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Refractive lens exchange with implantation of premium intraocular lenses

Introduction: "Premium" intraocular lenses have advanced features beyond those found in basic mono-focal intraocular lenses (IOLs). Multifocal IOLs (m-IOLs), for example, are presbyopia-correcting lenses enabling almost spectacle-free life after conventional cataract surgery, or in case of refractive lens exchange (RLE). Currently, there is a whole spectrum of mIOLs on the market out of which bifocal IOLs correct only distance and near vision, while trifocal and extended range of vision IOLs provide also good intermediate vision. With invention of toric mIOLs, full visual correction may be obtained even in patients with pre-existing astigmatism. Our results with the implantation of different types of premium IOLs are presented.

Subjects & Methods: In a period 2005-2015, at our Hospital over 3000 eyes had RLE with m-IOL implantation (Restor +4, Restor +3, Tecnis ZM900&ZMA00&ZMB00, Re-Zoom, Acry-Lisa & ATLISA 809MP, Tecnis Symphony and Trifocal ED). In last two years mostly trifocal and Symphony lenses were used, with the results presented in this study. Trifocal IOL: Ninety five patients (204 eyes) underwent bilateral trifocal IOL implantation (ATLISA tri839MP, Zeiss, Germany) after RLE. Patients were presbyopes; 95 hypermetropes and 7 myopes, aged 46 to 68 years. Twenty 20 eyes with hyperopic or myopic astigmatism received trifocal toric IOL (ATLISA tri-toric 939MP, Zeiss, Germany). Uncorrected distance visual acuity (UDVA), uncorrected intermediate visual acuity (UIVA) at 80 cm, uncorrected near visual acuity (UNVA), uncorrected distance visual acuity under 10% contrast level, visual disturbances and subjective satisfaction were measured and compared to Bifocal group (AT LISA 809MP; 42 patients, 84 eyes). Follow up was at least 6 months, up to three years. Symphony IOL: Forty six patients (92 eyes) were followed after RLE with bilateral implantation of the Tecnis Symphony IOL. Emmetropia was targeted in dominant eye, and mild myopia of up to -0.50 D in non-dominant eye. UDVA, UIVA at 66 cm, UNVA, spectacle independence, patient satisfaction and visual disturbances were measured. Follow up was at least 3 months.

Results: Trifocal IOL: All patients achieved monocular UDVA better than 0.1 log-MAR, (76.9% of eyes 0.0 log-MAR). Monocular UIVA better than 0.2 log-MAR was achieved in 96.1% of patients. All patients could read J2 and better; 72.1% of patients could read J1. UDVA at 10% contrast level was 0.0 log-MAR in 62.5% of patients. Halo and glare were reported in 9.6% and 7.3% of cases, respectively. Spherical equivalent was equal or less than 0.5 D in 97% of trifocal eyes; and within the range of +1.00 to -1.00 D of astigmatism in all trifocal toric eyes. Symphony IOL: Binocular UDVA of 0.02 log-MAR or better was achieved in 95% of patients. Mean binocular UIVA at 66 cm was 0.01 log-MAR and UNVA at patient's preferred distance was 0.01 log-MAR (J1-J2). Night driving visual disturbances was reported in 6 out of 46 patients (13%), only 2% of patients reported halos.

Conclusions: Refractive lens exchange with implantation of trifocal or Symphony IOL enables good vision at all distances and almost completes spectacle independence. It is an excellent choice for younger, active presbyopes in need of good intermediate vision. Meticulous preoperative counseling is of outmost importance to choose proper mIOL for each patient.

Biography

Iva Dekaris is a Professor of Ophthalmology at Universities of Zagreb and Rijeka (Croatia), and Associate-member of the Department of Medical Sciences of the Croatian Academy of Sciences and Arts. She works as Medical Director at University Eye Hospital "Svjetlost" in Zagreb. She has completed her Post-doctoral Research Fellowship at Harvard Medical School and the Schepens Eye Research Institute in Boston. She was twice awarded with the highest Croatian State Reward for Achievements in Science (1999 and 2013). She is an immediate past President of the European Eye Bank Association (2010-2013). The areas of her expertise are corneal transplantation, cataract and refractive surgery. She has an overall experience of over 20,000 surgeries mainly PHACO, corneal transplantations, refractive lens exchange, Phakic IOLs, amniotic membrane and stem-cell transplantations. She published 48 papers in CC Journals (citations: 393 Scopus), presented numerous invited talks all over the world, and co-authored 4 books.

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