Dear Sir,

This letter is to alert about the danger of carrying out biometric calculations for the intraocular lens without being aware that the patient may be using a contact lens. This warning is valid even when the highest precision research technology is being utilised.

At present, errors in the calculation of the intraocular lens (IOL) are the most frequent cause of lens exchanges as well as legal claims (1). The development of noncontact biometry with laser interferometry (IOL-MASTER, Zeiss) has increased the precision of said calculation, which is particularly important in transparent lens refractive surgery where the main objective is post-op emmetropia.

We report the case of a 58-year old patient with budding lens opacity and 10/10 vision with -8.25 refraction in both eyes, who was scheduled for intraocular surgery and multifocal lens. In the period between the ophthalmological exploration and the measurements taken by the technical staff and the optician-optometrist, without informing the staff and while they were busy preparing the measurement, the patient placed his contact lenses on prior to the biometric readings. The biometric calculation was made with the Zeiss IOLMaster system (V.3.01; Carl Zeiss, Jena, Germany).

The mean axial length and keratometry was in the RE of 26.21 mm/37.42 corneal diopters (D) and of 26.03 mm/38.63 D in the RE, which established a calculation for emmetropia of the multifocal intraocular lens (366D Acri.tec, constant A=118,3) with Haigis formula of +21 RE and +19 LE. After the RE surgery, the uncorrected visual acuity was below 1/10 with a value of –7,25. After repeating the biometric calculation in the contralateral eye (LE), the same result was obtained (+19,5). However, when we noticed that the patient was wearing a contact lens (-7D, radio 8,6, Purevision, Bausch&Lomb), we proceeded to withdraw it and repeat the calculation. The new results were: RE, 26.14 mm/44.77 D; LE: 26.03 mm/45.08 D. After exchanging the RE IOL and surgery with power adjusted IOL in LE, the final values were: RE, -0,25-0,25 at 20º, LE: -0,5 satisfactory bilateral emmetropia without need of eyeglasses.

The ability of contact lenses, particularly hard and gas permeable lenses, to modify the biometric calculation of the intraocular lens by modifying the corneal curvature and therefore the corneal dioptries (K), sometimes for weeks after their withdrawal (2) is well known. However, after searching world literature in PubMed we found only one similar case related to a severe biometric error after carrying out biometric measurements while wearing disposable soft contact lenses (3).

We conclude that even though we can utilize the latest technology for calculating intra-ocular lens values (IOLMASTER), it is very important to check that the patient it is not wearing contact lenses (including the soft and disposable type) in order to avoid surprises in refraction which could reach to 7 diopters, as we have seen in this case.

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REFERENCES