



Central corneal thickness measurement with different devices in keratoconic patients

Dear Editor,

We read with great interest the article by Aghazadeh Amiri et al. concerning the corneal thickness (CT) measurements with Scheimpflug and slit scanning imaging techniques in keratoconus (KC).¹

We would like to congratulate with the authors for their very interesting paper because it is well known that the measurement of CT is involved in the reliability of intraocular pressure measurements, both in virgin eyes^{2,3} and in those that underwent photorefractive keratectomy (PRK),⁴ but it is also fundamental in deciding which technique can be more appropriate for the treatment of KC.⁵

The paper by Aghazadeh Amiri et al. showed that despite the strong correlation between CT measurement readings with Pentacam and Orbscan, the inter-device difference was statistically significant, mainly in more advanced cases of KC. According to the authors, this confirms the results of some previous studies suggesting that these two devices are non-interchangeable in cases of KC, although they are interchangeable in normal cases.

In our opinion, this is partially true as a previous study found Pentacam measurements to be thicker than those obtained with Orbscan II.⁶ This overestimation decreases in corneas thicker than 560 μm . The reason for these differences is unclear, but the distinct methodologies in each device and use of a correction factor in Orbscan might induce this tendency. On the other hand, Pentacam is an optical method of CT measurement similar to that of Orbscan; it might also require correction of the raw data to match its data to those of ultrasonic pachymetry. To our knowledge, however, the manufacturer has not disclosed whether this kind of correction is performed in the machine.

The study by Aghazadeh Amiri et al. found the evaluation of central CT to be different in all grades of KC, whereas the evaluation of the thinnest point is very similar in grade 1 KC

and not in more advanced cases. These results seem to support the idea that the difference previously found in normal corneas could be due to the different way the two machines define the center of the cornea, explaining the difference for thicker corneas, too.

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