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Morbidity profile of paediatric otorhinolaryngological disorders in a rural teaching hospital

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ABSTRACT

Background: Otorhinolaryngological disorders are more common among children and timely intervention is essential. These disorders variy from one geographical area to another and also differs among different community and age groups. The present study was aimed to assess the different otolorhinolarygological disorders among paediatric age groups.
Methods: This retrospective study was conducted in a rural tertiary care teaching hospital for a period of two years. Data were collected from case sheets and then classified, tabulated and statistically analyzed.
Results: Among the otorhinolarygological disorders in children, otological, nasopharyngeal and oropharyngeal disorders were 73.67%, rhinological 7.31%, oropharhngeal 5.58% and oral cavity was 4.1% morbidity profile differed among male and female children.
Conclusions: Otologic, nasopharyngeal and its associated disorders reported more among the children in this rural area Variations among gender, age and seasonality were noticed.

Keywords: Morbidity, Otorhinolaryngological, Associated disorders

INTRODUCTION

India is a developing country having a high morbidity and mortality, due to communicable and non communicable diseases. The knowledge of disease burden in different geographical areas is essential to have the preparedness to face these health related challenges to treat the causes.[1,2] India is regarded as one of the most populated country in the world, having 35% of the total population comprising paediatric age group. ENT problems are one of the common causes among children which make the parents to bring the children to the hospital. Among the ENT disorders, upper respiratory tract infection is very common showing recurrence of illnesses with seasonal variations. These upper respiratory infections may lead to otitis media, sinusitis and tonsillitis with higher morbidity.[3] When compared with otorhinolaryngological disorders of adults, the diseases are more common among children and are due to many factors like anatomical structure of Eustachian tube, immunological status, malnutrition, over-crowding, and ill ventilated dwellings with poor sanitation.[4] Since the ear, nose and throat are in close proximity to the brain, delayed intervention may result in spread of infection to the intracranial structures and orbit resulting in complications with high morbidity and mortality.[5] Incidence of upper respiratory tract infections among children are more and are commonly due to viral infections. Apart from infective disorders, foreign bodies in the ear, Nose and throat are reported to paediatric physician by the parents. In a study conducted by the Mukkarjee et al in Kar Medical College hospital at

Kolkata reported that the incidence of foreign bodies account for 11% of the cases of ENT emergencies in otorhinolaryngology.[6] In Tamil Nadu the children population constitute about 23.4% of the total population and 0-4 years of the age group alone constitute 7.7%.[7,8]

In view of large section of population this study is warranted and has been taken up to know the morbidity profile of the paediatric patients attending this tertiary care teaching hospital in a rural setup.

METHODS

The study was conducted at the department of ENT, Trichy SRM Medical college hospital and Research Centre, Tiruchirappalli, Tamil Nadu. It is a retrospective observational cross sectional descriptive study conducted among paediatric patients admitted as inpatients during August 2017 to July 2018 for a period of two years. Patients were screened and diagnosed for the clinical symptoms of otological, rhinological, laryngological, head and neck illnesses after getting proper consent from the patients's parents/ relatives and admitted in the male and female wards respectively. They were categorized and treated accordingly. If there was an indication for surgery, the patients and their relatives were informed about their illness and treatment and follow up were made in detail. A case sheet was maintained for each and every patient as per the standard medical procedures. All patient's details were recorded in the nominal registers of male and female wards. The Patients detail, their illness and final diagnosis and intervention were collected retrospectively from the case sheets and nominal registers. The research proposal was presented before the Institutional Research Board and got approved. The collected data were entered in the standard tables and entries were made in the data column of SPSS. The data was analyzed using simple descriptive statistics to study the morbidity pattern according to the age, gender and seasonality.[9-11]

RESULTS

The otorhinolaryngological cases among paediatric age group reported in 2016 August to 2017 July was 156 (45.61%) and 186 (54.39) in 2017-2018 in the same period and the increase of incidence in the 2017-2018 was 8.78%. The increase of cases was in nasopharyngeal and oropharyngeal (4.84%), head and neck (1.84%) and nasopharyngeal (3.23%). However more number of cases were reported in rhinological, rhinological and nasopharyngeal and oral cavity diseases in the year 2016-2017. The increase of incidence in the year 2017-2018 is statistically significant when compared with the incidence of otorhinolaryngological disorders in paediatric age group in the year 2016-2017 (p=0.02) (Table 1).

