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Antibiotic Sensitivity Pattern of Staphylococcus Pyogenes

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INTRODUCTION

In well over ninty percent of the cases the pathogen isolated from infected material submitted to bacteriology laboratory turn out to be Staphylococcus pyogenes. It is well known that Staph. pyojenes causes wide range of major and minor pyogenic. infection. Certain strain of Staph. pyogenes produce penicillinase, thus making penicillin useless as an armament to combat against them. As there is no restriction to the sell of antibiotic in this country unnecessary as well as inadequate use of these important drugs could not be ruled out. As a result more and more bacteria including Staph. pyogenes have become resistant to increasing number of antibiotics. Hence it would be ideal to prescribe antibiotic only after sensitivity pattern of the pathogen is known. But as the facilities for culture and sensitivity is not available in many places in this country it would be helpful to have idea of the up to date sensitivity pattern of the pathogen so that best guess can be made.

MATERIALS AND METHOD

Specimen taken from outdoor patients with infection in various parts of the body submitted to Pathology Laboratory, T. C. Military Hospital for culture and sensitivity test were recorded and only those specimen in which Staph. pyogenes was isolated were included in this study. However, blood and urine culture specimen were not included.

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Specimen were cultured on 7% lysed horse blood agar and McConkey agar plates. Colonies which showed characteristics of Staphylococci were put to coagulase test by slide method. Colonies that produced coagulase were regarded as Staph. pyogenes. Sensitivity plates were prepared from diagnostic sensitivity test agar (code CM 26=, Oxoid Ltd., UK.) as per recommendation. The isolated Staph. pyogenes were then furthur investigated for antibiotic senstivity by disc diffusion method using Multodisks (Code S1 Oxoid Ltd., UK.) The following antibiotic were tested on diagnostic sensitivity agar plate : chloramphenicol (10 micro gram), erythromycin (10 micro gram), cloxacillin (5 micro gram) penicillin (1.5 units), ampicillin (2 micro gram), tetracycline (10 micro gram), and streptomycin (10 micro gram). Organisms were regarded as resistant to peniciilin if the colonies at the inhibition zone were full sized in contrast to organisms sensitive to the drug where a smooth edge is produced by colonies of diminishing size. For the rest of the antibiotic. included in this study, the organisms were considered as sensitive when the inhibition zone radius was 3 mm or more.

RESULTS

Table shows the antibiotic sensitivity and resistant pattern of 411 strains of Staph. pyogenes. Three hundred and sixtyfive (88.8%) and three hundred and sixtyfour (88.4%) of them were sensitive to erythromycin and cloxacillin respectively. Similarly, two hundred and sixty one (63.5%) and two hundred and thirtyfour (56.9%) were sensitive to chloramphenicol and tetracycline respectively. One hundred and fortinine (36.3%), one hundred and nine (26.4%), and eighty three (20.2%) were sensitive to ampicillin, streptomycin, and penicillin respectively.

TABLE Antibiotic senitivity and resistancs pattern of 411 strains of Staph. pyogenes.

ANTIBIOTIC	SENSITIVE		RESISTANT	
	No	%	No.	%
Chloramphenicol	261	63.5	150	36.5
Erythromycin	365	88.8	46	11.2
Cloxacillin	364	88.6	47	11.4
Penicilln	83	20.2	328	79.8
Ampicillin	149	36.3	262	63.7
Tetracycline	234	56.9	177	43.1
Streptomycin	109	26.4	302	73.6

DISCUSSION

As compared to the published figures else where the percentage sensitive strains of Staph. pyogenes in this series to different antibiotic is somewhat low. For instance. Hassam Z. A. et al in their paper reported the sensitivity pattern of Staph. pyogenis from U. K. as follow: penicillin 18.5%, erythromycin 98%, cloxacillin 100%, tetracycline 92% and chloramphenicol 100%. In their series they excluded any patients who had attended any hospital out patient or in patient department whitin the previous two months. Hassam Z.A. et al found that all strains of Staph. pyogenes in their series were sensitive to colxacillin and chloramphenicol whereas in the present study the sensitivity were only 88..6% and 63.5% respectively. Similarly, 98% and 92% of their strains were sensitive to erythromycin and tetracyline respectively where as it is only 88.8% and 56.9% respectively in the present study. On the other hand, only 18.5% of their strains were sensitive to penicillin whereas 20.2% were sensitive in our series. This discrepancy in results may be due to the fact that no history of taking antibiotics during or before the isolation of the organism was available to us while undertaking this work. The other possibility which should not be ruled out is the misuse of antibiotic due to its availability on demand from any drug store as there is no effective legislation controlling the despensation of this important group of drugs. Finally, geographical variation should also be taken into account.

The table clearly showed that erythromycin and cloxacillin are the drug of choice in treating Staph. pyogenes infection.

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