Antimicrobial susceptibility pattern of the isolates from bacterial keratitis and endophthalmitis in a tertiary care hospital of Pakistan
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Background: Blindness and eye disorders represented a problem of major public health concern in Pakistan. Bacterial keratitis (Corneal ulcer) is an inflammatory disease of the cornea caused by bacterial infections. Bacterial keratitis is a significant cause of ocular morbidity that can result in severe visual loss and should be considered a medical emergency. Endophthalmitis is a severe inflammation of the anterior and posterior segments of the eye caused by the introduction of contaminating microorganisms following trauma, surgery, or hematogenous spread from a distant infection site.

Methods & Materials: A prospective study was performed to analyze trends in resistance of Keratitis and endophthalmitis causative bacteria to commonly used antibiotics and to evaluate the final visual outcomes after therapeutic management. The 397 clinical specimens collected from the infected patients were processed for bacteriological analysis and the antibiogram of the isolates. After specific therapeutic management of these patients, final visual outcomes were evaluated.

Results: The isolation of various types of organisms from Bacterial keratitis and Endophthalmitis samples included species of Staphylococci, Streptococci, Diptheroids, Bacillus, Entero-cocci, Clostridia, Diplococci, Pseudomonas, Proteus, Serratia, Haemophilus, Enterobacter, Klebsiella, and yeast and fungi. All isolates were resistant to Cephalosporins, Tobramycin, Gentamycin, and Amikacin. These isolates showed resistance to other drugs such as 80.0% to Chloramphenicol, 73.3% were resistant to Ciprofloxacin, 66.7% to Augmentin, 53.3% to Meropenem, 46.7% to Moxfloxacin, 40% to Sparfloxacin, 40% to Fucidin, and 13.3% to Vancocin. However, all the isolates were found sensitive to Linezolid. During the study, the most commonly used empirical combinations for intravitreal administration were vancomycin and ceftazidime or vancomycin and amikacin. The present study also reported vancomycin, amikacin and ceftazidime as the least resistant antibiotics.

Conclusion: The emergence of various bacterial strains resistant to commonly used antibiotics indicates the irrational use of antibiotics in medical practice and the community. The poor visual outcomes of Bacterial keratitis and Endophthalmitis were ascribed to several other factors besides antibiotic resistance.

Resistance patterns of the isolates of ventilator associated pneumonia and associated risk factors in a tertiary care hospital of Pakistan
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Background: Ventilator-associated pneumonia is a life-threatening infection often caused by multi-drug resistant pathogens. The irrational use of broad-spectrum antibiotics has resulted into the increasing emergence of antimicrobial resistance among critically ill patients in the Intensive Care Units (ICUs).

Methods & Materials: A prospective study was designed to determine the antimicrobial susceptibility patterns of pathogens isolated from ventilator-associated pneumonia (VAP), to evaluate the efficacy of antibiotics using agar disc diffusion method in a tertiary care hospital of Pakistan. For this purpose, a total of 380 morbid samples of endotracheal secretions were collected on the first day of the insertion of endotracheal tube and were primarily cultured for the evidence of any previous respiratory infection. Antibiotic susceptibility testing was determined for all positive cultures using the Kirby-Bauer disc-diffusion method.

Results: A total of 380 morbid samples of endotracheal aspirates were analyzed which showed that 73% patients had acquired the ventilator-associated pneumonia. The most important risk factors responsible for the infection and antibiotic resistance in ventilated patients were elderly male patients, increasing duration of ventilator and severe underlying respiratory infections. All of the isolates including Staphylococci, Streptococci, Actinobacter, Pseudomonas, Enterobacter, Klebsiella, Escherichia, and of Proteus, presented variable resistance (12-86%) against the tested antibiotics. Most of the isolates were found resistant (>42%) to Augmentin, Gentamycin, Cefazolin, Ceftriaxone, Doxycycline, Tetracycline, Clindamycin and Ciprofloxacin. The maximum antimicrobial activity was observed for Meropenem, Tobramycin, Fucidin, Linezolid, Vancomycin, Tigecycline and Tazocin. The sensitivity patterns of Tigecycline were found superior as compared to others.

Conclusion: To ensure future potency of antibiotics and counteract resistance trend; rational antibiotic use and comprehensive surveillance of antibiotics resistance are very important especially with respect to hospital acquired infections.