

## **Bacterial Contamination of Contact Lenses Among Some Female Students and Employee of College of Education-Ibn Al- Haitham, University of Baghdad**

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### **Abstract**

During the last few years, an increase in utilization of contact lenses (both cosmetic and correction of refractive errors lenses) was noticed among young females, with an increase in eye infections. The present invocation was carried out to demonstrate the percentage of bacterial contamination of both the preservation fluid and lens containers. Fifty-two contact lenses users among female students and employees of college of Education-Ibn Al- Haitham were surveyed. Data were obtained on methods of usage and results of microbial examination. The following points were reached. 1- Gram-negative bacteria were the most common ones, especially *Pseudomonas aeruginosa* with 38.9% of the total isolates. 2- Results of sensitivity tests for antibiotics revealed that ofloxacin, ciprofloxacin, chloramphenicol, gentamycin and tobramycin were effective against isolated bacteria from containers and preservative fluids of contact lenses. 3- Improper and non hygienic measures were employed especially in connection with keeping the preservative fluid and the containers tidy.

### **Introduction**

Contact lens wear has been associated with an increased risk of corneal infection and / or inflammation (1, 2). In recent years, an increase in ocular pathologies related to soft contact lens has been

observed (3). According to Food & Drug Administration survey in 2006, about 80 million people worldwide now wear contact lenses. In the United States, about 33 million people wear contact lenses (4).

Contact lenses alter corneal anatomy and physiology (5). Hydrogel lenses have the capacity to create significant hypoxia, hypercapnia, and tissue acidosis in the cornea (6). Depending on the polymer, hydration, and design, contact lenses can increase, or kind of polymer used decrease epithelial and conjunctival edema. Surface epithelial changes include edema, microcyst formation, decreased sensation, changes in junctional adherence between cells, and pannus formation stromal and endothelial changes also have been documented with long-term contact lenses wear (7). Many studies found changes to the variety of normal conjunctival flora present during lenses wear (8) and other study reported a decrease in gram - positive normal bacterial flora and an increase in nonpathogenic gram-negative species (9). Many studies have shown that contact lenses provided a scaffold for microbial pathogens and increase their presence on the ocular surface by adhering to the polymer matrix and the epithelial surface (10). Pathogens such as *Acanthamoeba*, *Pseudomonas*, *Serratia*, *E. coli* *Haemophilus influenza*, *Streptococcus*, *Staphylococcus* and others bacteria in particular are capable of adhering to contact lenses causing bacterial keratitis (11, 12, 13, 14, 15, 16)

The wetting and soaking solutions and contact lens cases of eye clinical patient commonly were contaminated with gram-negative bacteria during their use (13). Improved hygienic practice and the use of contaminated solutions have been reported to be involved in the etiology of bacterial keratitis among contact lens wearers (17).

The present study was aimed for the following objectives:

- a- To study the rate of bacterial contamination of contact lenses, wetting and soaking solutions.
- b- The susceptibility of bacterial isolates to antimicrobial agents.
- c- Determination of the most prevalent contaminant bacteria.