ORIGINAL ARTICLE

A Comparative Study of Medical Management in Patients with Chronic Suppurative Otitis Media (CSOM-Tubotympanic Type) Using Topical Ciprofloxacin Ear Drops Vs Oral Tablets and Topical Ciprofloxacin Drops Both

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ABSTRACT

Background: The commonest ear disease in developing countries is the suppurative infection of the middle ear (CSOM). The otitis media with suppuration (CSOM-tubo tympanic type) is a common disease in children and adults. Various treatment options have been used to treat the disease.
Aim: To analyze the medical management of CSOM-tubo tympanic: "The resolution of ear discharge by comparison of oral with topical ciprofloxacin VS topical ciprofloxacin drops only"
Methods: Our study was conducted in a random pattern. It included patients of chronic suppurative otitis media reported to ENT unit-1 Lahore General Hospital, Lahore during 1st January 2018 to 31st December 2018. Data was acquired from hospital and pathology lab and analyzed using SPSS version 18.
Results: The results of the study included a total number of 150 cases. They were segregated into two different groups. 75 patients in (group-A) and 75 patients in (group-B). The patients in both the groups were divided into two categories of age group (age 1-10years) and (age 11-15 years). We had 55 patients (73.33%) in group-A and 50 patients (66.67%) in group-B ranging in age group 1-10 years). However the age group (11-15 years) showed 20 patients (26.67%) in (group-A) and 25 patient (33.3%) in (group-B).
Conclusions: We concluded that the resolution of ear discharge by oral with topical ciprofloxacin was significantly better than topical only ciprofloxacin for treatment of middle ear CSOM (tubo-tympanic type).
Keywords: chronic suppurative otitis media treatment option topical & oral ciprofloxacin.

INTRODUCTION

The commonest middle ear infection in developing countries is chronic suppurative otitis media (CSOM). By definition is the inflammatory process that occurs in the middle ear cleft, the clinical features of the disease include a permanent perforation in the tympanic membrane with persistent ear discharge for a period of 6 weeks and over. The sequelae of this disease can result in both extracranial complications like mastoditis, petrositis, facial paralysis and labyrinthitis and drastic intra cranial complications like meningitis, otogenic brain abscess and lateral sinus thrombosis[1].

The clinical profile of the chronic otitis media (CSOM) is segregated into two main variants groups: the safe type (tubotympanic) and the dangerous type (atticoantral) disease. Tubotympanic type is otherwise called safe type or benign type because it is not associated with any serious complications. The atticoantral type is called unsafe or dangerous type because of the associated complications which may be life-threatening at times. These complications are mainly due to granulation tissue and cholesteatoma causing bone erosion and necrosis which may involve the vital structures such as facial nerve, inner ear, and components of the brain. Due to cholesteatoma, granulation tissue and bone osteitus which result in erosion of bone causing ossicular disruption and hearing loss[2].

The demographic profile of chronic otitis media (CSOM) shows occurrence in usually the first decade of life, with mean age of 2 years[3]. The bacteriological cultures obtained from the ear discharge in CSOM (tubo tympanic type) reveals a common group of bacterial flora in which pseudomonas aeroginosa is the commonest. Followed by staph aureus and species of proteus and klebsiella[4]. Pseudomonas continues to remain supreme as primary offender[5].Co-morbidity with malnutrition, HIV and exposure to contaminated water greatly increase the risk of developing CSOM and its complications[6]. The disease of middle ear CSOM (tubo tympanic type) can end up with many withering complications, so early treatment offered can lead to good prognosis. Effective bacteriological knowledge and treatment is of primary importance in CSOM (tubo tympanic)[7]. With the advancement of antibiotics the group of quinolones have a greater role in treatment of CSOM (tubo tympanic type) because of their spectrum effectiveness against the pseudomonas aeruginosa and species of klebsiella and proteus[8]. Pseudomonas aeruginosa showed highest sensitivity to ciprofloxacin[9].

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METHODS

It was a randomized controlled trial. Total no. of culture positive patients was 150. They were divided into 2 groups (75 each).One group was given topical ciprofloxacin and other was given topical plus oral ciprofloxacin. Data was entered and analysed using SPSS version 18. The qualitative variable like gender and resolution of CSOM (tubo tympanic type) were expressed in terms of percentage and frequency. The resolution of CSOM for both the (group-A and group-B) was compared using Chi square chart. The P-value in our research was significant and was ≤ 0.05.

RESULTS

The results of the study included a total number of 150 cases. They were segregated into two different groups. 75 patients in (group-A) and 75 patients in (group-B). The patients in both the groups were divided into two categories of age group (age 1-10years) and (age 11-15 years). We had 55 patients (73.33%) in group-A and 50 patients (66.67%) in group-B ranging in age group (1-10 years). However the age group (11-15 years) showed 20 patients (26.67%) in (group-A) and 25 patient (33.3%) in (group-B). The results of gender discrimination in (group-A) showed 48 male patients (64%) and 27 female patients (36%) and the (group-B) showed 49 male patients (65.5%) and 26 female patients (34.6%).

The objective of the study showed (group-A) using both oral and topical ciprofloxacin 57 patients (76%) had a resolution in ear discharge while 18 patients (24%) did not benefit any resolution in ear discharge. However the results in (group-B) using only topical ear drops had larger index of un resolved ear discharge 41 patients (54.6%) while only a small number of 34 patients (45.33%) benefitted from only using the ear drops topically alone. The comparison in terms of resolution of ear discharge for both (group A and group-B) was carried out. The results showed significant statistical difference. The P-value was calculated as 0.000 showing a significant difference.

