PREVALENCE OF COMMON EAR NOSE AND THROAT DISEASES IN A TERTIARY CARE CENTER DURING MONSOON SEASON IN NEPAL

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ABSTRACT

Ear, nose and throat (ENT) disorders contribute significantly to global morbidity and mortality, with variations in disease patterns across different regions and seasons. Nepal's diverse climate, particularly during the rainy monsoon season, influences the prevalence of certain ENT diseases. This study aimed to assess the pattern of ENT disorders during the rainy season (monsoon) at a tertiary hospital in Nepal. A descriptive study was conducted at Nepal Medical College Teaching Hospital from June to September 2024. A total of 1,042 patients aged 1 year and above were included using purposive sampling. Data was collected through clinical examinations and investigations. Statistical analysis was performed using SPSS. Among the 1042 participants, 57.77% were female, and the mean age was 31.07±18.62 years. The most prevalent ENT diseases were throat disorders (44.82%), ear disorders (44.05%), and nose disorders (11.13%). Acute pharyngitis (12.38%), acute otitis media (9.50%), and allergic rhinitis (2.87%) were the most common conditions. The study revealed an increased prevalence of acute pharyngitis, tonsillitis, acute otitis media (AOM), and allergic rhinitis during the monsoon season. This highlights the importance of early diagnosis, treatment, and preventive strategies for reducing disease burden during this period.

KEYWORDS

ENT disorders, Nepal, rainy season (monsoon)

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INTRODUCTION

The pattern of ear, nose and throat (ENT) disorders may vary from community to community or hospital to hospital based on the availability of specialist personnel or facilities for the management.[1,2] ENT diseases continue to attract little attention despite being a major cause of morbidity and mortality worldwide.[3-5] Nepal is a country with diverse climates, ranging from the tropical heat and humidity of the lowlands to the colder, dry alpine and continental conditions in the mountainous regions.[6] Nepal has four distinct seasons: Spring (March to May), Summer (June to August), Autumn (September to November) and Winter (December to February). Nepal receives about 80% of the rainfall mainly during the rainy (monsoon) season from June to September.[7] Some studies suggest that the prevalence of certain ENT diseases increases during the rainy season.[8-11] However, specific data from our region is lacking. Our study aims to address this gap and looks at the pattern of ENT diseases during monsoon in a tertiary hospital.

MATERIALS AND METHODS

This descriptive study was conducted in Nepal Medical College Teaching Hospital, Otorhinolarynology Department from June 2024 to September 2024. Permission for the study was obtained from the Institutional Review Committee (IRC) of Nepal Medical College Teaching Hospital with reference number 77-080/081. The sample size was calculated by using following formula: $N=z^2pq/d^2$ where, N= total number of sample, z=95% confidence interval, i.e. 1.96, p= Prevalence, q=1-p and d= Precision i.e. 5%

Where we considered p=31%, which is the prevalence of ENT disorders from other study[12], with precision of ±5% and level of confidence 95%. Based on these parameters, the minimum required sample size was 329.

Purposive sampling was done. All the patients aged 1 year or above presenting to the outpatient clinic of Otolaryngology Department were included. Patients who were already taking over-the-counter medicines, those with unclear diagnoses, hospitalized patients sent from other departments for consultation, and infants due to their weak immune systems were not included.Written consent from participants and assent from parents or the attending guardian was taken in case of children. The information included demographic data such as age, gender and socio-economic status (according to modified Kuppuswami's scoring system). All the diagnosis were based on detailed history for ENT disorders, clinical examination and required investigations. All the data was entered in a standard proforma. Statistical analysis was done with SPSS version 16. Descriptive statistics such as frequency, mean and standard deviation were calculated.

