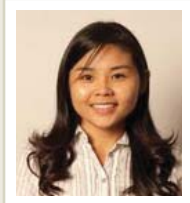


Contact Lens Update

CLINICAL INSIGHTS BASED IN CURRENT RESEARCH

Contamination of re-used daily disposable contact lenses: A Review

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An observation of the current trends in contact lens prescribing around the world show that daily disposable contact lens use is on the rise.¹ This is not unexpected, as this modality has the benefits of convenience, increasing parameters to include toric and multifocal products and the recent introduction of silicone hydrogel materials, allowing for enhanced ocular health. However, non-compliance can have the effect of negating these benefits. Although non-compliance with replacement frequency has been found to be the lowest with daily disposable lenses, compared to both fortnightly and monthly replacement,^{2, 3} there is still a percentage of patients who are re-using their daily disposable contact lenses, with the main reason being cost.² Jennie Diec reviewed an article by Boost et al., who conducted a study looking at contamination of daily disposable lenses worn and stored overnight in the original blister packaging.

Szczotka-Flynn LB, Imamura Y, et al.. Increased resistance of contact lens-related bacterial biofilms to antimicrobial activity of soft contact lens care solutions. Cornea 2009;28: 918-926.

Contact lenses tested

Participants wore their own habitual daily disposable contact lenses, including: 1 Day Acuvue (Johnson & Johnson), Soflens 1 Day (Bausch & Lomb), Focus Dailies (CIBA VISION), Biomedics 1 Day (CooperVision) and NEW DAY (Sauflon).

Study population and method

Twenty daily disposable contact lens wearers were asked to store their contact lenses overnight after one day of wear, in the original blister pack solution, covered with the original packaging foil. The next morning, using new plastic forceps, they transferred the contact lenses and the solution to a new contact lens case which was then submitted to the laboratory for analysis. They did this on five occasions, each time with new forceps and contact lens cases, over a one month period.

Laboratory analysis

After preparation of the solution with an infusion broth, diluted and undiluted samples were allowed to grow on agar plates to allow for a total count of any organisms. The contact lenses were transferred onto blood agar plates and all samples were incubated. The authors also performed the same laboratory analysis using new daily disposable contact lenses and packaging solution as a control.

Results

Two hundred solution samples were collected and 45.5% had some form of growth from the solution including 21.5 % of positive samples yielding Staphylococci and 28% of positive samples yielding gram negative rods. However, fungi were not isolated.

At least one pair of contact lenses was contaminated in 95% of the subjects, with 35% of subjects having all samples contaminated. The authors found that males were more likely to have contaminated lenses and there was a correlation between growth in the contact lenses and solution. Organisms found on contact lenses included *Staphylococcus aureus* and *Pseudomonas aeruginosa*. No growth was found from the control contact lenses and solution.

Conclusions

This study showed a definite contamination in worn daily disposable contact lenses stored overnight in packaging solution. The packaging solution itself also yielded growth of both gram positive and gram negative bacteria. This has implications for patients who re-use their daily disposable contact lenses, and poses a contamination risk to the ocular surface upon re-insertion of these lenses. Practitioners need to inform their patients of the risks of this non-compliant behaviour and the subsequent potentially sight threatening consequences.

REFERENCES

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3. Dumbleton K, Woods C, Jones L, Fonn D, Sarwer DB. Patient and practitioner compliance with silicone hydrogel and daily disposable lens replacement in the United States. *Eye Contact Lens* 2009;35:164-71.