A STUDY OF THE PREVALENCE OF EAR DISEASES IN SCHOOL CHILDREN OF RURAL TUMKUR DISTRICT, KARNATAKA

N. R. Shankar¹, Swaroop Dev M², Geethachary³

HOW TO CITE THIS ARTICLE:

N. R. Shankar, Swaroop Dev M, Geethachary. "A Study of the Prevalence of Ear Diseases in School Children of Rural Tumkur District, Karnataka". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 32, April 20; Page: 5506-5511, DOI: 10.14260/jemds/2015/805

ABSTRACT: OBJECTIVE: Prevalence of ear diseases is more common in rural school going children. Most commonly observed ear diseases include chronic otitis media, otitis media with effusion, acute otitis media, otitis externa and impacted wax. The causes of ear diseases are due to lack of health education, poor socio-economic status and unhygienic practices. These diseases cause decrease in hearing in children which leads to decrease in learning abilities and also leading to more number of school dropouts. The objective of the study is to assess the prevalence of ear diseases among rural school going children and to identify the causes for the occurrence, there by suggesting measures to reduce the occurrence. **MATERIALS AND METHODS:** This is a non-randomized, cross-sectional study. The study was conducted in schools located in and around the Rural health training Centre, Nagavalli attached to Sri Siddhartha Medical College, Tumkur district Karnataka. The study period was 14 months from December 2010 to February 2012; the study was conducted on students from 18 schools within the age group of 6 years to 15 years. The students less than 6 years were excluded from the study. The total student population was 741 and all of them were examined for ear pathologies. The method of examination was done by using otoscopy, tuning forks tests and pure tone audiometry. **RESULTS:** Out of 741 students examined, 43 students had ear pathologies. Hence, the percentage of students with ear pathologies was found to be 5.8%. The common ear pathologies observed was impacted wax, acute otitis media, otitis externa and chronic otitis media and these students were of low socio-economic status. **CONCLUSION:** Ear diseases are common in rural children due to lack of health education, low socio-economic status and unhygienic practices followed. Hence this survey was undertaken to assess the prevalence of ear diseases among rural school going children and to find out the causes of their occurrence and the measures to reduce them. **KEYWORDS:** school children, otological diseases, socioeconomic status, rural background.

INTRODUCTION: The ear diseases have been found to be important health problems among children. Nearly one third of otorhinolaryngology outdoor attendance in the hospital compromises of paediatric age group.¹ The ear diseases cause significant discomfort and hearing loss, it also leads to work loss and decreased productivity. In children, speech developmental delays and academic failure may result. Complications such as deafness, meningitis, brain abscesses, and facial nerve paralysis may also occur and hence proper management of ear disease is critical.²

The majority of Indian population resides in rural areas. Prevalence of ear diseases is more common in rural school going children. Most commonly observed ear diseases include acute otitis media, chronic otitis media, otitis media with effusion, impacted wax and otitis externa. Causes of ear diseases include unhygienic practices due to lack of health education and poor socio-economic status among rural children. These diseases cause decrease in hearing in children which leads to decrease in learning abilities and also leading to more number of school dropouts.

ORIGINAL ARTICLE

The health indicator of a country can be assessed at the rural level. The ear diseases among the school going children can have 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 ear disorders and this had a negative effect upon their school performances when compared with children from the urban background.³ Therefore, this study has been undertaken to assess the prevalence of ear diseases and its causes and to formulate the measures to reduce them.

MATERIALS AND METHODS: A non-randomized, cross-sectional study was conducted in 18 schools located in 19 villages in and around the rural health training centre, Nagavalli attached to Sri Siddhartha Medical College, Tumkur district, Karnataka from December 2010 to December 2011, with the follow up period of 2 months-during the months of January and February 2012. The total study period was 14 months. Children between the age group of 6 years to 15 years of both sexes were included in the study. Children with age less than 5 years were excluded from the study. The schools were categorized into three groups namely the lower primary, higher primary and the high school. The lower primary includes the age group of children between 6 years to 9 years. The higher primary includes the age group of children between 10 years to 12 years. The high school includes the age group of children between 13 years to 15 years. The school teachers were informed about the study and the teachers took consent from the parents of the students who participated in the study. A total of 741 rural school children were examined for ear pathologies using otoscopy and tuning fork tests. Children who had hearing loss clinically were assessed by Pure Tone Audiometry in Sri Siddhartha Medical College.