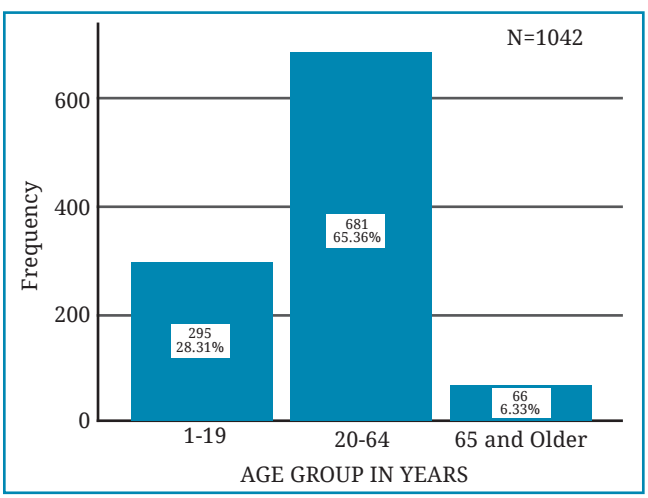

Fig. 1: Age distribution of the participants

RESULTS

A total of 1042 patients were included in the study of which 602 (57.77%) were females while 440 (42.23%) were males. Age ranged from 1year to 95 years with a mean age of 31.07±18.62 years. A total of 681 (65.36%) participants were in the adult age group (20-64 years), followed by 295 (28.31) in the pediatric and adolescent age group, while 66 (6.33%) participants were of the elderly age group as shown in Fig. 1. The gender distribution of the participants in different age groups are shown in Fig. 2. Majority of the participants belonged to upper middle class (Table 1). Majority of the participants had problems related to throat followed by ear and nose (Table 2). Most common disease in the ear, nose and throat were AOM, allergic rhinitis and acute pharyngitis (Table 3).

Table 1: Socioeconomic staus of the participants

Socioeconomic status	n	%
Upper I	1	0.10
Upper middle II	506	48.56
Lower middle III	104	9.98
Upper lower IV	417	40.02
Lower V	14	1.34
Total	**1042**	**100**

