DISTRIBUTION OF KERATOCONUS MATCH INDEX AND KERATOCONUS MATCH PROBABILITIES IN A NORMAL REFRACTIVE SURGERY POPULATION

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PURPOSE

To determine the normal distribution of Keratoconus Match Index (KMI) and Keratoconus Match

STUDY DESIGN

Restrospective review

METHODS

ll patients presenting for LVC had ocular biomechanical properties measured by the Ocular Response Analyzer (ORA). Virgin eyes with reliable waveform scores (>6.5) were examined with ORA software version 3.01, providing the new KMI and KMP indices. These were derived from analysis of waveforms from 5 clinical populations: normal, suspect keratoconus (KC), mild KC, moderate KC, and severe KC. KMI is a single numerical "keratoconus score" where decreasing values below 1 are more likely keratoconic waveforms. KMP is the percentage probability that an individual waveform matches the characteristics of the five clinical reference groups. Distribution and ranges were determined for KMI and KMP indices.

RESULTS

KMI and KMP scores for 8848 right eyes were analyzed. The average KMI was 0.95 ± 0.26, range of 0.12 to 2.08. KMP scores were distributed with 100, 96.4, 83.0, 5.6, and 0.01% matching characteristics of normal, suspect, mild, moderate, and severe KC populations. No waveform had more than 68% similarity to suspect, 65% to mild, 17% to moderate, and 1% to severe KC populations. 3.6% of eyes

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were 100% normal. 13.4% matched to both normal and suspect KC populations and have no more than 4% similarity to suspect KC and the lowest KMI was 1.18. Any waveforms with over 4% similarity to the suspect KC population also matched to 1 or more of the other KC populations as well and had KMI values less than 1.18. KMI was directly proportional to KMP in normal and indirectly proportionally to KMP in suspect, mild, and moderate KC (r=1.00, -0.997, -0.995, -0.397, respectively, $p<0.001$).

CONCLUSION

Only a small percentage of eyes presenting for LVC were found to match to moderate and severe KC populations. A large percentage of waveforms contain characteristics of both suspect and mild KC. It would be important to correlate these findings to topographies in order to determine the clinical utility of KMI and KMP scores.