

BACTERIOLOGY AND TREATMENT OF CHRONIC OTITIS MEDIA

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ABSTRACT

Tympanocentesis was performed in 30 patients with chronic Otitis media. Pus was cultured aerobically and anaerobically. Aerobes only were isolated from 26 patients, and 9 had anaerobes. The patients were divided into two groups according to their antimicrobial only therapy: 20 received carbenicillin and 10 clindamycin. There was excellent to good response to therapy in 46.67% of the patients treated Carbencillin and in 36.67% treated clindamycin here was a relieved from symptoms for up to one year. There were statistical differences in response to therapy in the two groups treated. Antimicrobial therapy directed against aerobic and anaerobic isolates from chronic otitis media had a high success rate in complete eradication of the infection.

Key Words: Bacteriology, Chronic Otitis Media, Treatment.

INTRODUCTION

Chronic suppurative otitis media, a chronic inflammatory process is slow and insidious in its course, tends to be persistent and very often destructive with sometimes irreversible sequellae. The bacterial flora found in chronic otitis media was studied on several occasions in the past.¹ The bacteria isolated in those studies were mostly aerobic, predominantly gram negative bacilli and

staphylococci. Past studies did not employ strict anaerobic techniques and anaerobic bacteria were infrequently isolated.²

Treatment of chronic otitis media consists of surgical intervention, and use of topical and systemic antimicrobial therapy. However, the success rate in eradication of the infection using systemic antibiotics was low.³

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The present study was undertaken to study the bacteriology of chronic suppurative otitis media as previously defined.⁴ Aerobic and anaerobic methodology were employed and an evaluation of the antimicrobial treatment directed against the aerobic and anaerobic bacteria recovered from the patient was done. The antibiotics used in treating the patients were carbenicillin or clindamycin, which are effective against anaerobic as well as aerobic bacteria.

MATERIAL AND METHODS

Middle ear fluid was aspirated from patients suffering from chronic otitis media with effusions. 30 patients included in the study. Ten subjects were adults and 20 were children 6-8 years old. All presented to the outpatient Ear, Nose and Throat Clinic Om Hospital with an discharge of their chronic otitis media and all had an unperforated tympanic membrane and effusions. They all had past medical history of repeated ear infections for the last 6 months to 3 years, and the otoscopic examination done revealed a scarred, dull, sometimes retracted tympanic membrane. The patients had not been receiving antimicrobial therapy for at least one month prior to the sample collection. The external ear canal was cleaned of cerumen with a blunt curette when indicated, but no disinfectant preparation of the canal or the tympanic membrane was attempted. Aspiration was done using sterile swab Tympanocentesis was done using an 18 gauge medicut which consisted of an 18 gauge needle covered by plastic canula attached to 2 ml syringe. The needle was bent to a 45° angle and the canula was slipped forward to cover bevel. When tympanic membrane was approached via microscope the canula was retracted and the eardrum membrane entered in the posterior inferior quadrant.

The aspirated pus was diluted in 0.5 ml of thioglycolate broth and was immediately inoculated into aerobic and anaerobic media.⁵ Inoculation for aerobes was made into blood agar and chocolate agar which were incubated at 37° C under 5% CO₂ and were examined at 24 and 48 hours. The thioglycolate broths were incubated for 14 days. Aerobic bacteria were identified using conventional methods.

Following the aspiration the patients were placed on antimicrobial therapy. The choice of antibiotics was done at random twenty patients received carbenicillin therapy administered in a dose of 300 to 400 mg/kg/day divided into 4 doses. Carbenicillin was administered parenterally all through the course of therapy, which was 14-21 days. The second group of 10 patients received clindamycin in a dose of 30 to 40 mg/kg/day, divided into 3 daily doses, administered parenterally in seriously ill patients or those who could not ingest the oral preparation for at least 5 days, and thereafter was administered orally when feasible for a total period of 14-21 days, depending on patient's response. The patients, clinical responses were evaluated and their clinical response to the therapy was monitored (See Criteria in Table II). They were all reexamined by otoscopic examination for appearance and motility.

Table I : Bacterial Isolates and treatment

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RESULT

Thirty middle ear effusions were obtained from the patients. The ear effusions were purulent in all instances. The bacteriological results from the initial pretreatment aspiration are summarized in Table I thus anaerobes were recovered from 30% and aerobes from 86.67% of the patients studies. There is statistical difference between the bacterial results of the two groups of patients treated with carbenicillin with carbenicillin or clindamycin.

Table II : Response to therapy

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There were 9 anaerobic isolates; in instances five anaerobic gram positive cocci were the only isolates recovered. A combination of the different anaerobes an aerobes varied and there was no consistent pattern of combinations.

The response of the patients to carbenicillin and clindamycin is outlined in Table II. Out of the 20 cases treated with carbenicillin (80%) complete eradication of their infection, while 10 out of 30 (90%) treatment with clindamycin had a similar response.

There were no side effects noted from the usage of either drug. None of the patients developed any renal, hepatic or hematological abnormality and none developed any diarrhea or colitis.

DISCUSSION

The aerobic organisms recovered in this study are similar to those four in previous studies of chronic otitis media.⁶ *Staphylococcus aureus* *Pseudomonas aeruginosa* and *Proteus* sp. were the major pathogen

however, isolation of the anaerobic bacteria from the middle ear purulent fluid of patients with chronic otitis media in more than 50% of the patient reinforces studies from the turn of the century in which a significant for anaerobes was indicated. The lack of use of anaerobic methodology may account for the relatively high rate of negative cultures in the middle ear effusions in certain previous studies. The anaerobic bacteria which were isolated in our study are known pathogens of the upper respiratory tract the recovery of those bacteria from patient with chronic otitis media suggest the role of anaerobic bacteria in the etiology of chronic otitis media.

Despite our precaution to avoid contamination, it is possible that some isolation of anaerobic as well as aerobic bacteria represent contamination of middle ear aspirate by external ear flora. We have elected not to disinfect the ear canal because of the need to restrain and premedicate those patients prior to such a procedure, and also because further studies with appropriate anaerobic cultures of middle ear fluid and of the flora of the external auditory canal should cast some light on this issue.

We have been able to treat our patients with antimicrobial agents directed against the aerobic organisms isolated from the ear aspirates, and have been able to eradicate the infection in more than half of the cases with no need to use other modes of therapy. There was no statistical difference noted in the therapeutic effect between the two antimicrobial agents employed in this study.

CONCLUSION

Clindamycin has an excellent activity for anaerobic bacteria in vitro and was used on many occasions in the past and found to be very effective in the treatment of serious anaerobic infections.⁷ Clindamycin is also very effective in the treatment

of staphylococcal infection an organism very often isolated from aspirates of chronic otitis media. Its usage has been limited recently by reports of colitis following its administration⁸ however, none of our patients developed any side effects, including colitis, following its administration.

Carbenicillin was found to be effective in the treatment of anaerobic infections. Carbenicillin is also effective against many gram negative aerobic organisms, especially pseudomonas sp. and also has a synergistic activity against those organisms when given with an aminoglycoside.⁹ This is a factor for consideration in the treatment of chronic otitis media where Pseudomonas sp are very frequently isolated. Carbenicillin was as effective as clindamycin in the eradication of chronic otitis media in our patients. There were no side effects noted in our patients associated with the administration of carbenicillin therapy.

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