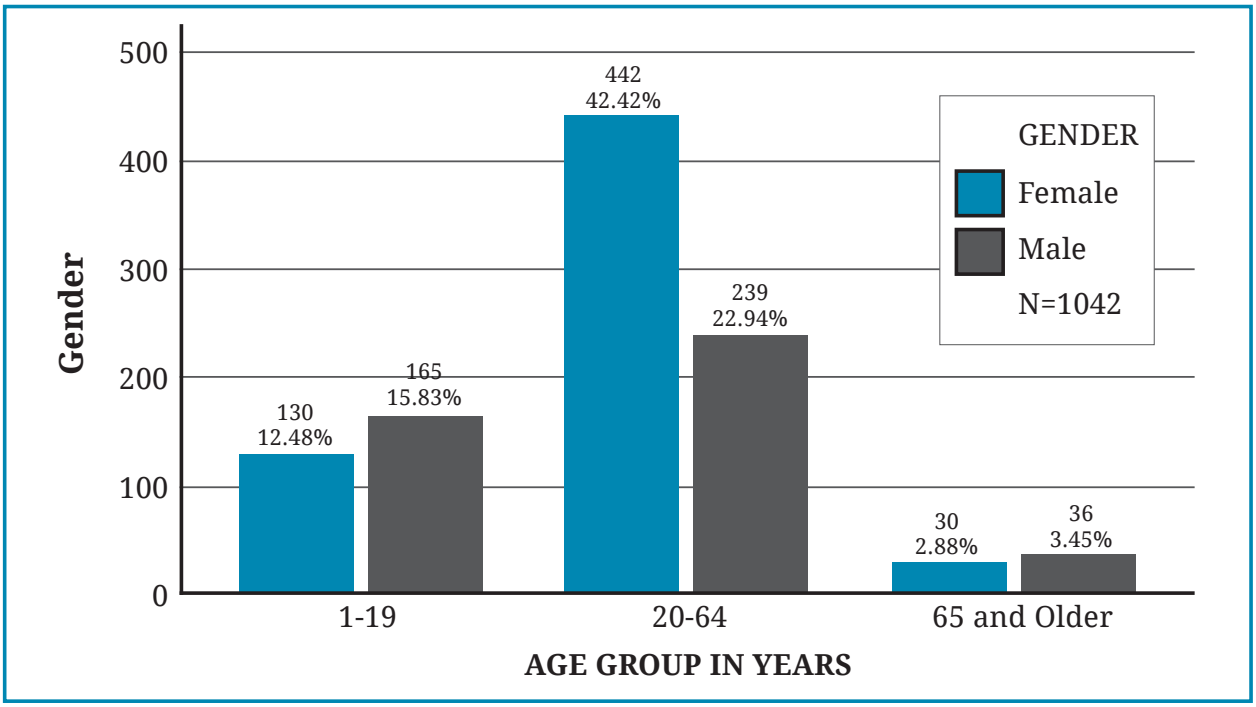

Fig. 2: Gender distribution of the participants in different age groups

Table 2: Major disease involvement of the participants

Disease	Total	Prevalence (%)
Ear	459	44.05
Nose	116	11.13
Throat	467	44.82
Total	**1042**	**100**

DISCUSSION

The overall prevalence of ear, nose and throat disorders were 44.05%, 11.13% and 44.82%. The most prevalent ENT diseases in the monsoon season were acute pharyngitis (12.38%), acute otitis media (9.50%), acute tonsillitis (9.21%), and ear wax (8.92%). Among the nasal disorders the most prevalent was allergic rhinitis (2.87%). Our study findings are comparable with a similar study done in Pakistan during a similar season.[13]

Our study suggests that majority of patients visiting ENT OPD were having throat disorders followed by ear disorders and then nose disorders. In our study, females were affected more than males. Our findings were similar to the study done by Aljehani *et al*[14] among medical students in Taibah University, Kingdom of Saudi Arabia (KSA). They also had majority of female patients just like our study and the most common problem was throat disorder. However many studies suggest that ear disease is the most common presentation among the ENT disorders specially among pediatric population.[15-17]

In our study, majority of the patients were in age group 20 to 64 years. This is the age group which is most concerned about any health issues. As most of the children first visit the Pediatrics Department, it could be the reason why pediatric population was less than adults in our study. Most of the elderly in our society also practice alternative medicines which could be the cause for their less number in our study.

In our study, most of the families belonged to upper middle class (Class II) according to modified Kuppuswami's score. Our findings were similar to study by Thapa *et al.*[15] Whereas, a study done by Gupta *et al*[18] has shown lower middle class (Class III) of socioeconomic status more common.

In our study the most common throat disorder was acute pharyngitis followed by acute tonsillitis. Our results align with studies from Nepal which also show that pharyngitis is the most common throat problem.[15,19] However, some studies have mentioned tonsillitis as the most common disorder.[17, 20]

Among the ear disorders the most common disease was AOM followed by ear wax. Our findings align with various studies where

Table 3: Diagnosis of ear,nose and throat disorders according to the age group of the participants