Table 1: Year wise region wise morbidity.

S.No	Region wise morbidity	2016-2017 N (%)	2017-2018 N (%)	Total N (%)
1	Otologic	32 (21.51)	36 (19.35)	68 (19.88)
2	Otologic, nasopharyngeal and oropharyngeal	2 (1.28)	3 (1.61)	5 (1.46)
3	Otologic and head and neck	0 (0)	1 (0.54)	1 (0.29)
4	Otologic and chromosomal disorder	1 (0.64)	0 (0)	1 (0.29)
5	Otologic and neurologic	1 (0.64)	0 (0)	1 (0.29)
6	Rhinologic	16 (10.26)	9 (4.84)	25 (7.31)
7	Rhinologic and nasopharyngeal	6 (3.85)	2 (1.08)	8 (2.34)
8	Nasopharyngeal and oropharyngeal	70 (44.87)	100 (53.7)	170 (49.71)
9	Nasopharyngeal	0 (0)	6 (3.23)	6 (1.75)
10	Oral cavity	8 (5.13)	6 (3.23)	14 (4.09)
11	Oral cavity and oropharayngeal	1 (0.64)	0 (0)	1 (0.29)
12	Oropharyngeal	10 (6.41)	10 (5.38)	20 (5.85)
13	Laryngeal	3 (1.92)	4 (2.15)	7 (2.05)
14	Esophageal	1(0.64)	1 (0.54)	2 (0.59)
15	Speech disorder	2 (1.28)	1 (0.54)	3 (0.88)
16	Head and neck	3 (1.92)	7 (3.76)	10 (2.92)
	Total	156 (45.61)	186 (54.39)	342 (100)

Figures in the Parenthesis denotes percentage.

In the paediatric age group the otorhinolaryngological disorders were classified and analysed. Scrutiny of morbidity in relation to anatomical regions revealed that the highest incidence recorded in the Nasopharyngeal and oropharyngeal (49.72%) and it was followed by otological (19.88%), rhinological (7.31%) and oropharyngeal (5.85%). Other disorders in paediatric age group were less than 3% (Table 2).

In this retrospective study apart from the disorders, associated regional morbid conditions presented during the admission were also recorded and analysed. Among the associated morbid conditions recorded in the

otological disorders, chronic adenotonsillitis accounts for 39.13% and adenoids reported as (34.78%) the next highest associated regional morbid condition in the study period (Table 3).

Table 2: Region wise morbidity.

S.No	Region wise morbidity	Frequency (N=342)	Percentage (%)
1	Otologic	68	19.88
2	Otologic, nasopharyngeal and oropharyngeal	5	1.46
3	Otologic and head and neck	1	0.29
4	Otologic and neurologic	1	0.29
5	Otologic and chromosomal disorder	1	0.29
6	Rhinologic	25	7.31
7	Rhinologic and nasopharyngeal	8	2.34
8	Nasopharyngeal and oropharyngeal	170	49.72
9	Nasopharyngeal	6	1.75
10	Oral cavity	14	4.1
11	Oral cavity and oropharayngeal	1	0.29
12	Oropharyngeal	20	5.85
13	Laryngeal	7	2.05
14	Esophageal	2	0.58
15	Speech disorder	3	0.88
16	Head and neck	10	2.92

Table 3: Associated regional morbid conditions.

S.No	Morbitity status	Frequency (N=24)	Percentage (%)
1	Left temporal lobe abcess	1	4.35
2	Subperiosteal abscess right	1	4.35
3	Adenoids	8	34.78
5	Chronic adenotonsillitis	9	39.13
6	Chronic rhinitis	2	8.69
7	Deviated septum to the right	1	4.35
8	Frontal sinusits	1	4.35
	Total	23	100

Table 4: Sexwise paediatric otorhynolaryngological disorder.

