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Original Research Article

Sociodemographic profile and the associated factors of chronic otitis media in rural areas of eastern Nepal

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ABSTRACT

Background: Otitis media is one of the commonest infections in children. The present study was aimed to determine the sociodemographic profile and the associated factors of chronic otitis media along with the health related practices and beliefs among the family of rural children with otitis media in Morang district of eastern Nepal.
Methods: This cross sectional study was done over one year in different ear camps conducted in the various rural areas of Morang district of eastern Nepal. The attending guardians of the children with chronic otitis media were interviewed according to the pretested questionnaire regarding their socioeconomic status, health related practices, beliefs and other related issues. All the collected data were tabulated and analyzed.
Results: A total of 102 attendants were interviewed. Most of the attending guardians were from low socioeconomic status with majority from medium sized family (4-7 persons). Most of them were illiterate. Most of the children lived in Kachha house. Inspite of only nearly 40% family having latrine, sanitation habits were satisfactory in above 80%. 53.92% of the children with chronic otitis media used to take bath in ponds and lake. Most of the guardians had the habit of cleaning ears in unsafe way. Nearly, a third of the guardians were not aware about importance of head position during breast feeding. Most of the guardians were not aware about the causes and treatment of otitis media. In case of ear discharge, most of them seeked help in health institutions. 14.7% would rely on house hold remedies like oil, herbs instilled in to ears and 2.94% would go to faith healer. However 75.5% of the attendants perceived that the use of antibiotics was the method to treat otitis media.
Conclusions: The prevailing chronic otitis media in rural children is associated with several risk factors. The lack of appropriate knowledge, perception and erroneous practices stresses the importance of specific health education to the population. Early detection and preventive programs for better ear care can possibly help to alleviate this burden of chronic illness in the society.

Keywords: Otitis media, Rural community, Sociodemographic profile, Practices

INTRODUCTION

Otitis media (OM) is one of the commonest infections in children and a major cause of childhood morbidity.[1] In Nepal, approximately 16% of the population suffers of hearing loss and most of the hearing impairment in the school age group (55.2 per cent) is associated with otitis media or its sequelae.[2] A study by B P Koirala institute of health sciences in the Sunsari district found the prevalence of otitis media to be 10.3%.[3] A 13.2% prevalence of otitis media in children in the Morang district of Eastern Nepal has been reported in a study.[4] Prevalence of otitis media was found to be 12.13% in school-age Bhutanese refugees in Eastern Nepal.[5]

In developing countries, the prevalence of chronic otitis media is higher (1.3-17.6%) compared to developed countries. The prevalence of chronic otitis media is different among the different socio-economic strata of the community. High rates of chronic otitis media have been attributed to poverty, overcrowding, inadequate housing, poor hygiene, illiteracy, lack of breast feeding, poor nutrition, impaired immunologic status, passive smoking, frequent upper respiratory tract infection, high rates of nasopharyngeal colonization with potentially pathogenic bacteria and inadequate or unavailable health care.[6] It is more common in rural children where malnutrition and lack of medical facilities have been suggested as a basis for the widespread prevalence of chronic otitis media.[7]

Reduction in the prevalence of otitis media can be achieved by evaluating the various associated risk factors and the knowledge regarding it in the community and high risk areas. The specific health education can be delivered regarding preventable risk factors. This in turn would help to improve the knowledge about the disease and reduce the prevalence of the disease in the long term.[8]

The present study was aimed to determine the sociodemographic profile and the associated factors of chronic otitis media along with the health related practices and beliefs among the family of rural children with otitis media in Morang district of Eastern Nepal.

METHODS

This cross sectional study was done from January to December in the year 2016, in different ear camps conducted in the various rural areas of Morang district of eastern Nepal.

Inclusion criteria

Guardians of the children, suffering of chronic otitis media, who came to the ear camp and were willing to informed consent for the study.

Exclusion criteria

Those guardians whose children were not suffering of chronic otitis media and those who were not willing to informed consent for the study.

A detailed interview was conducted according to the pretested questionnaire regarding their occupation, family size, annual income, education, literacy level, housing types, sanitation, bathing habits of children, ear cleaning habits and positioning of head during breast feeding. Knowledge regarding as to the primary cause, place of first treatment and treatment of chronic otitis media were assessed.

