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REGULAR CLEANING OF EAR CANAL WITH BETADINE SWAB AND COTTON PLUG APPLICATION IN THE CANAL IN PATIENTS OF CHRONIC SUPPURATIVE OTITIS MEDIA (CSOM) – DO THESE REALLY HELP?

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ABSTRACT

Introduction- Chronic Suppurative Otitis Media (CSOM) is one of the most common chronic infectious diseases worldwide especially affecting children. Hearing impairment is one of the most common sequelae of CSOM if not treated early. In this prospective study patients mostly had ear discharge as chief complaint. Itching being the second complaint. Third was hearing impairment. Although in all available literature betadine cleaning is advisable and has shown beneficial effect and seems to be logical. But in this study the effect of betadine ear cleaning and cotton application in the ear of CSOM patients has not shown any beneficial effect, rather it has shown a worse result. **Method-** Patients having Tubotympanic type CSOM, who had unilateral or bilateral ear discharge were divided into two groups. One group was advised to do Betadine dipped cotton swab cleaning of ear canal twice a day and keep a clean cotton in the ear all the time, it was called Group A. Second group was asked not to clean their ear and apply cotton in their ears. This was called Group B. Both group of patients were prescribed Ciprofloxacin ear drops for two weeks and if after two weeks discharge persisted, oral Amoxicillin and Clavulanic acid was given for 5 days. Patients were followed every two week and the amount of discharge and other complaints were noted. Data was collected and filled in Performa. **Conclusions-** Antibiotics in the form of ear drops or sometimes oral are mainstay antibiotic treatment in CSOM. In addition patients are advised to clean the ear with betadine and to apply cotton to keep ear dry and clean. In our study these two precautions were not found to help the patients.

KEYWORDS: Chronic Suppurative Otitis Media, CSOM, betadine, Tubotympanic.

INTRODUCTION

This is a prospective study done at Pankaj ENT Hospital, Lucknow, India in 100 patients of Tubotympanic type CSOM in which benefits of regular cleaning of ear with Povidone (polyvinyl pyrrolidone)-iodine (PVP-I) solution and applying cotton plug in the ear was compared to not using both of these precautions while patients were under routine conservative treatment.

REVIEW OF LITERATURE

Chronic Suppurative Otitis Medias is one of the most common chronic infectious diseases worldwide especially affecting children.[1] Despite appropriate antibiotic therapy, Acute Otitis Media may progress to chronic suppurative Otitis Media characterized by persistent drainage from the middle ear associated with a perforated ear drum.[2] Hearing impairment is one of the most common sequelae of CSOM if not treated early.[3] The resultant hearing loss can have a negative impact on child's speech development, education and behaviour.[4]

Medical treatment of CSOM without cholesteatoma by frequent aural irrigation and cleaning using Betadine can be more desirable option as compared to the oral and topical antibiotics. It is safe and economical without causing any side effects. Removal of deep-seated debris from poorly vascularized sites such as bone, mechanical disruption of biofilm, and alteration of pH of the ear canal are important contributing factors of the Betadine for healing process in CSOM.[5]

Study in Iraq shows that use of Betadine wick was very useful in treatment of resistant cases of chronic suppurative otitis media, and by this we may escape surgery. Other study used povidone iodide 5% as a drops, not wick and shows good efficacy of povidone iodine drops. This study reveals that the use of 10% povidone iodine wick in treatment of resistant cases of chronic suppurative otitis media of tubotympanic variety as a daily regime for one week is very effective and very cheap.[6]

Topical ear drops have been the mainstay in the medical management of actively discharging chronic suppurative otitis media with central perforation. Irreversible tissue damage and fibrosis caused by infection renders systemic therapy less effective. Bacterial pathogens in CSOM vary considerably and can be a combination of both aerobic and anaerobic bacteria. Gentamicin, neomycin, and polymyxin B were previously used as ototopical preparations despite being proven to be ototoxic until the introduction of ciprofloxacin hydrochloride. This drug is presently considered to be the gold standard, with studies proving its superior clinical and bacteriological efficacy as well as absence of ototoxicity. However, with increasing clinical usage, quinolone resistance has been reported, especially following long-term therapy. Povidone (polyvinyl pyrrolidone)-iodine (PVP-I) has been extensively used over the past 20 years for various clinical purposes on skin and mucosa without any serious local or systemic adverse effects. The antimicrobial spectrum of this agent is universal, including gram-positive and gram-negative bacteria, anaerobes, spores, mycobacteria, fungi, viruses, and protozoans. In contrast to other antiseptics such as chlorhexidine and benzalkonium chloride, development of resistance has not been detected for PVP-I. Experimental studies have demonstrated that PVP-I aqueous solution does not show any ototoxic potential. Povidone-iodine is readily available, chemically stable, and relatively inexpensive.[7]

The current primary treatment modality for CSOM is a combination of aural toilet and topical anti microbial drops. Systemic oral or parenteral antibiotics, although an option, are less commonly used due to the fact that topical antibiotics in combination with aural toilet are able to achieve significantly higher tissue concentrations than systemic antibiotics (in the order of 100–1000 times greater). Surgery, in the way of mastoidectomy, is traditionally the mainstay of therapy. However, retrospective studies have suggested that mastoidectomy is not superior to more conservative therapies such as aural toilet and topical and systemic antibiotics for uncomplicated CSOM. Reconstruction of the tympanic membrane or tympano-plasty is another surgical technique often used for persistent perforations after the active infection of CSOM has been treated. 8In two Australian study found Povidone-iodine ear wash was the preferred method of clearing ear discharge. 10 And the only randomised controlled trial in Aboriginal Australian children to describe a treatment that was effective in the majority of children with CSOM used the combination of povidone-iodine ear washes followed by ciprofloxacin ear drops.[11]

