

UIC investigates eye infections tied to contact lens use

June 13 2007

The use of a particular contact lens solution has a strong association with *Acanthamoeba keratitis*, a rare severe eye infection, report researchers at the University of Illinois at Chicago in a study published online this week by the American Journal of Ophthalmology.

AK is an often severe, painful infection of the cornea that commonly causes corneal scarring and sometimes blindness.

"We began to look for possible contact lens-related causes for the sharp increase in cases, all in contact lens wearers, in this previously rare infection," said Charlotte Joslin, assistant professor of ophthalmology and visual sciences at UIC and principle investigator in the study. "In the last three and half years we have seen 63 cases of the infections, compared to the two or three cases a year we would normally expect to see."

In their study, the researchers compared 38 AK patients with 100 controls, all of whom were UIC clinic patients between 2003 and 2006. All participants were asked to fill out a survey.

Survey questions focused on the six-month period prior to symptoms and targeted three areas: water exposure; contact lens hygiene, including solutions and lens types; and other habits associated with contact lens use. Participants were provided with color images of the contact lens solution bottles to help them recall what type they had used.

Among soft contact lens wearers, participants with AK were significantly more likely to report having exclusively used AMO Complete MoisturePlus than the control group (55.2 percent vs. 10.5 percent).

"The results correlated with previously published laboratory studies that showed that *Acanthamoeba* is largely resistant to contact lens solutions in general and to Complete MoisturePlus in particular," said Dr. Elmer Tu, associate professor of clinical ophthalmology, who is also involved with the study.

In their voluntary recall, the company emphasized that there is no evidence to suggest that today's voluntary recall is related to a product contamination issue.

The researchers also found a statistically weak association between three other contact lens use factors and infection: reusing solution, rubbing the lenses when cleaning them, and showering with lenses on.

"Showering can scatter water-borne microbes into a mist and increase exposure to the microbe that causes the infection," said Joslin. Reusing solutions and not rubbing lens when cleaning and storing them could also result in more exposure to the microbe.

Because these factors are associated with an increased likelihood of infection and this is the second very recent outbreak of an extremely rare eye infection, the researchers emphasize that it is important to look for additional causes behind the outbreak of this infection and to evaluate whether changes in the water supply may be contributing to this increase in disease.

For instance, Joslin said, recent Environmental Protection Agency regulations that decrease the levels of disinfectant in the water supply

may have led to an increase in the microbial load that contact lens solutions must kill in order to prevent disease.

"Our results demonstrate that the use of AMO Complete MoisturePlus Multi-Purpose Solution is strongly associated with AK disease -- but it was not a factor in nearly 40 percent of cases," Joslin said.

The UIC researchers alerted the Illinois Department of Public Health to the outbreak in 2006, which in turn informed the U.S. Centers for Disease Control and Prevention.

Source: University of Illinois at Chicago

Citation: UIC investigates eye infections tied to contact lens use (2007, June 13) retrieved 2 May 2024 from <https://medicalxpress.com/news/2007-06-uic-eye-infections-tied-contact.html>

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