S.no	Diagnosis	Male child	Female child	Total	P value
1	Otologic	21 (20.58)	47 (19.58)	68 (19.89)	0.0001
2	Otologic, nasopharyngeal and oropharyngeal	0 (0)	5 (2.08)	5 (1.46)	0.007
3	Otologic and head and neck	0 (0)	1 (0.42)	1 (0.29)	1.00
4	Otologic and neurologic	0 (0)	1 (0.42)	1 (0.29)	1.00
5	Otologic and chromosomal disorder	1 (0.98)	0 (0)	1 (0.29)	1.00
6	Rhinologic	9 (8.82)	16 (6.67)	25 (7.31)	0.08
7	Rhinologic and nasopharyngeal	2 (1.96)	6 (2.5)	8 (2.34)	0.13
8	Nasopharyngeal and oropharyngeal	47 (46.07)	123 (51.25)	170 (49.72)	0.0001
9	Nasopharyngeal	2 (1.96)	4 (1.67)	6 (1.75)	0.33
10	Oral cavity	5 (4.90)	9 (3.75)	14 (4.09)	0.25
11	Oral cavity and oropharayngeal	0 (0)	1 (0.42)	1 (0.29)	1.00
12	Oropharyngeal	8 (7.85)	12 (5)	20 (5.85)	0.34
13	Laryngeal	3 (2.94)	4 (1.67)	7 (2.05)	1.00
14	Esophageal	1 (0.98)	1 (0.42)	2 (0.58)	1.00
15	Speech disorder	1 (0.98)	2 (0.83)	3 (0.88)	1.00
16	Head and neck	2 (1.96)	8 (3.33)	10 (2.92)	0.02
	Total	102 (29.82)	240 (70.18)	342 (100)	0.0001

Figures in the parenthesis denotes percentage.

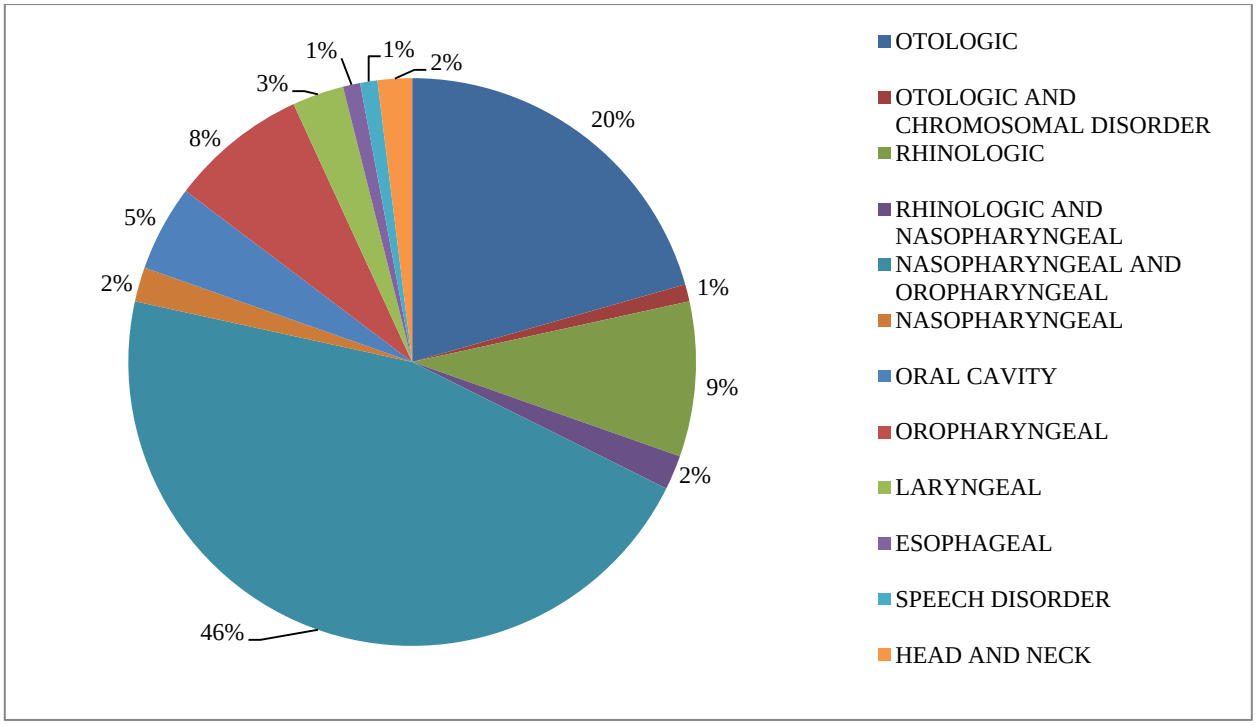

Figure 1: Paediatric otorhinolaryngological morbidity-male (n=102).

