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A NEW PHAKIC ANTERIOR CHAMBER INTRAOCULAR LENS FOR THE CORRECTIONS OF HIGH MYOPIA. Fimia A\textsuperscript{1}; Alió J.L.\textsuperscript{2}; Pascual I.\textsuperscript{1}, Universidad de Alicante, Departamento Iteruniversitario de Optica\textsuperscript{1}, División de Oftalmología\textsuperscript{2}, Alicante Spain.

Among the possible surgical solutions that have been suggested for high myopia, the implantation of anterior chamber intraocular lenses seems in phakic eyes to be one of the most successful, specially in terms of correction of high myopias. However, the design and resulting form lenses already availables for clinical use show some problems related to the very small dimensions of the implantation zone in order to avoid contact and interaction with the posterior surface of the cornea and other anterior segment intraocular tissues.

In this paper we present a new design for anterior chamber intraocular lenses which avoids the previously mentioned problems based in a new technological concept. It basically consists of leaving an empty space (vacuum) within the lens itself. Thus the refraction index of the external medium is higher than that of the internal medium and this cause an inversion in the geometry of the optical surfaces. At the same time the great rise in the index between the PMMA that surrounds the lens and the vacuum within it makes it possible to work with larger curvature radii which in turn makes it possible to significatively reduce the thickness and the weight of the lens. Basically the external structure of the lens is the same as a plate without peripheral meniscous while the internal structure contains a hollow area that serves as a lens.

The authors of this paper analyze both the behavior of the lens as an optical system and the calculation of its power; power ranging from -10 to -30 diopeters are easily obtained. The use of this lens in the posterior chamber is clearly possible with a potential for the improvement of the clinical performance of phakic anterior chamber lenses in highly myopic eyes.

NONE

PATENT PENDING