

Conjunctival microbiota and Antibiotic Resistance Pattern in Patients Submitted to Cataract Surgery and Antibacterial Activity of Some Plant Essential Oils

ABSTRACT

Objective: The objective of this study was to identify the conjunctival microbiota of patients undergoing cataract surgery and evaluate its antibiotic resistance pattern. Also to in-vitro evaluate the antimicrobial effects of some essential oils against multidrug resistant isolates. **Methodology:** Ocular samples were collected using swabs and polymethyl-methacrylate (PMMA) intraocular lenses from seventy patients submitted to cataract surgery. Isolation and identification of bacteria was performed using conventional microbiological methods. Antibiotic sensitivity was done by disc diffusion method. The sensitivity of 16 essential oils against isolated bacteria was tested using well diffusion method. **Results:** Thirty six strains were isolated from patients submitted to cataract surgery. Gram positive microorganisms represent 75% of the isolates with coagulase-negative Staphylococci (CoNS) the most common isolate (47.2%) followed by *S.aureus* (19.4%), whereas gram negative occurred in 25% of cases, with *Moraxella spp.* the most frequent Gram negative isolate. Antibiotic sensitivity test revealed that the highest antibiotic resistance was exhibited against ceftazidime (100%) followed by clindamycin (86%), ampicillin (80.5%), erythromycin (72.2%) and tetracycline (69.4%). Gentamycin displayed the best activity (55.5%) followed by chloramphenicol (44.4%) and vancomycin (38.88%). Fifteen essential oils showed antibacterial effect against one or more bacterial strains. The most potent oils were peppermint oil, dill oil, cinnamon oil which showed promising inhibitory activity against most tested bacterial species, whereas cotton, ginger, chamomile, blue green, cod liver and parsley oil were the least active against tested strains. Olive oil failed to inhibit any of the tested strains. In general, *St. pneumoniae* was the most susceptible organism as it inhibited by ten oils. **Conclusion:** Our results indicate a promising antibacterial effect of peppermint oil, dill oil and cinnamon oil against conjunctival microorganisms.