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Femtosecond laser, microkeratome similarly effective for implanting intracorneal ring segments

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Using a femtosecond laser to create the corneal channels for implanting intracorneal ring segments appears as effective as mechanical dissection performed with a microkeratome, a study found. Both techniques produced similar improvements in vision in patients treated for mild to moderate keratoconus or post-LASIK keratectasia, the study authors said.

Karen G. Carrasquillo, OD, PhD, and colleagues compared the efficacy of implanting Intacs intracorneal ring segments (Addition Technology) using either a femtosecond laser or mechanical dissection. The study included 33 eyes of 29 patients; 16 eyes were assigned to the femtosecond laser group and 17 eyes were assigned to the mechanical dissection group, according to the study.

In all 33 eyes, mean uncorrected logMAR visual acuity significantly improved from 1.0, or 20/200, preoperatively to 0.6, or 20/80, at 10.3 months mean follow-up ($P < .0005$). Mean best corrected logMAR visual acuity also improved, from 0.3, or 20/40, preoperatively to 0.2, or 20/30, ($P < .05$), the authors reported.

In addition, at 10.3 months mean follow-up, manifest refractive spherical equivalent significantly improved from -9 D preoperatively to -7 D ($P < .05$). Also, 62% of eyes had at least a 0.5 D decrease in refractive cylinder, according to the study.

Best contact lens corrected visual acuity improved from 0.2, or 20/30, preoperatively to 0.1, or 20/25 ($P < .02$), with 81% of eyes also having an improvement in contact lens tolerance, the authors noted.

"There was no statistically significant difference in outcomes between mechanical dissection and femtosecond laser-assisted techniques. However, although statistical power was adequate to detect changes in clinical parameters as a result of surgery, it was not sufficient to conclusively show such differences between surgical techniques," the authors said.

"Future studies are warranted to further evaluate channel creation by a femtosecond laser," they said.

The study is published in the September issue of Cornea.