

Categories: KeratoRefractive, Techniques and Technology, Surface Ablation (PRK/LASEK)

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Number: 37818

Year: 2005

Title: Correction of Myopia With or Without Astigmatism with a 213 nm Solid-State Refractive Laser

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Purpose: To present our prospective multi-center results using a solid-state laser system for the correction of myopia with or without astigmatism by laser assisted in situ keratomileusis (LASIK) and surface ablation. **Methods:** Nineteen eyes underwent laser ablation at two clinical centers between September 2002 and June 2004. All patients were treated with the CustomVis Pulzar Z1 solid-state laser system with a 213 nanometer (nm) laser wavelength, a 0.6 mm flying beam spot, a rapid pulse rate of 300-400 Hertz (Hz), the Crystal Scan+ scanning system and the ZCAD surgical planning application. Pre-treatment myopia and/or astigmatism in this patient population ranged up to 5 diopters (D) of myopia with refractive cylinder < 4.5 (D); manifest refraction spherical equivalent < 6 (D). Postoperative outcomes were analyzed for all cases (n = 19) and for the subset of cases with < -5D (n = 16). **Results:** At the last visit (1 month follow-up) in those eyes with < -5D, cumulative Snellen visual acuity was 20/20 or better in 87.5% of eyes, 93.8% 20/25 or better and 100% 20/30 or better. 81.3% of cases fell within + 0.5D of their targeted refractive correction (manifest refraction spherical equivalent), 93.8% within + 1.0D. At the last visit, best spectacle corrected visual acuity was unchanged in 87.5% of eyes with no eyes losing 2 or more lines; 1 line loss in 12.5% of eyes. **Conclusions:** Preliminary results using a solid-state 213 nm laser system for the correction of myopia with or without astigmatism are promising. Further clinical study is needed to assess the long-term value of this new refractive laser technology.