

INTRODUCTION

Studies have found an increased risk of CIEs with continuous wear of silicone hydrogel lenses^{1,2,3}. These studies were conducted in the United States and the risk factors emerging from these prospective studies include

- Age (less than 25 and greater than 50)
- Refractive error greater than 5 dioptres
- Previous history of ocular inflammatory event
- Smoking
- Corneal staining
- Limbal redness

Differences in climate⁴ and population⁵ are also likely to influence contact lens related adverse events.

PURPOSE

To identify risk factors for corneal inflammatory events (CIEs) in wearers of silicone hydrogel lenses on a 30-night continuous wear (CW) schedule.

MATERIALS AND METHODS

- The subjects for this study were residents of Andhra Pradesh, India. The study was conducted at the L V Prasad Eye Institute in Hyderabad.
- A total of 188 subjects were dispensed with lenses (commenced on May 23 2005) in this single-site study.
- Lenses used in this study were lotrafilcon A silicone hydrogel lenses.
- Subjects wore the study lens on a 30-night CW schedule with monthly replacement.
- Lenses were dispensed at the baseline visit and follow-up visits were scheduled at 1 night, 1 week, 3 months and 6 months after starting CW
- Multivariate logistic regression, after adjusting for within subject correlation, was used to develop the statistical model.

RESULTS

Demographics	Results
Age	22 ± 4 (Min. 17, Max 46)
Male : Female	117 (62%) : 71 (38%)
Neophyte : Experience	159 (85%) : 29 (15%)
Spec Rx sphere (D)	-2.83 ± 1.43
Spec Rx cylinder (D)	-0.17 ± 0.29

Figure 1. Demographic data of subjects dispensed with lenses

Lens Type	Power (D)	Base Curve (mm)	Diameter (mm)
lotrafilcon A	-1.00 to -6.00	8.6	13.8

Figure 2: Lens parameters

Factor	Odds Ratio	p Value	95% Confidence Interval	
			Lower	Upper
Corneal Vascularisation (Any vs None)	12.33	0.001	2.86	53.2
Microbial Contamination of Lenses	2.78	0.002	1.43	5.4
Occupations in ideal environment	1	-	-	-
Occupation in non-ideal environment	6.24	0.003	2.1	40.45
Students	2.2	0.203	0.65	7.43
Primary Gaze Movement (per change in 0.1mm)	0.56	0.027	0.398	0.935

Figure 3: Risk factors



RESULTS

- Occupations in non-ideal environments were found to predispose wearers to CIEs (p=0.003). Wearers who had varying degrees of exposure to ocular irritants in their work environment (dust, fumes, water splashes to face) had the highest incidence of CIEs (19.2%).
- Wearers in a controlled, ideal environment (indoors, administrative type work) had lowest levels of events (3.3%).
- Students occupied a position between the two groups (9.3%).
- CIE rate was higher among wearers with increased microbial contamination of lenses (p=0.002). Wearers with an infiltrative event had mean CFU of 1.97 log compared to mean CFU of 1.45 log in group with no infiltrative event.
- Corneal vascularisation was associated with the development of CIEs (p=0.001) with 50% of wearers with vascularisation experiencing events compared to 7.6% of subjects with no vascularisation.
- Reduced lens movement was associated with CIEs (p=0.027).

CONCLUSION

- A multitude of factors, including environmental influences, lens contamination, ocular characteristics and lens fit contribute to the development of inflammatory events.
- Contamination of the lens appears to confer the highest risk of developing an infiltrative event indicating that patient hygiene, compliance and local environment play a critical role with these types of events.
- Occupational environment was also a contributory factor, confirming that a duty of clinicians is to ascertain the nature of the work environment of lens wearers (and potential wearers) and to balance the needs of the wearer with the potential risks.

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