



## **Acanthamoeba keratitis in noncompliant soft contact lenses users: Genotyping and risk factors, a study from Cairo, Egypt**

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### **Abstract**

Acanthamoeba keratitis (AK) is a severe corneal infection that may occur as a serious outcome of improper use of contact lenses (CL). **Objectives:** The study aimed to diagnose AK in soft CL users presenting with infectious keratitis, and to identify the prevalent genotypes isolated from different cases. Another aim was to determine the CL hygiene-related risk behaviors, and to explore the risk of water exposure for developing AK. **Methods:** A cross sectional study was performed. A questionnaire was carried out including 260 clinically diagnosed cases as infectious keratitis (170 females and 90 males); all of them were soft CL users for the suspected risk factors. Corneal scrapes from the affected eyes were cultured to diagnose bacterial and AK. PCR was performed and the amplified products were sequenced and compared with GenBank data. **Results:** The parasite was positively amplified from 32 samples (12.3%). Acanthamoeba T4 genotype was identified in 27/32 (84.4%) of isolates. Other detected genotypes belonged to T5 and T3 genotypes at rates of 9.4%, and 6.25%, respectively. The most important risk factors associated with development of AK were female sex, sleeping while wearing CL, and exposure to water resources through different practices. These practices included rinsing the CL case in tap water, swimming and/or showering while wearing CL, using multipurpose solution for cleaning the lenses, using water from over-building tanks. Rubbing the eyes due to discomfort when applying CL was an additional important risk factor associated with AK. The protective factor was regular hand washing before using CL. **Conclusion:** CL users were more exposed to AK and should gain enough health education regarding proper lens hygiene and dangers of tap water exposure.

**Keywords:** Acanthamoeba keratitis; Cleaning solutions; Genotyping; Hygiene; Soft contact lens; Tap water.