RESULTS: A non-randomized cross sectional study was done with a total of 741 students who met the inclusion criteria, which is between the age group of 6 years and 15 years of both sexes. Out of the 741 students, 43 students (5.8%) were identified with ear pathologies. 15 students had impacted wax, 11 students had otitis externa, 10 students had acute otitis media, 4 students had acute otitis media with rhinitis and 4 students had Chronic otitis media. All chronic otitis media students had Tubotympanic type of disease out of which 2 students underwent Tympanoplasty and postoperative period was uneventful. The other 2 students who had small central perforations were treated with antibiotics, systemic decongestants and were educated to keep the ear dry. The small central perforations healed spontaneously during the follow up.

No. of students in lower primary (1 st – 4 th standard, age group b/w 6-9yrs)	285
No. of students in higher primary (5 th – 7 th standard, age group b/w 10-12yrs)	361
No. of students in high school (8 th – 10 th standard, age group b/w 13-15yrs)	95
Total no. of students	741
No. of students with ear diseases	43
Percentage of students having ear diseases	5.8%

Table 1: Demographics of students

ORIGINAL ARTICLE

Age	No. of students with ear diseases	Percentage (%)
6 – 9 yrs (lower primary school)	16	37
10 – 12 yrs (higher primary school)	22	51
13 – 15 yrs (high school)	5	12

Table 2: Age distribution

Sex	No. of students with ear diseases	Percentage (%)
Males	15	35
Females	28	65

Table 3: Sex distribution

The common unhygienic practices followed that were identified among the 43 students with ear diseases were as follows.

Unhygienic Practices	No. of students with ear diseases	Percentage (%)
Ear pricking	19	44
Putting oil in ear	15	35
Swimming in ponds	9	21

Table 4: Unhygienic practices

In this study, the common ear diseases that were identified are as shown in the table 5.

Ear Diseases	Males	Females	Total no. of students	Total percentage (%)
Chronic otitis media	4	0	4	9
Acute otitis media	2	8	10	23
Acute otitis media with rhinitis	0	4	4	9
Impacted Wax	5	10	15	34
Otitis externa	4	7	11	25

Table 5: Demographics of Ear diseases

Children identified with acute otitis media, acute otitis media with rhinitis and Otitis externa were treated with topical and systemic antibiotics along with antihistamines and were followed up till resolution.

Children identified with impacted wax were treated with wax solving drops and the wax was removed in Sri Siddhartha Medical College OPD. Children identified with COM were treated initially with ear drops and antibiotics and haven been advised to keep the ear dry. All chronic otitis media cases were being followed at Sri Siddhartha Medical College OPD for further management.

ORIGINAL ARTICLE

DISCUSSION: The ear diseases in children are a major public health concern in developing countries. The WHO suggests that in developing countries, children should be screened at school entry using a simple audiometer and the external auditory canal ear be inspected for the ear discharge and wax, to study the extent of ear problems in the community.⁴ This study was conducted on students of 18 rural schools, in rural health training centre, Nagavalli attached to Sri Siddhartha Medical College, Tumkur district from December 2010 to December 2011, with the follow up period of 2 months- during the months of January and February 2012. The total study period was 14 months. There were a total of 741 children between the age group of 6 years and 15 years which was taken as the inclusion criteria, children below the age of 6 years were excluded from the study. All the 741 children were examined for ear pathologies by otoscopy, tuning forks test. The children who had reduced hearing clinically were assessed by pure tone audiometry.

Out of the total 741 children, 43 students (5.8%) were identified with ear diseases. There were, 15 male and 29 female students identified with various ear diseases.

Impacted wax, acute otitis media, otitis externa and chronic otitis media were the most common ear diseases identified. Common unhygienic practices were putting oil into the ear, ear pricking with any object and bathing in ponds. All the students identified with ear diseases were of lower socio-economic status, this was assessed by using Modified BG Prasad's socio-economic classification taking into account per capita monthly income.

The students were taught about the common ear diseases and its symptoms and also hygienic practices concerned with the ear that to be observed and also imparted health education. Teachers have been advised to prepare charts that shows unhygienic practices associated with the ear and display the same in school premises for students' knowledge. Also, the teachers were advised to observe the students for their inattentive behaviour in the class or decrease in the academic performances which may be the due to ear pathologies, if so, the teachers have been advised to inform the parents of the student so that they can approach for an early medical treatment. The students identified with ear diseases such as acute otitis media and otitis externa were treated with topical and systemic antibiotics and these students were followed up till resolution. Students identified with impacted wax were put on wax softening drops and was removed later in Sri Siddhartha Medical College OPD. Students identified with COM were initially treated with ear drops and antibiotics, and were being followed at Sri Siddhartha Medical College OPD for further management.