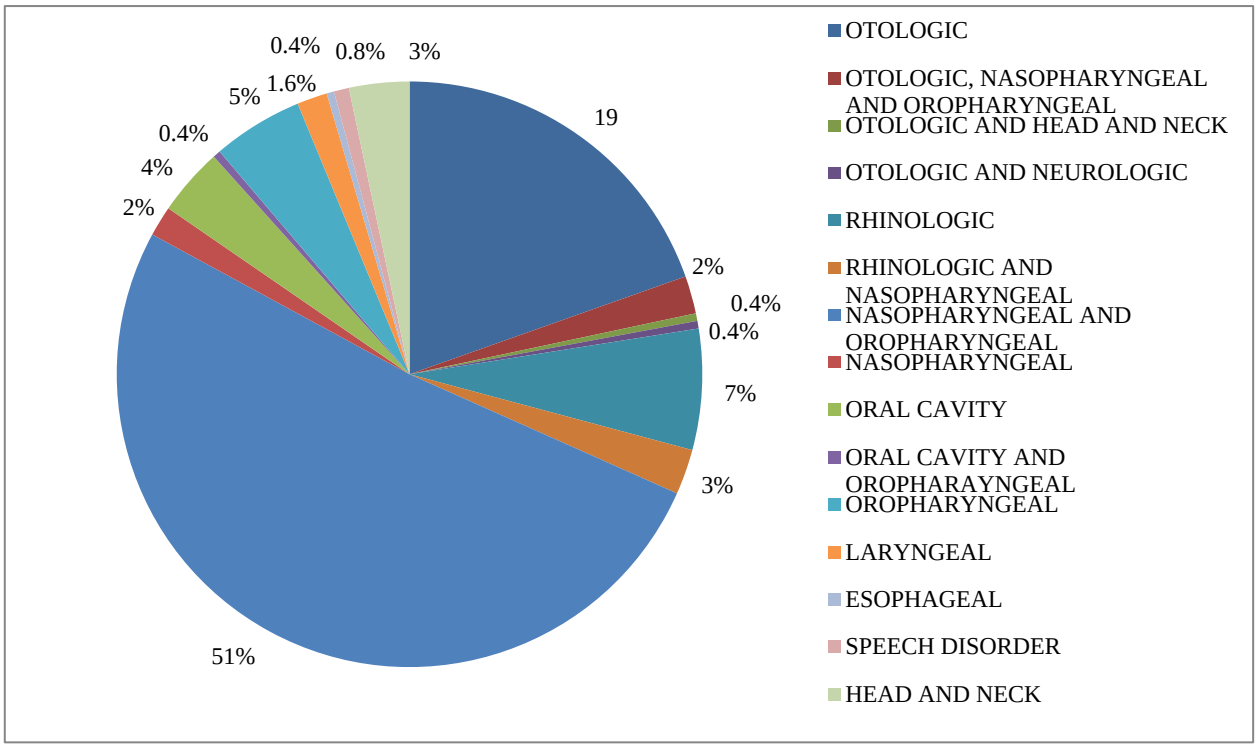

Figure 2: Paediatric otorhinolaryngological morbidity-female (n=240).

The otorhinolaryngological disorder among male children constituted for 29.82% whereas female children accounted for 70.18%. The difference between male and female children was statistically significant (p=0.0001). The otological and combined disorders in male children was 21.56% but in female it was 22.5% but difference between the gender was not statistically significant (p=0.07) likewise nasopharyngeal and oropharyngeal disorders was higher in female (51%) but in male it was only 46% (p=0.57) which was not statistically significant.

