ASSESSMENT OF MODALITIES FOR TREATMENT OF OTORRHOEA IN ACTIVE PHASE OF SIMPLE CHRONIC SUPPURATIVE OTITIS MEDIA IN JOS UNIVERSITY TEACHING HOSPITAL

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SUMMARY
Objective: *To compare the efficacy of various modalities of treatment of Otorrhoea in simple chronic suppurative otitis media (CSOM) at the ENT unit of Jos University Teaching Hospital.*
Method: *Patients with uncomplicated CSOM were randomly assigned to 4 groups for treatment.*
A: Aural toilet alone.
B: Aural toilet and mild antiseptic.
C: Microscopy, culture and sensitivity determined antibiotic treatment.
D: Broad spectrums antibiotic and antimicrobial cover.
Patients had their ears evaluated for dryness after 7 days and at 28 days of treatment.
Results: *After 7 days of treatment, the ears were dry in A (50.8%); B (55.4%); C (44.6%) and D (46.2%). After 28 days, the dry ears that continued to remain dry were, A (48.5%), B (75%), C (82.8%) and D (90%).*
Conclusion: *Use of antibiotic and antimicrobials has been superior to aural toilet alone. Inclusion of a mild antiseptic with aural toilet improved the outcome of achieving a dry ear.*

Key words: *Otorrhoea, Active Phase, CSOM, Treatment.*

INTRODUCTION

Chronic suppurative otitis media (CSOM) is the commonest otological disease seen in patients attending the Ear, Nose and Throat clinics in the country.[1,2,3,4] CSOM is defined as discharged from the middle ear with a persisting perforation for at least eight weeks.[5,67] Ear discharge is always present in the active phase of simple CSOM.[5,8]

The overall objective of treatment in CSOM is to achieve healing of the perforation.[5,9,10] To achieve this, the infective state of the middle ear has to be eradicated. Eradication of the infection makes it possible for the perforation to heal by fibrosis or allows for myringoplasty to be performed.

Treatment modalities available to achieve a dry ear include, aural toilet, use of mild antiseptic lotion or powder and use of antibiotic drug.[5,10,11,12] The choice of antibiotic should be determined by microscopy, culture and sensitivity studies as this will avoid needles

use of inefficacious drugs.[5,10] However, this may not always be the case and in some cases it may be expedient to cover the patient with an antibiotic that will most likely be sensitive to the likely organisms based on previous sensitivity patterns. Antibiotics have produced a marked reduction in morbidity and complications of this disease and have also in this wise contributed to development of resistance to the drugs.

Mild antiseptics that have been used to treat CSOm include aluminium acetate and boracic powder.[5,11] 10% icthammol in glycerine is a mild bactericidal antiseptic that has been used in the treatment of otitis externa.[5] They are usually inexpensive and do not suffer from the problem of resistance as with antibiotic and as they are not administered systematically, the side-effects are fewer. Aural toilet is known to produce dryness of the ear in some patients. This is because eradication of the infective material by manual evacuation will promote healing.

The most effective method of treatment is that which stops the discharge at the minimal cost.

In this prospective study, various treatment modalities of simple active CSOm have been compared to evaluate the most efficacious. This study was undertaken at the outpatient clinic of the Jos University Teaching Hospital from April 1996 to October 1998.

MATERIALS AND METHODS

All the patients were seen at the Outpatient clinic at the Jos University Teaching Hospital. Patients at first attendance were clerked and informed consent obtained after explanation of the study. Information concerning the age, sex, duration of disease, medication, past medical and past surgical history was obtained. The ear was examined. Investigations done included ear swab for microscopy, culture and sensitivity, plain radiograph of the mastoid and pure tone audiometry.

Patient selection was by simple random sampling. They were divided into 4 groups of 65 patients in each group for treatment.

A: Aural toilet alone

B: Aural toilet and mild antiseptic

C: Antimicrobial drug determined by microscopy, culture and sensitivity.