Table 1: Distribution of age (n=150)

Age (years)	Group A	Group B
1-10	55(73.33%)	50(66.67%)
11-15	20(26.67%)	25(33.33%)
Total	75(100%)	75(100%)
mean±sd	8.36±3.88	9.01±3.27

Table 2: Distribution of gender (n=150)

Gender	Group A	Group B
Male	48(64%)	49(65.33%)
Female	27(36%)	26(34.67%)
Total	75(100%)	75(100%)

Table 3: Comparison resolution of ear discharge in (group a/b) (n=150)

Resolution	Group A	Group B
Yes	57(76%)	34(45.33%)
No	18(24%)	41(54.67%)
Total	75(100%)	75(100%)

P value=0.000

Table 4: Stratification / comparison resolution of ear discharge in both groups with age bias Age: 1-10

Group	Resolution of ear discharge		P value
	Yes	No	
A	40	15	0.000
B	19	31	

Age: 11-15

Group	Resolution of ear discharge		P value
	Yes	No	
A	17	3	0.06
B	15	10	

Table 5: Stratification/comparison resolution of ear discharge in both groups with gender bias Gender: Male

Group	Resolution of ear discharge		P value
	Yes	No	
A	38	10	0.000
B	18	31	

Gender: Female

Group	Resolution of ear discharge		P value
	Yes	No	
A	19	8	0.49
B	16	10	

DISCUSSION

The prevalence of the most common middle ear disease CSOM (tubo tympanic) is 26% globally. This figures narrates that around about 65 million to 330 million people globally have ear discharge. And out of this whole sum around more than 60% end up with withering complications of CSOM in the form of impaired hearing.

Our study had results similar with various research in the literature. We had 55 patients(73.33%) in group-A and 50 patients(66.67%) in group-B ranging in age group(1-10 years). However the age group (11-15 years) showed 20 patients (26.67%) in (group-A) and 25 patient (33.3%) in (group-B). The results of gender discrimination in (group-A) showed 48 male patients (64%) and 27 female patients (36%) and the (group-B) showed 49 male patients (65.5%) and 26 female patients (34.6%).

The objective of the study showed (group-A) using both oral and topical ciprofloxacin 57 patients (76%) had a resolution in ear discharge while 18 patients (24%) did not benefit any resolution in ear discharge. However the results in (group-B) using only topical ear drops had larger index of un resolved ear discharge 41 patients (54.6%) while only a small number of 34 patients (45.33%) benefitted from only using the ear drops topically alone. The comparison in terms of resolution of ear discharge for both (group A and group-B) was carried out. The results showed significant statistical difference. The P-value was calculated as 0.000 showing a significant difference.

This result of our sample patients were similar to the study conducted by Masum S. The resolution of ear discharge in CSOM (tubo tympanic) patients using combination of topical and oral ciprofloxacin was 70% in the 2nd week and the results further escalated to 95% in the 3rd week [8]. Similarly Masum S showed that using only topical ciprofloxacin had poor results in resolution (50% by 2nd week and 87% by 3rd week)

Another research conducted by Renukananda GS[10] was in agreement with the results of our study. The combination of oral and topical ciprofloxacin in treatment of CSOM (tubo tympanic) type has been very efficient. So a better bacteriological understanding of the disease helps in better and efficient medical management. The usuage of combination form of oral and topical ciprofloxacin has been a hall mark in prevention of all of the withering complications of the disease ranging from facial paralysis to brain abscess and finally preventing catastrophic complications in the form of hearing impairment.

CONCLUSION

We concluded that the resolution of ear discharge by oral with topical ciprofloxacin was significantly better than topical only ciprofloxacin. The combination form of ciprofloxacin is an essential and significant medical treatment plan for CSOM (tubo-tympanic). So early treatment offered helps in better and effective management.

REFERENCES

1. O'Connor T, Perry C, Lannigan F. Complications of otitis media in Indigenous and non-Indigenous children. Med J Aust. 2009; 191:S60–4.
2. Varshney S, Nangia A, Bist SS, Singh RK, Gupta N, Bhagat S. Ossicular chain status in chronic suppurative otitis media in adults. Indian J Otolaryngol Head Neck Surg. 2010; 62; 421-6.
3. Mahoney JL. Mass management of otitis media in Zaire. Laryngoscope, 1980;90: 1200-1208.
4. Madana J, Yolmo D, Kalaiarasi R, Gopalakrishnan S, Sujatha S. Microbiological profile with antibiotic sensitivity pattern of cholesteatomatous chronic suppurative otitis media among children. Int J PediatrOtorhinolaryngol. 2011; 75:1104–8.
5. Goyal R, Aher A, De S, Kumar A. Chronic suppurative otitis media – A clinico microbiological study. Indian J Otol. 2009; 15:18-22.
6. Taipale A, Pelkonen T, Taipale M, Bernardino L, Peltola H, Pitkaranta A. Chronic suppurative otitis media in children of Luanda, Angola. ActaPaediatr. 2011;100:e 84-8.
7. Mansoor T, Musani MA, Khalid G, Kamal M. Pseudomonas aeruginosa in chronic suppurative otitis media: sensitivity spectrum against various antibiotics in Karachi. J Ayub Med Coll Abbottabad. 2009;21:120-3.
8. Masum S, Fakir M. Systemic antibiotics versus topical treatments for chronic discharging ears with underlying eardrum perforations. J Dhaka Med Coll,2010,19:86-90.
9. Abdullah FE, Khatri PK, Alzadjali NA, Ali AD, Bhagia G. Ear infection in Karachi: The frequency and antibiotic resistance of bacterial isolates. Pak J Med Sci. 2011;27:77-81.
10. Renukananda GS, Santosh UP, George NM. Topical vs Combination Ciprofloxacin in the Management of Discharging Chronic Suppurative Otitis Media. J ClinDiagn Res 2014;8:KC01-4.