A study done by Ologe et al in rural schoolchildren between 6-14 years of age group in Nigeria showed the prevalence of chronic otitis media to be 8% which is close to our study (9%).⁵

A study done by Manjusha A Bhosle and Swati M Bhise among 956 school children in urban slum area of Nagpur showed 11% prevalence of otitis externa.⁶ In our study we have obtained a prevalence of otitis externa of 25% with a total study population of 741 rural school going children between 6-14 years of age group.

A study done by Minja et al in rural and urban schoolchildren between 6-14 years of age group in Tanzania showed the prevalence of impacted wax to be 40.2% which is close to our study (34%).⁷

CONCLUSION: School age children constitute 25% of the world's population i.e. one-fifth of Indian population comprises of school age children.⁸ School health is an important branch of community

ORIGINAL ARTICLE

health. According to modern concept school health service is economical and powerful means of raising community health and is important in future generation.⁹ It is observed from the study that ear diseases are common among rural school going children who come under low socio-economic status, this is mainly due to lack of good health care, poor nutrition and also due to unhygienic practices followed. Students having Chronic otitis media, otitis media with effusion and impacted wax will show hearing impairment and without timely intervention on these diseases will lead to low performance in academics resulting in increase of school dropouts. In a recent study by Vikram et al it was seen that incidence of complicated chronic otitis media is higher in rural areas than urban areas.¹⁰ Nevertheless, we need to remain vigilant because of the severe extracranial and intracranial complications due to chronic otitis media. The majority of the students are not aware of these ear diseases. Therefore, it is important to put some effort into otologic health education among school students and their parents.

REFERENCES:

1. Rao RS, Subramanyam MA, Nair NS, Rajashekar B. Hearing impairment and ear diseases among school entry age in rural South India. *Int J Pediatr Otorhinolaryngol* 2002, 64(2): 105-10.
2. Lieu JE. Speech language and educational consequences of unilateral hearing loss in children. *Arch Otolaryngol Head and Neck Surg* 2004, 130: 524-530.
3. Egeli E, Oghan F, Ozturk O et al. Effects of otorhinolaryngological diseases and socio-economic status on school performance: A survey. *Int J Pediatr Otorhinol* 2004, 68: 883-888.
4. Gell FM, White E, Mcnewell K et al. Practical screening priorities for hearing impairment of children in developing countries 1992. *Bull WHO* 70R5 pp 645-655.
5. Ologe FE, Nwawol CC. Prevalence of CSOM among children in rural community in Nigeria. *Niger Postgrad Med J* 2002, 9: 63-66.
6. Manjusha A Bhosle, Swati M Bhise. *Indian journal of applied research* 2013. Vol 3(4).
7. Minja BM and Machemba A. Prevalence of otitis media, hearing impairment and cerumen impaction of school children in rural and urban Dar es Salaam, Tanzania. *Int J Pediatr Otorhinolaryngol* 1996, 37: 29-34.
8. World health organization; Health needs of adolescent. Report of WHO expert committee. Technical report (609), WHO Geneva 1997.
9. Akse charuhes V, Sukshole neelam D, Kubde sanjay S et al. *International journal of scientific research* 2013, Vol 2(6).
10. Vikram BK, Khaja N, Upayashankar S et al. Clinicoepidemiological study of complicated and uncomplicated chronic suppurative otitis media. *J Laryngol Otol* 2008, 122(5)442-446.

ORIGINAL ARTICLE

AUTHORS:

1. N. R. Shankar
2. Swaroop Dev M.
3. Geethachary

PARTICULARS OF CONTRIBUTORS:

1. Senior Resident, Department of ENT, ESICMC-PGIMS, Rajajinagar, Bangalore, Karnataka.
2. Assistant Professor, Department of ENT, Sri Siddhartha Medical College, Agalakote, Tumkur, Karnataka.

FINANCIAL OR OTHER

COMPETING INTERESTS: None

3. Retired Professor & HOD, Department of ENT, Sri Siddhartha Medical College, Agalakote, Tumkur, Karnataka.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Swaroop Dev M,
Assistant Professor,
Department of ENT,
Sri Siddhartha Medical College,
Agalakote, Tumkur-572107, Karnataka.
E-mail: swaroopdev5@gmail.com

Date of Submission: 24/03/2015.
Date of Peer Review: 25/03/2015.
Date of Acceptance: 08/04/2015.
Date of Publishing: 17/04/2015.