Diagnosis		Age Groups of Participants (Years)			Total (n)	Prevalence (%)
		0-19	20-64	≥65		
Ear disorders	Acute otitis media (AOM)	55	42	2	99	9.50
	Chronic otitis media (COM)	11	40	5	56	5.37
	Acute otitis externa	17	14	1	32	3.07
	Ear wax	50	34	9	93	8.92
	Otitis media with effusion	1	5	1	7	0.67
	Otomycosis	2	33	3	38	3.64
	Foreign body ear	4	5	1	10	0.95
	Pruritic ear	4	21	1	26	2.49
	Sensorineural hearing loss (SNHL)	1	10	7	18	1.72
	Dizziness under evaluation	3	5	1	9	0.86
	Ear keloid	0	4	0	4	0.38
	Eustachian tube dysfunction	7	40	5	52	4.99
	Ear trauma	10	4	1	15	1.43
Nose disorders	Acute rhinitis	6	11	0	17	1.63
	Chronic rhinitis	0	1	0	1	0.09
	Epistaxis	9	6	0	15	1.43
	Deviated nasal septum	3	2	0	5	0.47
	Inferior turbinate hypertrophy	0	4	0	4	0.38
	Acute rhinosinusitis	2	6	1	9	0.86
	Chronic rhinosinusitis with nasal polyposis	1	3	0	4	0.38
	Chronic rhinosinusitis without nasal polyposis	1	4	0	5	0.47
	Allergic rhinitis	4	24	2	30	2.87
	Upper respiratory tract infections	8	6	0	14	1.34
	Vestibulitis	2	1	0	3	0.28
	Nasal bone fracture	2	3	0	5	0.47
	Foreign body nose	3	1	0	4	0.38
Throat disorders	Acute pharyngitis	22	96	11	129	12.38
	Acute tonsillitis	25	68	3	96	9.21
	Chronic/Recurrent tonsillitis	1	3	0	4	0.38
	Acute laryngitis	0	10	2	12	1.15
	Acute tonsillo-pharyngitis	11	16	0	27	2.59
	Aphthous ulcer	9	27	1	37	3.55
	Laryngopharyngeal reflux (LPR)	4	84	4	92	8.82
	Mucocele/Papilloma	3	5	0	8	0.76
	Cervical lymphadenitis	11	20	3	34	3.26
	Thyroid disease	0	12	0	12	1.15
	Temporomandibular joint arthralgia	0	6	2	8	0.76
	Submandibular sialadenitis	1	2	0	3	0.28
	Foreign body oral cavity	2	3	0	5	0.47
Total		**295**	**681**	**66**	**1042**	**100**

either ear wax or AOM has been mentioned as the most common disorder.[13,15,17] However Nepali *et al*[19] have reported CSOM as second most common ear disorder, first being wax. In another study CSOM has been reported as the most common ear disease.[20]

Among the nose disorders, the most common was allergic rhinitis in our study followed by acute rhinitis. Our findings support a study done by Nanda and Devi[10] on seasonal variations of allergy profile in India where they have found that majority of patients were females and had nasal symptoms which were more in summer and rainy season during which pine mix and grass pollen were common allergens. Allergic rhinitis was also the most common nose disorder in a similar study conducted during similar season in Pakistan.[13] However, there are other studies which have shown that acute rhinitis is the most common nasal disorder.[15,17,20]

The higher incidence of acute pharyngitis, tonsillitis, and acute otitis media during the monsoon season can be attributed to increased humidity and rapid shifts in temperature. These conditions may impair mucosal immunity, facilitating viral and bacterial infections. Furthermore, the accumulation of water in the ear canal due to rain exposure may predispose individuals to both otitis externa and media. The higher prevalence of ear wax during this season could be due to increased humidity causing swelling of cerumen, leading to blockage.

Allergic rhinitis was the most prevalent nasal condition observed. The monsoon season is associated with increased exposure to various allergens, including mold, pollen, and dust mites, which thrive in humid conditions. The elevated moisture levels in the air may exacerbate symptoms in individuals with allergic tendencies. It is well known that allergic rhinitis symptoms rise during periods of high humidity, particularly in individuals with pre-existing allergic conditions.

The identification of these common ENT diseases during the monsoon season has important clinical and public health implications. Early recognition and appropriate management of acute pharyngitis, tonsillitis, and acute otitis media can prevent complications such as chronic suppurative otitis media and peritonsillar abscesses. Additionally, raising awareness about the increased prevalence of allergic rhinitis during this season can help guide preventive measures, such as allergen avoidance strategies and timely medical intervention.

One limitation of our study is the geographic restriction to our region, which may limit the generalizability of the findings to other regions with different climate patterns. Additionally, as the study was conducted only during the monsoon season, we cannot comment on the prevalence of these diseases throughout the year.

Future research could focus on a longitudinal study that examines the prevalence of ENT diseases across all seasons to determine the influence of weather patterns on disease prevalence. Additionally, further studies exploring preventive interventions for acute pharyngitis, acute otitis media and allergic rhinitis during the monsoon season would be valuable.

This study highlights the increased prevalence of certain ENT diseases, particularly acute pharyngitis, tonsillitis, otitis media, and allergic rhinitis, during the monsoon season. These findings underscore the need for heightened awareness and preventive measures during this period to reduce disease burden and improve patient outcomes.

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