All the collected data were tabulated and analyzed using Statistical package for Social Sciences (version 16.0 for Windows). The results are expressed in number and percentage.

RESULTS

A total of 102 attendants of children with chronic otitis media were interviewed. The study population was from different familial and socioeconomic background. Most of the attending guardians were farmer (35.3%), followed by labourer (23.5%). Others were businessman (17.6%), in service (12.7%) and rest of them were housewives (10.8%) as shown in Table1.

Table 1: Occupation.

Occupation	Number	Percentage
Business	18	17.6
Service	13	12.7
Farmer	36	35.3
Labourer	24	23.5
Housewife	11	10.8

Most of the guardians were from the medium sized family 82 (80.4%). Rest of them were from large family 20 (19.6%). There was no subject belonging to small family, as shown in Table 2.

Table 2: Family size.

Family Size	Number	Percentage
Small (<4)	0	0
Medium (4-7)	82	80.4
Large (>7)	20	19.6

Maximum children 35 (34.3%) were from less income group (<50,000/year). 25 (24.5%) were from 50,000-100,000/year income group. Rest of them, 42 (41.2%) were from >100,000/year group, as shown in Table 3.

Table 3: Annual income.

Income in rupees	Number	Percentage
<50,000	35	34.3
50,000-100,000	25	24.5
>100,000	42	41.2

53 (51.96%) cases belonged to lower, 37 (36.27%) belonged to upper lower and 12 (11.76%) cases belonged to lower middle class, as shown in Table 4.

Table 4: Socioeconomic status (modified Kuppuswamy classification).

Socioeconomic Status	Frequency	Percentage
Lower	53	51.96
Upper lower	37	36.27
lower middle	12	11.76

63 (61.76%) of the attending guardian were illiterate, with regards to education, as shown in Table 5.

Table 5: Attending guardian education.

Attending guardian education	Number	Percentage
Illiterate	63	61.76
Literate	39	38.24

Out of the literates, most of the attending guardian had informal education 18 (46.15%). 10 (25.64%) had primary level and 9 (23.08%) had lower secondary level education, as shown in Table 6. However, only 2 (5.13%) of them had SLC level (class 10 equivalent).

Table 6: Literacy level of attending guardian.

Literacy level of attending guardian	Number	Percentage
Informal education	18	46.15
Primary	10	25.64
Lower secondary	9	23.08
SLC (class 10 equivalent)	2	5.13

Most of the children lived in Kachha house 52(51%). 23 (22.5%) lived in semi-pucca house and only 27 (26.5%) had pakka house, as shown in Table 7. Kachha house is where floor of the house is mud and wall and roof is non-brick; Semipakka is that in which floor of the house is

brick/concrete and wall and roof is non-brick; Pakka house is where floor, wall and roof of the house is brick/concrete.

Table 7: Housing type.

Housing type	Number	Percentage
Pakka	27	26.5
Kachha	52	51
Semi-Pucca	23	22.5

40 (39.21%) of the households had latrine in their house. 84 (82.35%) practiced hand wash before eating. 88 (86.27%) practiced hand washing after defecation, as shown in Table 8. 55 (53.92%) of the children with chronic otitis media used to take bath in ponds and lake, as shown in Table 9.

37 (36.27%) of the guardian used to clean ear with cotton of their children, as shown in Table 10. However others had the habit of cleaning their ears with matchsticks 28 (27.45%), ear buds 12 (11.76%) or sharp objects 5 (4.91%). 20 (19.61%) did not have the habit of cleaning ears.

Table 8: Sanitation.

Sanitation	Yes		No	
	Number	Percentage	Number	Percentage
Availability of latrine	40	39.21	62	60.79
Handwashing practice before eating	84	82.35	18	17.65
Handwashing practice after defecation	88	86.27	14	13.73

Table 9: Bathing in ponds and lake.

Bathing in ponds and lake	Number	Percentage
Yes	55	53.92
No	47	46.08

Table 10: Ear cleaning habits.

