Repeatability of Scleral Topography Using the Eye Surface Profiler

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PURPOSE

To determine how repeatable the outcomes of the Eye Surface Profiler are for measuring ocular surface shape for use in designing scleral lenses.

METHODS

A retrospective analysis of 40 eyes of 21 patietns in our current database was done. In all cases, only those patients with 3 scans with full data to 16 mm was utilized. The Min and Max SAG values for 16 mm were obtained for each of the 3 scans. The range from the highest reading to the lowest reading was obtained for each eye for both the Min SAG and Max SAG.

RESULTS

The average variation between the highest value and the lowest vault among the 3 scans for each eye for the Min SAG reading was 58 micrtons with a standard deviation of 27 microns. The average variation between the highest value and the lowest value among the 3 scans for each eye for the Max SAG reading was 66 microns with a standard deviation of 34 microns. When using an average Min and Max SAG for each of the 3 scans for fitting purposes, the variation for any one scan was never more than 55 microns for the Min SAG and 65 microns for the Max SAG from the mean.
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The Eye Surface Profiler provides repeatable ocular surface shape data for use in fitting scleral lenses.

To ensure the best outcomes, obtaining 3 quality scans to average and compare may be a good practice.

CONCLUSIONS

The Eye Surface Profiler provides repeatable ocular surface shape data for use in fitting scleral lenses. When obtaining 3 quality images, the practitioner should be able to be accurate with lens parameters within 60 microns of the desired vault in all cases and within 30 microns in 60% of eyes. To ensure the best outcomes, obtaining 3 quality scans to average and compare may be a good practice.