The rhinological, oropharyngeal, oral cavity and head neck incidences among male and female children were not statistically significant (p>0.05) (Table 4, Figure 1 and Figure 2).

The age wise otorhinolaryngological morbidity among paediatric age group showed that no report of cases in the neo natal period and 1-4 age group was 2.63%, 5-9 age group was 36.26% and 10-14 age group was 61.11%. The otological, rhinological, nasopharyngeal and oropharyngeal differ significantly between the age groups (p<0.05). Likewise the morbidity profile in paediatric age groups differ significantly in rhinological (p<0.05) and nasopharyngeal and oropharyngeal disorders (p<0.05). Other otorhinolaryngological disorders did not vary significantly (p>0.05). When oropharyngeal disorder between 5-9 and 10-14 age groups were examined it was found out that oropharyngeal disorders differ significantly (p<0.05) (Table 5).

Table 5: Age wise otorhinolaryngological morbidity in peadiatrics.

S.No	Morbidity	1-4	5-9	10-14	P value
1	Otologic	1 (0.29)	18 (5.26)	49 (14.32)	0.0001
2	Otologic, nasopharyngeal and oropharyngeal	0 (0)	1 (0.29)	4 (1.17)	0.057
3	Otologic and head and neck	0 (0)	0 (0)	1 (0.29)	
4	Otologic and chromosomal disorder	0 (0)	0 (0)	1 (0.29)	
5	Otologic and neurologic	0 (0)	0 (0)	1 (0.29)	
6	Rhinologic	3 (0.87)	13 (3.80)	9 (2.63)	0.010
7	Rhinologic and nasopharyngeal	0 (0)	2 (0.58)	6 (1.76)	0.04
8	Nasopharyngeal and oropharyngeal	1 (0.29)	73 (21.35)	96 (28.07)	0.0001
9	Nasopharyngeal	0 (0)	3 (0.89)	3 (0.89)	1.00
10	Oral cavity	3 (0.89)	4 (1.17)	7 (2.05)	0.24
11	Oral cavity and oropharayngeal	0 (0)	1 (0.29)	0 (0)	
12	Oropharyngeal	0 (0)	4 (1.17)	16 (4.68)	0.0001
13	Laryngeal	0 (0)	0 (0)	7 (2.05)	
14	Esophageal	0 (0)	0 (0)	2 (0.58)	
15	Speech disorder	0 (0)	1 (0.29)	2 (0.58)	0.414
16	Head and neck	1 (0.29)	4 (1.17)	5 (1.46)	0.142
	Total	9 (2.63)	24 (36.26)	209 (61.11)	0.0001

Figures in the parenthesis denotes percentage.