Ear cleaning habits	Number	Percentage
Matchsticks	28	27.45
Ear buds	12	11.76
Sharp objects	5	4.91
Cotton	37	36.27
Did not clean ears	20	19.61

As shown in Table 11, 63 (61.76%) of the attendants said that the best position of head during breast feeding was with the head up, otherwise it may harm the child. 30 (29.41%) claimed that the head position had nothing to do with otitis media. 9 (8.83%) had no opinion regarding it.

Table 11: Positioning of head during breast feedings.

Positioning of head	Number	Percentage
Head up	63	61.76
Did not matter	30	29.41
No opinion	9	8.83

39 (38.23%) of the attendants considered bottle feeding of child to be the primary cause of otitis media, according to attendants' perception, as shown in Table 12. Smoking habit of mother was considered to be the cause of otitis media by another 39 (38.23%) of the respondents. Other primary causes of otitis media speculated were heredity 1 (0.98%) and respiratory infection 3 (2.94%). 18 (17.66%) of them thought bathing in ponds to be the main cause. 2 (1.96%) of the guardians even thought it to be the sin of past life.

In case of ear discharge, 53 (51.96%) would sought suggestion in health institutions, government or private, as shown in Table 13. 31 (30.4%) went to pharmacy/drug

store. 15 (14.7%) would rely on house hold remedies like oil, herbs instilled in to ears. Rest of them 3 (2.94%) would go to faith healer.

Table 12: Primary cause of otitis media (attendants' perception).

Primary cause of otitis media	Number	Percentage
Bottle feeding of child	39	38.23
Heredity	1	0.98
Respiratory infection	3	2.94
Smoking (mother)	39	38.23
Bathing in ponds	18	17.66
Sin of past life	2	1.96

Table 13: Place of first treatment of ear discharge.

Place of first treatment of ear discharge	Number	Percentage
House hold remedy	15	14.7
Health Institutions	53	51.96
Pharmacy/Drug Store	31	30.4
Faith healers	3	2.94

Table 14: Ways to treat otitis media (attendants' perception).

Ways to treat otitis media	Number	Percentage
Exclusive breast feeding	12	11.76
Antibiotics	77	75.5
Surgery	11	10.78
Others	2	1.96

77 (75.5%) of the attendants perceived that the use of antibiotics was the method to treat otitis media, as shown in Table 14. 11 (10.8%) thought they would require surgery. 12 (11.76%) thought exclusive breast feeding could treat otitis media.

DISCUSSION

A total of 102 guardians were interviewed. The study population was from different familial and socioeconomic background. Most of the attending guardians were farmers and labourers, similar to that in other studies.[9,10] Maximum children of otitis media belonged to lesser and middle income group. More than half of the children were from lower and upper lower class according to modified Kuppuswamy classification of socioeconomic status.[11]

According to the study by Saheen and colleagues, more than half of the study samples were from low income group where chronic otitis media was also more prevalent. The yearly income of the guardians had significant association with the prevalence of chronic otitis media. The findings of this study simulates other studies also.[9,12,13]

Most of the subjects were from the medium sized family in our study. 20 (19.6%) of them were from large sized family. Most of the subjects were from the medium sized family in the study by Saheen and colleagues. Although, chronic otitis media was more prevalent among the children from that group and the overcrowding being a recognized risk factor, the size of the family had no impact on the occurrence.[9] However, the study by Dhingra and colleagues found overcrowding to be an associated factor with chronic otitis media.[10]

Several studies have shown that the prevalence of chronic otitis media had significant association with maternal education. More than half of attending guardians were illiterate and only 2 (1.96%) had education of class 10 equivalent. Saheen and colleagues found an association between the maternal education and the prevalence of chronic otitis media, which was statistically significant. This finding mimics with other studies as well.[14,15] Moreover, maternal education has got direct relation with personal hygiene, health consciousness, and treatment seeking practice, nutrition and other factors that might influence overall health of the child.[9]

Most of the children lived in Kachha house in our study. Most of the study population lived in kachha house by Saheen and colleagues also, where chronic otitis media was more common.[9] However, in a study by Srikanth and colleagues, children living in kachha house was lower.[16]

