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PIBIC Last Name - Urbano First Name - Andréia Middle - Peltier

Service (sector) Refractive Surgery N° CEP

Zyoptix System and Wavefront-guided Laser in Situ Keratomileusis

A.P.Urbano, R.M. Nosé, W. Nosé

Purpose: To investigate the visual and refractive outcome of wavefront-guided laser in situ keratomileusis (LASIK) to correct myopia and myopic astigmatism. Materials and Methods: This prospective study comprised 32 eyes of 18 patients who had a mean preoperative spherical refraction of -2.81 diopters (D) \pm 1.19 (SD) and a cylinder of -1.08 \pm 1.29D. Preoperative and postoperative wavefront analysis was performed with a Shack-Hartmann aberrometer (Zywave) and corneal tomography with Orbscan II. The Chiron Technolas 217-Z Excimer Laser, a flying-spot laser with a 1.0 mm spot size and active eye-tracking was used. Results: At the first post-operative day, uncorrected visual acuity was 20/20 or better in 75,1% of eyes and 20/15 in 31,3 %. The mean spherical equivalent was -0,12 \pm 0,48 D and 74,2 % of the eyes were within \pm 0.5 D of emmetropia and 96,8 % were within \pm 1.0D. One month after surgery, uncorrected visual acuity was 20/20 or better in 90,6 % of eyes and 20/15 in 40,6%. The mean spherical equivalent was -0,49 \pm 0,37D and 64% of the eyes were within \pm 0.5 D of emmetropia and 96% were within \pm 1.0D. No eye lost any line of best spectacle-corrected visual acuity (BSCVA), 48,1 % gained 1 line. The achieved safety was 1.2 and efficacy was 1.0 at 1 month. Six eyes had a 3 month follow-up, with uncorrected visual acuity 20/20 or better in all of them and 20/15 in 3 eyes. The mean spherical equivalent was -0,50 \pm 0,22 D. Four eyes were within \pm 0.5 D of emmetropia and all within \pm 1.0 D. No eye lost any line of best spectacle-corrected visual acuity (BSCVA) and 2 eyes gained 1 line. Conclusions: Wavefront-guided LASIK is a promising technique that offers the potential to correct refractive errors, to improve visual acuity, and to increase the quality of vision, especially under mesopic conditions. Optimized ablation patterns may further improve the visual results.