D: Broad-spectrum antibacterial treatment with gentamicin ear drops and metronidazole orally.

The physician carried out aural toilet and application of mild antiseptic. Antibacterial drugs were administered by the patients or guardians at home.

All the patients were evaluated for ear discharge at 7 days of treatment and again at 28 days of treatment.

A dry ear was regarded as successful treatment and continued discharge was regarded as failure of treatment.

Inclusion Criteria: Otorrhoea from the ear for at least 8 weeks with perforation of the tympanic membrane.

Exclusion Criteria: Residence outside Jos.

History of antibacterial usage within 2 weeks.

History of middle ear surgery.

Evidence of nasal polyp, palatal cleft, adenoids and nasopharyngeal tumours.

RESULTS

A total of 260 patients were seen in the 31 months of this study. 118 patients were males and 142 patients were females. Thus a male to female ratio of 1:1.2. The age range of the patients was from six months to 73 years. See Table 1.

Table 1: Age Distribution

Age (years)	No of Patients	%
0-4	104	40%
5-9	21	8%
10-14	34	13%
15-19	21	8%
20-24	31	12%
25-29	10	4%
30-34	21	8%
35-39	8	3%
40 and above	10	4%

The patients were reviewed on the 7th day of treatment and evaluated for dryness of the ear. See Table 2.

Table 2: Status of Ears at 7 days

Group	Dry Ear	Wet Ear
A	33(50.8%)	32(49.2%)
B	36(55.4%)	29(44.6%)
C	29(44.6%)	36(55.4%)
D	30(46.2%)	35(53.8%)

28 days after commencement of treatment, those with dry ears were reassessed for the continued dryness of the ear. See Table 3.

Table 3: Status of Ears at 28 days

Group	Dry Ear	Wet Ear
A	16(48.5%)	17(51.5%)
B	27(75%)	9(25%)
C	24(82.8%)	5(17.2%)
D	27(90%)	3(10%)

A total of 277 microorganisms were isolated from the patients. See Tables 4 and 5.

Table 4: Bacteriology

Microorganism	No	%
Pseudomonas spp	94	33.9
Staphylococcus spp	61	22.0
Coliforms spp	38	13.7
Proteus spp.	37	13.6
Esch. Coli	17	6.4
Diphteroid spp	8	2.9
Candida spp.	8	2.9
Klebsiella spp.	5	1.8
Acid fast bacilli	4	1.4
Streptococcus pyrogenes	3	1.1
Haemophilus parainfluenzae	2	0.7
Total	**277**	**100**

Table 5: Antibiotic Sensitivity

	Pseudomonas Spp (%)	Staphylococcus Aureus (%)	Coliforms (%)	Proteus Spp (%)	Esch. Coli (%)	Diphteroids (%)
Gentimicin	76.6	73.4	94.7	89.2	58.8	87.5
Streptomycin	36.2	19.8	50	73	35.3	75
Chloramphenicol	3.2	23	-	24.3	-	-
Cotrimoxazole	3.2	6.6	26.3	24.3	23.5	-
Carbenicillin	30.9	9.8	15.8	-	-	-
Ofloxacilin	83	80.3	86.8	54.1	64.7	75
Tetracycline	4.3	9.8	15.8	5.4	23.5	37.5
Ampicilin	-	24.6	21.1	45.9	23.5	50
Colistin	30.9	-	36.8	5.4	-	-

DISCUSSION

The ear weeps because the treatment has not achieved its objective. As long as the ear continues to weep, treatment modalities for the weeping ear will continue to be evaluated. This study confirms what has always been known that CSOM is and continues to be a disease of young persons (table 1) as 69% of the cases in this study were below 20 years of age.[13] This age group represents a very active and growing population. This is also the age group in whom learning is significantly affected due to impaired hearing.[14,15] The burden of this disease is therefore great in the long term when indexed against time lost to ill health, hospital visits, cost of treatment, personal and social discomfiture.