In the Kachha house, most of the lower socioeconomic group of rural community lives which are less ventilated, humid and less hygienic. These could be the predisposing factors for respiratory tract infections and subsequent chronic suppurative otitis media (CSOM). In a recent study regarding CSOM, housing revealed significant association of the prevalence of CSOM between rural and urban residents [13,15] This was also supported by 1996 WHO/CIBA foundation workshop.[6]

40 (39.2%) of the households had latrine in their house in our study. More than 80% of the study population had the practice of hand wash before eating and after defecation. Though, safe sanitation is important factor for prevention of diarrhoea, worm infestations, malnutrition and for overall wellbeing but statistically, the safe sanitation habit showed to have no relation with the prevalence of CSOM in the study by Saheen and colleagues.[9]

More than half of the children with chronic otitis media, in our study, used to take bath in ponds and lake. In the study by Saheen and colleagues, it was shown that the children, who used to take bath in the pond or river water were affected more by CSOM, which was statistically significant.[9] Bathing in the polluted water of the ponds, river or canals allows the contaminated water to the nose and nasopharynx and frequently infect the middle ear

cleft and also enter the middle ear through the pre-existing pathology or perforation of the tympanic membrane which cause the ear chronically infected before it had time to heal.[16]

More than 80% of guardians were used to cleaning ears of their children. However, often matchsticks, cotton buds and sometimes sharp objects were also the means used to clean ears. The patterns of ear cleaning habit in rural children in other studies were found to be more or less similar with another study.[13,10] These forms of habits proved statistically significant effect on occurrence of CSOM.[9]

Most of the attendants said that the best position of head during breast feeding was with the head up, otherwise it may harm the child. Narayanan and colleagues stated that mothers should avoid feeding infants with the latter's head flat to prevent middle ear infections.[17] However, nearly 40% of the attendants in our study had no awareness regarding the correct position of breast feeding. 39 (38.2%) of the attendants considered bottle feeding of child to be the primary cause of otitis media. It has been shown that the incidence of acute otitis media was more in the formula fed infants and that the breast-feeding has a protective effect against acute and prolonged infections, including otitis media.[18]

Smoking habit of mother was considered to be the primary cause of otitis media by another 39 (38.2%) of the respondents. Other primary causes of otitis media speculated were heredity 1 (1.1%) and respiratory infection 3(2.9%). 18 (17.6%) of them thought bathing in ponds to be the main cause. 2 (2%) of the guardians even thought it to be the sin of past life.

In a previous study, it was found that there were several erroneous beliefs and practices regarding otitis media were prevalent in Vellore district.[7] Similarly, It has been found that over 50% of the population had knowledge deficits with regard to the various risk factors for otitis media in a study in south India.[19] Many parents did not have an accurate understanding of what causes acute otitis media.[20]

In case of ear discharge, 52% of attendants would sought suggestion in health institutions, government or private. However, nearly rest of the half of the respondents tended to seek primary medical treatment from pharmacy/drug store or resort to house hold remedies like oils and herbs instillation in to the ears. Even some would go to faith healer. Treatment practices in the community were such that earache was either disregarded or treated with home remedies, while a doctor's opinion was often sought for ear discharge in a study.[19]

Prevalence of CSOM had statistically significant relation with the medical consultation seeking practice between qualified doctors (MBBS and above) and non-qualified medical practitioners in the study by Saheen and colleagues. The continued reliance of the guardian on traditional and unqualified practitioners would lead to inadequate and inappropriate treatment.[9]

Nearly, three-fourth of the attendants thought that the use of antibiotics was the method to prevent and cure otitis media similar to that in a study.[20]

Verma et al in their study found that literacy of the mothers and socioeconomic status of the family did not correlate significantly with knowledge about treatment seeking and ear cleaning practices. The majority of mothers (guardians) had received their limited knowledge from lay persons (89.6%) rather than from doctors or health workers. They suggested that the role of health education in this setting could be significant.[21]

In conclusion, the prevailing chronic otitis media in rural children is associated with several risk factors. The lack of appropriate knowledge, perception and erroneous practices in the marginalized section of the community stresses the importance of specific health education to the population. Early detection and preventive programs for better ear care can possibly help to alleviate this burden of chronic illness in the society.

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