyngitis | 5 (1.6) | 17 (4.7) | 30 (10.6) | 52 (5.4) |
| | Chronic pharyngitis | 0 (0.0) | 12 (3.3) | 34 (12) | 46 (4.7) |
| | Cervical lymphadenitis | 0 (0.0) | 31 (8.5) | 6 (2.1) | 37 (3.8) |
| | FB esophagus | 2 (0.6) | 5 (1.4) | 1 (0.3) | 8 (0.8) |
| | Laryngitis | 0 (0.0) | 2 (0.5) | 10 (3.5) | 12 (1.2) |
| | Others | 1 (0.3) | 3 (0.8) | 3 (1.0) | 7 (0.7) |
| Total | 320 (100) | 364 (100) | 284 (100) | 968 (100) | |

DISCUSSION

In this study male patients were predominant in number which is similar to the study done by Rijal AS et al.⁵ Whereas in a similar study conducted in India females were predominant.¹ Sixty nine and half percentage of the children were from joint family which supports the conclusions drawn by other studies that children living in overcrowded family are more prone to ENT disorders.^{1,6}

In our study otological disorders were most common 49.8%, followed by throat disorders 33.2% and nose disorders 16.9% which is similar to the findings of other studies.⁵⁻⁷ The most common ear disorder reported in our study was CSOM 13.0%, nose disorder was acute rhinitis

3.6% and throat disorder was tonsillitis 9.2%. In other similar studies the most common ear disorder seen was wax impaction.⁵⁻⁸ A low occurrence of wax 3.7% and high occurrence of CSOM in our study may be due to the fact that the study was conducted in a tertiary care center which is considered the ultimate referral center of Nepal, a government hospital for poor patients where patients come with complicated diseases.

CSOM is a major health problem throughout the world in developing countries including Nepal. It is the most common cause of persistent mild to moderate hearing impairment and more commonly found in children of government school and rural areas.⁷ Second most common ear disorder reported was OME 11.7% and 3rd

AOM 10.1%. Nepali et al, Acharya et al and Thakur et al have reported CSOM as second most common ear disorder, first being wax.⁶⁻⁸ Whereas, Emerson et al reported AOM as most common ear problem in children.⁹ Rijal et al reported AOM as most common ear disorder after wax.⁵

Our study is different from other similar studies in that we attempted to see associations between three age-groups (0-4 yrs, 5-9 yrs, 10-16 yrs) and ENT disorders. Significant associations were found ($p < 0.001$) (Table 2).

CSOM was significantly associated with the age-groups 5-9 yrs where as, AOM was significantly associated with 0-4 yrs. In the study conducted by Rijal et al, the three year olds had the highest number of otological diseases (AOM most common after wax).⁵ The age of onset of AOM is indirectly proportional to the chronicity of the disease; that is, early onset of AOM predisposes to chronic otitis media.⁹ But, in our study CSOM was more common among the age-group 5-9 yrs. This may be due to one of the limitations of the study that all the patients, whether new or follow-up patients were included in the study.

AOM presents with local and systemic signs and has a rapid onset and is a leading cause of antibacterial treatment for children in developed countries. OME can occur during the resolution of AOM once the acute inflammation has resolved but bacteria may still be present, while CSOM requires ongoing inflammation of the middle ear leading to otorrhea persisting for at least four weeks and perforation of the tympanic membrane.^{10,11}

Acute rhinitis, the most common nose disorder reported in our study and deviated nasal septum were somewhat more common among 5-9 yrs children but, the association cannot be considered significant. Chronic sinusitis was significantly associated with 10-16 yrs. Tonsillitis, the most common throat disorder reported in our study was not significantly associated with any of the age-groups. Adenoid hypertrophy was significantly associated with 0-4 yrs. Acute pharyngitis and chronic pharyngitis were significantly associated with 10-16yrs. Nepali et al. also reported rhinitis as the most common nose disorder but, pharyngitis as the most common throat disorder among children.⁶ Similar to our study, the most common ear, nose and throat disorders in a study conducted by Kishve et al, were otitis media (18.25%), rhinitis (5.8%) and tonsillitis (11.7%) respectively.¹²

In a three years record based, retrospective, cross-sectional study of emergency cases conducted by Barman et al. ear emergencies were found to be far more common than nose and throat emergencies but, the most common ear emergencies were earache due to impacted wax, acute suppurative otitis media, foreign body ear and the trauma/injury. Chronic suppurative otitis media with

complications were the least common emergency condition according to Barman's study.¹³

The ENT diseases among the school going children can have a detrimental effect on their school performances. This was seen in a study by Egeli et al which showed that school going children with rural background have a higher incidence of ENT disorders and this had a negative effect upon their school performances when compared with children from the urban background.¹⁴

High incidence of CSOM among children was also seen in a study conducted by Varute et al, in a rural area who concluded that it may be due to low socio-economic factors, illiterate mothers, overcrowding in the family, low economic status, wrong feeding habits and since the area was rich in sugar cane, rice, paddy fields and animal danders the children also suffered from allergic rhinitis which acts as one of the risk factor for ear diseases in pediatric age group.¹⁵ Similarly, a study done in rural area of Nepal by Joshi et al also reported CSOM as the most common ear disorder and linked it to multiple social and environmental factors in a developing country, major problems being inadequate primary health care, high inadequacy of funding and trained manpower.¹⁶

CONCLUSION

Most common ENT disorders reported were ear disorders and second most common throat disorders. Most common ear disorder reported was chronic suppurative otitis media (CSOM) 126 (13.0%), nose disorder was acute rhinitis 35 (3.6%) and throat disorder was tonsillitis 89 (9.2%). Significant associations were found between disorders and age-groups. Ear disorders as a whole was more common among the age-group 0-4 yrs and among males; throat disorders among 10-16 yrs and females. CSOM was significantly associated with the age-groups 5-9 yrs whereas, AOM with 0-4 yrs. Adenoid hypertrophy was significantly associated with 0-4 yrs whereas, pharyngitis with 10-16 yrs.

Limitation

Patients were not categorized as new or follow-up patient and all were included in the study.

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Conflict of interest: None declared

Ethical approval: Not required

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