ASSOCIATIONS BETWEEN SOLUTION INDUCED CORNEAL STAINING, CORNEAL INFILTRATIVE EVENTS, AND GRAM-NEGATIVE BACTERIA CASE CONTAMINATION

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INTRODUCTION

- Corneal infiltrative events (CIE) have been associated with solution induced corneal staining (SICS) and Gram-negative bacteria (GNB) case contamination.1,3
- CIEs are 3x more likely in those with SICS while the lens care product (LCP) with the highest rate of GNB case contamination also has the highest incidence of CIE.1,3

PURPOSE

To compare incidences of CIE, SICS and GNB case contamination rates between four LCPs when used with the same silicone hydrogel contact lens.

METHODS

- Rates for CIE, SICS and GNB case contamination for four LCPs when used with balafilcon A (Bausch + Lomb, Rochester, USA) were obtained either from published data or calculated retrospectively.
- The four LCPs were
  - LCP 1 containing sodium chlorite / H2O2: Sauflon Pharmaceuticals, Twickenham, UK.
  - LCP 2 containing alexidine dihydrochloride / polyquaternium (PQ)-1: Abbott Medical Optics, Inc., Santa Ana, USA.
  - LCP 3 containing PHMB / PQ-1: Bausch + Lomb, Rochester, USA.
  - LCP 4 containing PHMB: CIBA Vision, Duluth, USA.

RESULTS

Figure 1 shows first event CIE and SICS incidence and GNB case contamination rate for all 4 LCPs.
- There were no significant differences between LCPs for CIE incidence (p ≥ 0.05) however CIE incidence appeared to increase with GNB case contamination.
- LCP 1 was significantly lower than LCPs 3 and 4 for SICS (p < 0.001 for both).
- LCP 2 was significantly lower than LCPs 3 and 4 for SICS (p = 0.007 and p < 0.001 respectively).
- LCP 1 was significantly lower than LCPs 3 and 4 for GNB case contamination (p < 0.001 and p = 0.01 respectively).

DISCUSSION

- LCPs with PHMB have a high rate of SICS, even when compared to other materials.
- LCPs which use oxidation have a low rate of SICS and CIE when used with balafilcon A, which is in agreement with published data.2
- Antibacterial cases have a low rate of GNB case contamination, which is in agreement with published data.4
- When used with balafilcon A, CIE incidence appears to be associated with GNB case contamination.

CONCLUSIONS

- When used with balafilcon A, oxidative LCPs have lower rates of SICS.
- Efficacy against GNB case contamination might reduce CIE incidence.

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