



## Assessment of middle ear infection in population: A clinical study

Shiva Regmi

Lecturer, Department of ENT, Devdaha Medical College and Research Institute, Nepal

### Abstract

**Background:** The most common middle ear infection is Otitis media. It is one of the inflammatory diseases. There are two main types, acute suppurative otitis media (AOM) and chronic suppurative otitis media. The present study was done to determine middle ear infection such as otitis media in patients.

**Materials & Methods:** It included 120 patients with symptoms of middle ear infection. All were informed regarding the study and general information such as name, age, gender, fever, earache, hearing impairment, ear discharge, tinnitus and vertigo were noted.

**Results:** Out of 120 patients, males were 54 and females were 66. The difference was non-significant ( $P = 0.5$ ). Common symptoms were cold in 45 males and 52 females, fever in 50 males and 45 females, ear discharge in 52 males and 60 females, hearing impairment in 27 males and 25 females, earache in 54 males and 66 females, tinnitus in 5 males and 7 females and vertigo in 2 males and 3 females. The difference was significant ( $P < 0.05$ ). Age group 20-30 years had maximum patients (males- 25, females- 30) followed by 30-40 years (males- 12, females- 19), 40-50 years (males- 6, females- 9), 50-60 years (males- 3, females- 2) and 60-70 years (males- 8, females- 8). The difference was significant ( $P < 0.05$ ).

**Conclusion:** Middle ear infection such as otitis media is frequently encountered ear infection. We observed females predominance. Common symptoms were earache, ear discharge and hearing impairment.

**Keywords:** middle ear, otitis media, earache

### Introduction

Middle ear infection is quite common in children. The most common middle ear infection is Otitis media. It is one of the inflammatory disease. There are two main types, acute suppurative otitis media (AOM) and chronic suppurative otitis media. One more type such as otitis media with effusion (OME) is also common. Acute Otitis Media is one of the commonest infections of the mucosal lining of middle ear cleft. Adults make up less than 20% of patients presenting with acute otitis media. AOM leads to ear pain. In young children this may result in pulling at the ear, increased crying, and poor sleep. Other features are fever and decreased eating [1].

OME is characterized by the presence of non-infectious fluid in the middle ear for more than three months. Chronic suppurative otitis media (CSOM) is middle ear inflammation of greater than two weeks that results in episodes of discharge from the ear. It may be a complication of acute otitis media. Pain is rarely present. There can be hearing impairment (HI), which may result in delays in speech, language, and cognitive skills development, especially if commencing prelingually and leading to decreased employability in adulthood [2].

The causative agent in AOM is either viral or bacterial infection. Precipitating factors such as pacifiers and exposure to smoke etc are common. Signs of AOM include bulging or a lack of movement of the tympanic membrane from a puff of air. New discharge not related to otitis externa also indicates the diagnosis. Other causative agent is dysfunction of the

Eustachian tube. This is usually due to inflammation of the mucous membranes in the nasopharynx, which can be caused by a viral URTI, strep throat, or possibly by allergies [3]. The present study was done to determine middle ear infection such as otitis media in patients.

### Materials & Methods

The present study was conducted in the department of ENT. It included 120 patients with symptoms of middle ear infection. All were informed regarding the study and written consent was obtained. Ethical clearance was taken from institutional ethical committee.

General information such as name, age, gender, fever, earache, hearing impairment, ear discharge, retro auricular pain, tinnitus and vertigo were noted. Results were tabulated and subjected to statistical analysis using chi-square test.  $P$  value  $< 0.05$  was considered significant.

### Results

**Table 1:** Distribution of patients

Total – 120		
Male	Female	P value
54	66	0.5

Table I shows that out of 120 patients, males were 54 and females were 66. The difference was non-significant ( $P = 0.5$ ).

**Table 2:** Common features in patients

Symptoms	Males	Females	P value
Cold	45	52	0.02
Fever	50	45	
Ear discharge	52	60	
Hearing impairment	27	25	
Earache	54	66	
Tinnitus	5	7	
Vertigo	2	3	

Table II shows that common symptoms were cold in 45 males and 52 females, fever in 50 males and 45 females, ear discharge in 52 males and 60 females, hearing impairment in

27 males and 25 females, earache in 54 males and 66 females, tinnitus in 5 males and 7 females and vertigo in 2 males and 3 females. The difference was significant ( $P < 0.05$ ).