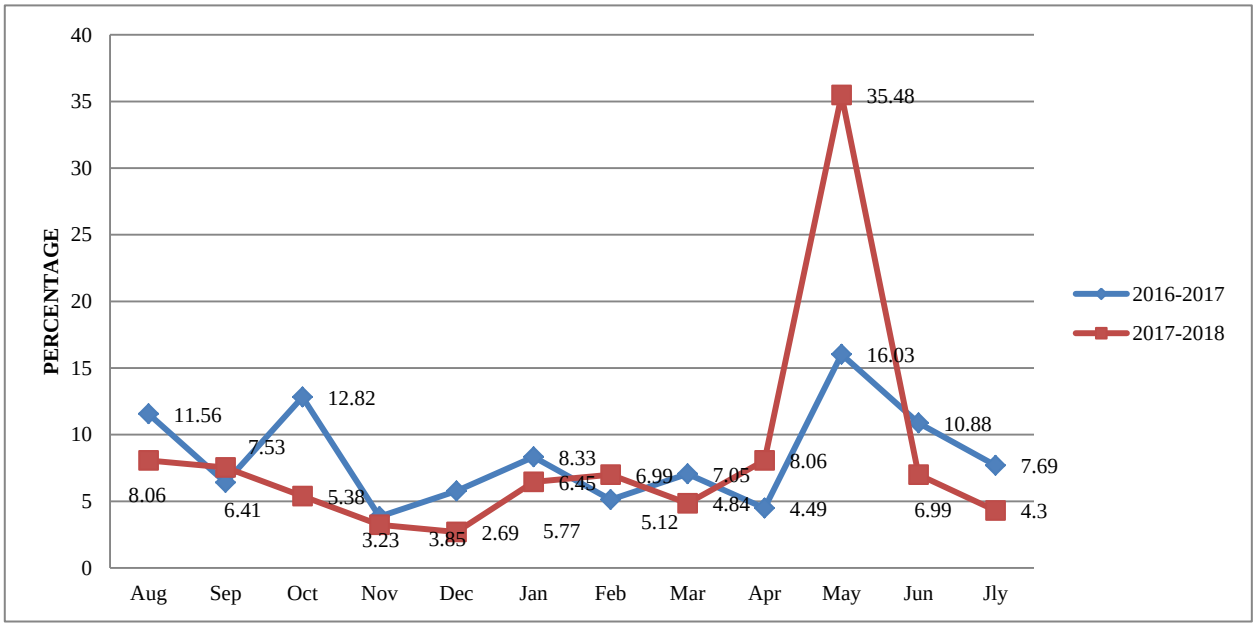

Figure 3: Year wise month wise morbidity patter of otorhinolaryngology.

The paediatric morbidity profile of otorhinolaryngology was analysed and found out that during the year 2016-2017 two peaks were noticed one in the month of October 2016 and another in the month of May 2017. However during the year 2017-2018 the October peak in the year 2016 was absent and the peak in the month of May 2018

was so prominent when compared with the year 2017. The seasonal variation in the morbidity profile in the paediatric age group was prominent during the study periods (Figure 3).

DISCUSSION

This study revealed that otological, Nasopharyngeal and oropharyngeal disorders were more [73.67%] among paediatric age group in this rural teaching hospital. In this study, male children accounted for only 29.82% and female children reported 70.18%. In a study conducted by Surapaneni et al at Telangana reported that female children reported more (61.9%) than male (38.1%) which concur this study.[12] Whereas in an another study conducted by Kishve et al in Western Maharashtra the male children (53.18%) predominate over the female children (46.81%) which differs this study.[13] This study reveals that otological with its associated regional morbidity accounted for 22.21%, and Nasopharyngeal and its associated disorders reported for 51.46% which were the major disorders reported than other otorhinolaryngological disorders. The oropharyngeal disorders constituted 5.85% among the children. The associated morbid conditions reported are adenoids (34.78%) and chronic adenotonsillitis (39.13%). In a study conducted by Kishve et al reported only 20.5% adenoiditis which was less than this report and tonsillitis 42.9% which was more when compared to this study.[13]

This study revealed gender variation in the morbidity pattern of otorhinolaryngological disorders among children. In otological and its associated morbid conditions such as nasopharyngeal, oropharyngeal, head and neck, neurological, oral cavity and oropharyngeal disorders were not reported in male children where as these disorder were reported in female children In a study conducted by Mahendren et al the prevalence of otitis media and effusion was 24.5% whereas in this study combined otological morbidity was 22.2%.[14]

The paediatric morbidity was analysed in to three age groups wise 1-4, 5-9 and 10-14. The otological disorder in the 1-4 age group was 0.29% and 5-9 age and 10-14 age groups reported the highest incidences. The nasopharyngeal morbidity was found higher in 10-14 age group (28.96%) and it was 22.24% in 5-9 age group likewise oropharyngeal disorder also recorded more in 10-14 age group than 1-4 and 5-9 age groups (4.68%).

When the otorhinolaryngological disorder among paediatric age group was analysed in the study period of two years, the peak morbidity was recorded during the month of May which attributable to the convenience of the parents to seek the surgical intervention during the school vacation period as these diseases were conservatively treated mostly by paediatric physicians in the school working days. Hence the highest morbidity could not be correlated with seasonal trend.

CONCLUSION

This study has brought out revealed the morbidity profile of otorhinolaryngological disorders among pediatric population in a rural set up. Among the paediatric age group, otological and its associated morbidity and nasopharyngeal and its associated morbidity predominate the other disorders. The otorhinolaryngological disorders found to have highest incidence among 10-14 age groups which needs more medical attention towards this age group for early detection and intervention.

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