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Posterior capsule opacificationwith two hydrophobic acrylic intraocular lenses: 3-year results of a randomized trial

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Abstract

Purpose: To compare the incidence and intensity of posterior capsule opacification (PCO) and Nd:YAG capsulotomy rates between two similar open-loop single-piece hydrophobic acrylic intraocular lenses (IOLs) but differences in the proprietary material characteristics and design features over a period of 3 years.

Design: Randomized, prospective, patient- and examiner-masked clinical trial with intraindividual comparison METHODS: Setting: Department of Ophthalmology, Medical University Vienna PATIENT POPULATION: Eighty patients (160 eyes) had bilateral cataract surgery and received a Vivinex XY1 IOL in one eye and an Acrysof SN60WF IOL in the other eye.

Observation procedures: Follow-up examinations were performed three years after surgery. Digital retroillumination images were taken of each eye. The amount of posterior capsule opacification (score: 0 - 10) was assessed subjectively at the slit-lamp and objectively using automated image analysis software (AQUA).

Main outcome measure: Posterior capsule opacification score (scale, 0-10) RESULTS: The mean objective PCO score of the Vininex XY1 IOLs was 0.9 ± 0.8 compared to the PCO score of 1.4 ± 1.1 for the Acrysof SN60WF IOLs ($p < 0.001$). 11.4 % of patients had a neodymium:yttrium-aluminium-garnet (Nd:YAG) capsulotomy in the Vininex XY1 eye, and 18.6% had a capsulotomy in the Acrysof SN60WF eye ($p = 0.23$) three years postoperatively.

Conclusion: The new hydrophobic acrylic Vininex XY1 IOL showed significantly lower PCO rates and lower YAG rates compared to the Acrysof SN60WF IOL. The interaction of various factors such as hydrophobic material, smooth optic surface and sharp posterior optic edge plays a key role in PCO development.