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Bacterial contamination of multi dose topical ophthalmic medications and drug susceptibility pattern of the isolates at the department of ophthalmology in Gondar university hospital, Northwest Ethiopia

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Background: Contaminated ophthalmic solutions represent a potential cause of avoidable ocular infections. Ophthalmic solutions used for both diagnostic and therapeutic purposes that are found to be contaminated with bacteria pathogens are associated with ocular infections such as Keratitis and Endophthalmitis.

Objective: The objective of this study was to assess the magnitude and pattern of bacterial contamination of multi-dose topical ophthalmic medications and drug susceptibility pattern of the isolates at the department of ophthalmology in Gondar University Hospital.

Methods: A total of 100 ophthalmic medications have been taken from the ophthalmology department of Gondar University Hospital and cultured for potential bacterial contamination in the microbiology department after one week and greater than one week of use from multi use and single use eye medications. The dropper tip and the residual eye medications were examined for contamination. The contaminating bacteria were identified by using a standard procedure and drug susceptibility testing to selected antimicrobial agents was done.

Result: From the 100 ophthalmic medications tested, 11 were contaminated by different bacterial species with a prevalence of 11%. Significant difference was found between contamination from multi and single use eye medications. From the results, contamination is associated with the duration of use of the medications. The contamination level ranges from 0% for antibiotic to 20% for local anesthetics. The bacteria identified were staphylococcus aureus, coagulase negative staphylococcus species, Escherichia coli, bacillus and enterobacter species. Staphylococcus aureus and coagulase negative staphylococcus species were resistant to methicillin. Gram negative bacteria identified were almost sensitive for the antibiotics tested.

Conclusion and Recommendations: The total prevalence of contamination was found to be low. Multi-use and longer duration of use of eye medications were associated with higher rate of contamination. Most of the identified bacteria were sensitive to the antibiotics tested but MRSA was a potential risk. It is recommended that the department of ophthalmology should design proper set of rules on the duration of use of eye drops and safe handling of ophthalmic medications by the staffs and patients.

Biography

Asegedech Tsegaw was born in Gondar town in 1985. She graduated in bachelor of pharmacy at Addis Ababa university school of pharmacy and she done Master of Science in pharmacology at Gondar University, Ethiopia. She is currently working as a Pharmacology Instructor in Gondar University.

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