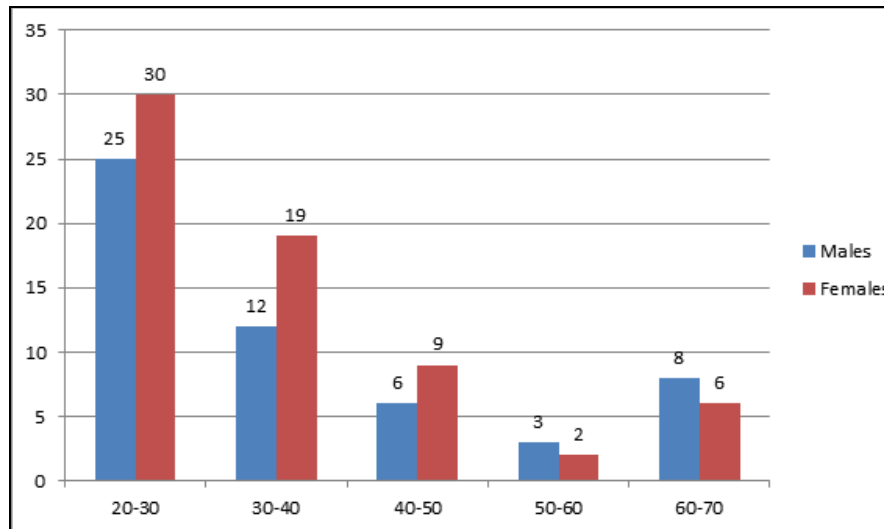
**Fig 1:** Age & Gender wise distribution of patients

Figure 1 shows that age group 20-30 years had maximum patients (males- 25, females- 30) followed by 30-40 years (males- 12, females- 19), 40-50 years (males- 6, females- 9), 50-60 years (males- 3, females- 2) and 60-70 years (males- 8, females- 8). The difference was significant ( $P < 0.05$ ).

### Discussion

Otitis media is associated with symptoms like cough and nasal discharge. It is usually precipitated by an upper respiratory tract infection (URTI). Patients may experience perforation of the ear drum, chronic suppurative otitis media, tympanostomy tube otorrhea, or acute otitis externa. Trauma, such as a basilar skull fracture, can also lead to discharge from the ear due to cerebral spinal drainage from the brain and its meninges [4].

In this study we found that, out of 120 patients, males were 54 and females were 66. We found that common symptoms were earache (54 males and 66 females), cold (45 males and 52 females), fever (50 males and 45 females), ear discharge (52 males and 60 females), hearing impairment, tinnitus and vertigo. This is similar to Van *et al.* [5].

Ear ache is seen in almost all the patients. Infact, it is one of the first symptoms to be noted in the patients. Discharge from ear is frequently seen complaint and associated pain in ear is observed in more than 85% of cases. We found that age group 20-30 years had maximum patients (males- 25, females- 30) followed by 30-40 years (males- 12, females- 19), 40-50 years

(males- 6, females- 9), 50-60 years (males- 3, females- 2) and 60-70 years (males- 8, females- 8). This is in agreement with Todberg *et al.* [6]. Children with recurrent episodes of acute otitis media and those with otitis media with effusion or chronic suppurative otitis media have higher risks of developing conductive and sensorineural hearing loss.

The causative bacteria in AOM are *Staphylococcus aureus*, *Streptococcus pneumoniae* etc. Otitis media with effusion (OME) results from dysfunction of the Eustachian tube. It is characterized by fluid accumulation that can occur in the middle ear and mastoid air cells due to negative pressure [7]. This can be associated with a viral URI or bacterial infection such as otitis media. An effusion can cause conductive hearing loss if it interferes with the transmission of vibrations of middle ear bones to the vestibulocochlear nerve complex that are created by sound waves. Negative pressure results in a retracted tympanic membrane and secretion of mucous from the tissues through osmosis into the middle ear cavity. This lower pressure can be a result of an AOM or eustachian tube dysfunction. Several risk factors for OM have been identified. These include cold-like illnesses, increased number of days at daycare, bottle-feeding, low birth-weight, time of the year (autumn and winter), or recurrent OM [8].

### Conclusion

Middle ear infection such as otitis media is frequently

encountered ear infection. We observed females predominance. Common symptoms were earache, ear discharge and hearing impairment.

### References

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