Medical treatment of CSOM without cholesteatoma by frequent aural irrigation and cleaning using Betadine can be more desirable option as compared to the oral and topical antibiotics. It is safe and economical without causing any side effects. Removal of deep-seated debris from poorly vascularized sites such as bone, mechanical disruption of biofilm, and alteration of pH of the ear canal are important contributing factors of the Betadine for healing process in the CSOM.[12]

MATERIAL AND METHODS

Hundred patients attending Pankaj ENT Hospital, Lucknow were taken up for this prospective study from 1st, February 2020 to 31st, August 2020. Only new patients, who were not planned for surgery in near future and who consented for study were included. Only those patients were included whose follow-up was for at least 3 months. Patients having Tubotympanic type CSOM, who had unilateral or bilateral ear discharge were divided into two groups. The two groups were demographically balanced. One group was advised to do Betadine dipped cotton swab cleaning of ear canal twice a day and keep a clean cotton in the ear all the time, it was called Group A. Second group was asked not to clean their ear and not to apply cotton in their ears. This was called Group B. Both groups of patients were prescribed Ciprofloxacin ear drops for two weeks and if after two weeks discharge persisted, oral Amoxicillin and Clavulanic acid was given for 5 days. Patients were followed every two week and the amount of discharge and other complaints were noted. Data was collected and filled in Performa.

RESULT

Age and Gender

In both the groups age and gender was kept comparable so that no bias could be there.

Table No. 1: Age distribution of patients.

Age Group (in years)	Group A	Percentage (%)	Group B	Percentage (%)
0-5	7	14	9	18
6-10	10	20	13	26
11-20	13	26	10	20
21-40	11	22	11	22
41-60	9	18	7	14
TOTAL	**50**	**100**	**50**	**100**

Gender

Table No. 2 Gender distribution of patients

Gender	Group A	Percentage (%)	Group B	Percentage (%)
Male	23	46	30	60
Female	27	54	20	40
TOTAL	**50**	**100**	**50**	**100**

Symptoms

Ear discharge whether purulent, mucopurulent or mucoid was the most common complaint 100% and was most annoying to the patients. Although it was never foul smelling still need for regular mopping and social stigma was there. Because of persistant wet canal Itching was second most common complaint (43%).

Table No. 3: Presenting symptoms.

Symptoms presented	Group A	Percentage (%)	Group B	Percentage (%)
Ear discharge	50	100	50	100
Ear pain	4	8	3	6
Hearing impairment	11	22	7	14
Bleeding	12	24	3	6
Vertigo	1	2	0	0
Intracranial complication	0	0	0	0
Itching	23	46	30	60

Follow up Symptoms

Most of the patients had good response and are dry and etching free in first two weeks of treatment. Few do not respond due to multiple factors like deep seated mastoid infection, Aditus blockage, Eustachian tube dysfunction and general factors like Diabetes. Few of them who responded well had recurrences also.

Table No. 4: No. of patients having discharging ear.

Follow up of patients (those who had symptoms)	Group A	Percentage (%)	Group B	Percentage (%)
at 0 week	50	100	50	100
after 2 weeks	12	24	10	20
after 4 weeks	14	28	10	20
after 8 weeks	8	16	11	22
after 12 weeks	7	14	4	8

CONCLUSION & DISCUSSION

In this prospective study it was was noted that patients with Tubotympanic type CSOM mostly had ear discharge as chief complaint. Common Itching being the second (100%) complaint. Third was hearing impairment. Pain and bleeding was least common and none had vertigo or symptoms of intracranial complication.

Usually in patients of CSOM, presenting complaint is purulent ear discharge, pain and hearing impairment. Ear discharge is most common and most annoying to the patients. Most of these patients ultimately require surgery to treat perforation. Till then patients need conservative treatment to keep ear dry and to arrest the disease progress. Antibiotics in the form of ear drops or sometimes oral are mainstay treatment. In addition patients are advised to clean the ear with betadine and to apply cotton to keep ear dry and clean. In our study these two precautions were not found to help the patients. The response after medications were almost equal of slightly better in those patients who did not apply cotton and did not clean their ear with Betadine swab. So it is concluded that cleaning ear canal with Betadine and applying cotton is unnecessary and time and money consuming exercise in patients of CSOM.

Although in all available literature betadine cleaning is advisable and has shown beneficial effect and seems to be logical. But in this study the effect of betadine ear cleaning and cotton application in the ear of CSOM patients has not shown any beneficial effect, rather it has shown a worse result. Possibly it is because of two reasons, one -it is really not beneficial or second the cleaning of ear and cotton application is being done in wrong way. Regular Betadine cleaning in sterile manner and sterile cotton application in the ear canal should have a beneficial effect due to regular removal of purulent material and removing biofilm. But in our social setup, when we advice for Betadine ear cleaning and cotton application, maybe people are cleaning ear in un-sterile manner and using un-sterlised cotton because of which it is giving bad results. So, we recommend not to self clean the ear and not to put cotton or betadine in ear in order to avoid further damage.

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