Microbial Contamination of Contact Lenses Care Solutions

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Background: Millions of people worldwide nowadays wear contact lenses (CLs) to improve vision disorders. CLs preservative solutions can act as a vector for microorganisms to adhere to the ocular surface of the cornea. Microorganisms, including gram-positive and gram-negative bacteria, are considered to play a role in the etiology of certain corneal infections observed during contact lens wear. Aim: This study was carried out to detect and compare the differences of bacterial contamination of preservative solutions for CLs used for daily wear (DW) and extended wear (EW) in CLs care solutions. Materials and Methods: Nineteen swab samples of CLs preservative solutions from female's users were collected, including 10 samples of EW and 9 samples of DW. Samples were inoculated directly from CLs cases onto different culture media including blood agar, MacConkey agar and mannitol salt agar. Culture characteristics of samples were determined, gram stained, examined microscopically and analyzed by API tests. Few samples of each group were analyzed by the Microscan system simultaneously to verify our results. Results: This study have shown that 14 of the samples collected from CLs cases were contaminated with bacteria and were found to be gram-negative bacilli as analyzed by API 20E tests. Results obtained from EW and DW contact lenses cases were found to harbor non-pathogenic and pathogenic microorganisms, including oxidase-negative Serratia marcescens. Conclusion: Microbial colonization of CLs preservative solutions with pathogenic bacteria appears to be a significant risk factor leading to corneal infections. Improper CLs hygiene greatly increases the incidence of lenses contamination.

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