

8th Global Ophthalmology Meeting

July 18-19, 2016 Chicago, USA

Long-term visual outcomes after laser anterior ciliary excision

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Purpose: Our purpose was to evaluate the long-term visual outcomes after bilateral Laser Anterior Excision (Laser ACE) for restoring dynamic near and intermediate vision.

Setting/Venue: Chang Gung Memorial Hospital (Linkou, Taiwan) registered single arm clinical trial.

Methods: 24 patients (48 eyes) over 40 years of age demonstrating loss of accommodative function, good uncorrected distant vision underwent bilateral Laser Anterior Ciliary Excision procedure (LaserACE) using an Er:YAG laser in 4 quadrants on the sclera to improve pliability & biomechanical efficiency of the ciliary muscles in 3 critical zones. Uncorrected distance visual acuity, (UDVA) corrected distance visual acuity (CDVA), uncorrected intermediate at 60cm (UIVA), corrected intermediate (CIVA), uncorrected near at 40cm (UNVA) and corrected near visual acuity (CNVA) using the Early Diabetic Retinopathy Study [EDTRS] logMAR charts were measured at 1, 3, 6, 12, 24, and 36 months.

Results: Mean age 68.70 (Plus or minus) 7.1 (range: 54 to 83 yrs). Mean follow-up was 42.72 (Plus or minus) 0.49 months (range: 42.33 to 43.27). All patients achieved improvement. Pearson Correlation statistical analysis was performed. Postoperatively, DCIVA 20/30 or better in 100% of subjects; 89% 20/25 and 78% 20/20 ($p < 0.176259477$) DCNVA 20/30 or better in 83% of subjects; 67% 20/25 and 50% 20/20 ($p < 0.007202813$). Postoperatively, UIVA 20/30 or better in 89% of subjects; 72% 20/25 and 72% 20/20 ($p < 0.305284979$), UNVA 20/30 or better in 83% of subjects; 78% 20/25 and 33% 20/20 ($p < 0.046840147$). No statistical change in DCVA/UDVA. Clinically significant improvement in stereopsis is from 75.77 to 60 degrees.

Conclusions: Laser ACE performed using the Visio Lite Er:Yag laser appears to be a safe and effective procedure for restoring range of visual performance for near and intermediate visual tasks without compromising UDVA/CDVA or binocularity. Stereopsis was not only preserved but improved over time. Patient satisfaction was high post-operatively, and was sustained over the 36 months.

Biography

Mitchell A Jackson is a board-certified Ophthalmologist specializing in Cataract and Refractive Surgery. He is the Founder and Medical Director of Jackson Eye and is also a Clinical Associate at the University of Chicago Hospitals. He has performed over 20,000 LASIK procedures since its FDA approval for use in 1995. He assisted in the design and was the first U.S. surgeon to use the Moria microkeratome for LASIK, subsequently training more than 700 surgeons in its use.

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