IN VITRO ANTIBACTERIAL ACTIVITY OF VARIOUS ANTIBIOTICS AGAINST ISOLATES IN CHRONIC SUPPURATWE OTITIS MEDIA

Pages with reference to book, From 263 To 265

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Abstract

Frequency of various organisms and their sensitivity pattern was studied in 33 patients suffering from chronic suppurative otitis media. Thirty Seven percent had Prseudomonas aeruginosa, 27% Staph. aureus, 18% Strep. pyogenes, 15% Proteus and 3% E. Coli infection. Tobramycin was most effective against Pseudomonas and Proteus, Cepharadine against Strept.pyogenes and Augumentin against Staph. aureus infection. Minocyclin demonstrated the best activity against Proteus(JPMA 38: 263, 1988).

INTRODUCTION

Chronic otitis media develops due to unresolved acute infection, inadequate treatment or the host factors that perpetuate the inflammatory process. Complications of chronic suppurative otitis media are progressive destruction of middle ear structures and a significant risk of permanent loss of hearing[1]. The present study was undertaken to determine the frequency of various microorganisms responsible for chronic suppurative otitis media (CSOM) and to further assess the changing pattern of their sensitivity to older antibiotics.

MATERIAL AND METHODS

Thirty three outdoor patients suffering from CSOM were included in this study. The auricle and external canal were cleaned with antiseptic swab.

The pus samples were taken with the help of sterilized swabs and were streaked on blood agar and Maconkey's agar . The plates were kept in incubator at 35°C for 18-24 hours.

The organisms were identified with the help of their morphological and cultural characteristics, grams staining and certain specific chemical tests. The standard Bauer-Kirby antibiotics susceptibility procedure was followed.

The inoculum was taken with the help of sterilized wire loop and streaked on sensitivity agar plate uniformly. About 7—8 different antibiotics impregnated discs were placed in each plate. The plates were incubated at 35°C for 18-24 hours. The zone of inhibition for each antibiotics was measured.

RESULTS

The causative organisms in 33 cases of chronic SOM were Pseudomonas aeruginosa (37%), Staph. aureus (27%), Strep. pyogenes (18%), Proteus (15%) and E. coli (3%). Their sensitivity pattern is shown in Tables 1, II, III and IV respectively.

TABLE – I. Pseudomonas aeruginosa and its Sensitivity Pattern.

Antibiotics	Zone of Inhibition In mm.	Reference Zone	No.of Cases	Resistant	Sensitive	Percentage
Tobramycin	20.85	<12(R)	7	1	6	85.7
Gentamycin	15.27	<12(R)	10	3	7	70
Brulamycin	14.00	<12(R)	5	2	3	60
Minocyclin	6.00	<14(R)	10	9	1	10
Augumentin	0.00	<13(R)	11	11	–	0.0
Ampiclox	6.00	<12(R)	6	5	1	16

R* means resistant

TABLE–II. Proteus and its Sensitivity Pattern.

Antibiotics	Zone of Inhibition In mm.	Reference Zone	No.of Cases	Resistant	Sensitive	Percentage
Minocyclin	20.6	<14(R)	5	–	5	100
Augumentin	19.6	<13(R)	5	1	4	80
Tobramycin	19.00	<12(R)	5	1	4	80
Cephradine	12.4	<14(R)	5	2	3	60
Erythrocin	5.0	<13(R)	5	4	1	20
Ampiclox	6.0	<12(R)	5	3	2	40

R* means resistant.

TABLE-III. Staph. aureus and its Sensitivity Pattern.

Antibiotics	Zone of Inhibition In mm.	Reference Zone	No.of Cases	Resistant	Sensitive	Percentage
Augumentin	22.25	<13(R)	8	1	7	88
Tobramycin	21.57	<12(R)	7	0	7	100
Gentamycin	21.00	<12(R)	7	0	7	100
Minocyclin	21.00	<14(R)	9	0	9	100
Cephradine	16.11	<14(R)	9	3	6	67
Ampiclox	6.00	<12(R)	4	3	1	25
Erythrocin	0.00	<13(R)	9	9	0	00

R* means resistant.

TABLE–IV. Strep. Pyogenes and its Sensitivity Pattern.

Antibiotics	Zone of inhibition In mm.	Reference Zone	No.of Cases	Resistant	Sensitive	Percentage
Cephradine	26.80	<14(R)	6	0	6	100
Minocyclin	21.20	<14(R)	5	0	5	100
Augumentin	23.40	<13(R)	5	0	5	100
Ampiclox	19.33	<12(R)	4	0	4	100
Gentamycin	18.50	<12(R)	5	1	4	80
Erythrocin	8.00	<13(R)	5	4	1	20
Cotri-maxozole	9.00	<12(R)	5	3	2	40

R* means resistant.

DISCUSSION

The organisms generally responsible for acute suppurative otitis media are, haemolytic streptococcus, Staph. aureus or the Pneumococcus. Other organisms sporadically found are H.influenzae, Ecoli, B haemolytic streptococcus, Proteus and Ps. aeruginosa[2].

In chronic suppurative otitis media, the bacteriology changes: however the commonest causative organisms isolated have been Ps aeruginosa, H. influenzae, Staph. aureus and Proteus species[3].

Pseudomonas was the commonest infecting organism in the present series followed by Staph. aureus, Strept. pyogenes, Proteus species and E. Coli.

Since the causative pathogens in chronic otitis media vary widely it is suggested that medical treatment should not be started unless culture and sensitivity report is at hand. It has been reported that the use of systemic antibiotics plays an important role in the management of otitis media[4].

When the causative organism is other than Pseudomonas, it is better to use other non toxic, convenient and less expensive drugs like Min ocyclin, Augumentm and Cephradine.

This study has shown that the organisms responsible for chronic suppurative otitis media have become relatively resistant to antibiotics like

Ampidillin, Ampiclox, Amoxycfflin, Cotrimoxazole, and Erythromycin.

Among the aminoglycocides tobramycin was found to be more effective against Pseudomonas aeruginosa as compared to Gentamycin and Brulamycin. The difference in response was statistically significant (P> .05).

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