Pseudomonas spp., Staphylococcus spp., Coliforms spp and Proteus constitute the commonest isolates in this series (table 4). This finding is in keeping with other studies on isolates from chronic suppurative otitis media that reveal a preponderance of gram-negative bacilli.[6,16,17,18] The isolation of acid-fast bacilli in 1.4% of the patients is important, as there was no previous history of pulmonary or abdominal tuberculosis.[19] The presence of Candida spp in some ears may be due to prolonged usage of antibiotic.[20] Ofloxacin and gentamicin showed a consistently high efficacy for the entire common bacterial isolates in this study (table 5). Ofloxacin is a relatively newer antibiotic compared to the other antibiograms used in the study. Besides its chemical properties, which have conferred enhanced efficacy, it is not as exposed as the other drugs yet and so the bacteria may not have developed so much resistance to it. Ofloxacin is however

not recommended for children because of its reaction with growing bones. The topical version is available and can be used in children. The ototoxic effect of gentamicin is well known but is not as widespread as feared.[12]

49% of the patients were classified as haven been treated successfully because the ears in these patients were dry and 51% were classified as failed, as their ears were wet at 7 days of treatment (table 2). Aural toilet with mild antiseptic (55.4%) and aural toilet alone (50.8%) produced better results as the ears were dry than microscopy, culture and sensitivity determined antibiotic cover (46.2%) and broad spectrum antimicrobial cover (44.6%) of dry ears at seven days of treatment. This reveals significant efficacy of aural toilet and mild antiseptic over those in groups C and D. The reason for this may be because the physician personally carried out the procedure.

Review of the patients who had earlier achieved a dry ear after 28 days of the commencement of treatment revealed a reversal of the trend in the dryness of the ears in the different groups (table 3). Patients in groups C and D showed a greater number of patients with continued dry ear of 82.8% and 90% respectively. Less than half the patients in group A had continued dry ear at 28 days of treatment (48.9%). 75% of the patients in group B maintained a dry ear at 28 days of treatment.

While mechanical evacuation of the ear discharge is effective in achieving a dry ear, the high failure rate may be due to the continued infective status of the middle ear. A further limitation of aural toilet is that the patient cannot carry it out effectively as a trained personnel is required to avoid trauma to the ear.

The inclusion of a mild antiseptic to aural toilet did enhance the outcome of the result in group B as more patients had dry ear by the 28th day compared to those in group A. This is however not as efficacious as those in groups C and D. The problem of antibiotic resistance is avoided.

The superiority of the use of antibiotic and antimicrobial is seen from the result of groups C and D. In both groups the aim was to eradicate the infective organisms. The inclusion of metronidazole helped to eradicate anaerobic bacteria that are known to be contributory to the infectivity but is routinely not isolated.[2] It is therefore not surprising that the best result of continued dryness of the ear was seen in patients in group D.

Whereas the patients in group D showed a greater number of persons with continued dry ear, the importance of treatment determined by microscopy, culture and sensitivity is emphasized by the isolation of acid fast bacilli in four of these patients especially in the absence of any evidence of pulmonary or abdominal tuberculosis. None of the other methods of treatment used could have treated these cases. The changing pattern of resistance of bacteria is another reason for failure of treatment.

This study confirms the belief that, aural toilet can produce a dry ear in the course of toileting. Its long term continued dryness is less than satisfactory. Because aural toilet requires a trained staff to carry out, it is burdensome. Though not commonly used, aural toilet with instillation of mild antiseptic has been fairly efficacious in this series. In general practice and in patients with multiple drug resistance, antiseptic instillation may have a place in management of CSOM. Because the microscopy, culture and sensitivity pattern for each specimen is unique, there is no substitute for it in determining the treatment of patients in the acute phase of uncomplicated chronic suppurative otitis media.

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