

Summary

Bacterial pathogens associated with conjunctivitis and corneal ulcers with special reference to *Streptococcus pneumoniae*.

Introduction.

Most important and frequently occurring two types of external eye infections are conjunctivitis and corneal ulcers.

As the prevalence pattern could vary from time to time, an updated knowledge of the spectrum of pathogens is important in management of the patient.

The present study was undertaken to isolate the common bacterial pathogens with special reference to *Streptococcus pneumoniae*.

Method.

322 conjunctival and corneal swabs of both OPD and in ward patients with conjunctivitis and corneal ulcers were processed. Also 31 samples of corneal button and 04 samples of vitreous fluid from in ward patients with corneal ulcers were processed. All samples were cultured on 3 agar media (blood, chocolate, MacConkey) according to the standard microbiological techniques. Identification was done by standard microbiological techniques like Gram stain, oxidase test, catalase test, etc. Confirmation of *Strep.pneumoniae* was done by testing sensitivity to 5 microgram Optochin disk and by the test of bile solubility. Direct Gram stain of the swabs was done when it is possible and especially on the request of the clinicians. All pneumococcal isolates were tested for MIC of penicillin and were serogrouped.

Results.

Of the 296 swabs from patients with conjunctivitis, there was no bacterial growth in 118 samples (39.8%). 135 samples yielded a single isolate (45.6%) and 24 samples yielded 2 or more isolates (8.1%). Of 185 total isolates, most frequently isolated

bacteria were coagulase negative *Staphylococcus* spp (58, 31.4%), and second commonest was *Streptococcus pneumoniae* (33, 17.84%). Percentage of *Haemophilus* spp, viridans group of *Streptococcus*, and *Staphylococcus aureus* was 15.7%, 10.3%, 8.1% respectively. Of 203 samples which had direct Gram stain, 46(22.7%) were smear positive with organisms and pus cells and out of that, 41 were culture positive for the predicted organisms. Penicillin resistance is 70.7% among pneumococcal isolates according to ABST, but according to the MIC level, 3(6.5%) isolates were resistant to penicillin, 28(60.9%) were intermediate and 15(32.6%) were sensitive. All were sensitive to Vancomycin and 97% were sensitive to Chloramphenicol. Of 37 available pneumococcal isolates which were serotyped, 12 isolates were 19F (32%), 6 isolates were 23A, 4 isolates were serotype 3, and one isolate from each of other serotypes. 3 were non-typable. 32% were vaccine type and 24% were vaccine related.

Culture results of patients with conjunctivitis:

| Result | No.of swabs |
|-------------------------------------|-------------|
| No growth | 118 (39.8%) |
| Single isolate | 135 (45.6%) |
| Polymicrobial | 24 (8.1%) |
| <i>Micrococcus</i> (non pathogenic) | 19 (6.4%) |
| Gram positive org. | 127 (68.6%) |
| Gram negative org. | 58 (31.4%) |

Culture results of patients with corneal ulcers:

| Result | Swabs | Corneal button | Vitreous fluid |
|----------------------------------|-----------|----------------|----------------|
| No growth | 18(69.2%) | 29 (93.5%) | 3 (75%) |
| Coagulase negative <i>Staph.</i> | 4 | - | - |
| <i>Pseudomonas</i> spp | 2 | - | - |
| <i>Strep.pneumoniae</i> | 2 | - | - |
| Spore bearers | - | 1 | - |
| Viridans <i>Streptococcus</i> | - | 1 | - |
| Coliforms | - | - | 1 |
| Total samples | 26 | 31 | 4 |