



Free Paper Session
Wednesday 22nd September

Keratorefractive Surgery Outcomes - Myopia 1
Blue Amphitheatre
0800 – 1030

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Overnight orthokeratology: another chance for the patients that aren't good candidate to refractive surgery?

Purpose: With the recent advances in technology in the ophthalmic industry, nontraditional corrections for refractive error are in demand. Although the most popular alternative is likely to be refractive surgery, not all the patients (i.e. teen-agers, progressive myopia, low myopic in pre-presbyopic age, etc.) may be good candidate to this procedure. Our question is if the overnight orthokeratology may be another safe and efficacious option.

Method: 50 eyes of 25 myopic patients, ranging in age from 11 to 45 years, was fitted with a customized esa-curve reverse geometry lens in hyper-Dk gas-permeable material. The baseline refractive error was from -1.00 to -6.00 D sph. with astigmatism up to 1.50 D. Subjective rating, UCVA, refraction, BCVA, corneal topography, corneal wave-front analysis, endothelial microscopy, confocal microscopy and biomicroscopic data were collected. Visits included baseline, dispensing, 1 day, 1 week, 1 month, and 3 months after lenses were worn. For all the subjects an overnight wear was scheduled. Data were collected in the morning immediately following lens removal and in the evening.

Results: The cornea responds rapidly to the application of these lenses, the corneal shape changes from prolate to oblate asphericity after 1 night of wear; in the majority of cases improvement in unaided visual acuity up to 6/6 can be obtained for at least 12 h after lens removal in the first week of treatment. There was a significant improvement in subjective ratings of quality of day and night vision ($p < 0.05$) but a significant increase of corneal spherical aberration ($p < 0.05$) due to post-treatment oblate shape of the cornea. Subjective ratings continued to improve after objective measures stabilized at 1 week. Confocal microscopy didn't show significant structural, inflammatory, or trophic alterations of corneal tissue. Specular microscope showed no measurable changes in the endothelium. No significant ocular adverse events were observed during the trial.

Conclusion: These preliminary results suggest that the overnight wear of these customized esa-curve reverse geometry lenses reduces the patient's dependence on daytime wear of spectacles or contact lenses, allowing the patient to achieve acceptable unaided vision for the most part of daytime. Safety and efficacy of the procedure appear to be favourable without significant adverse reactions.