COMPARISON OF TWO FOLDABLE HYDROPHOBIC SINGLE PIECE MICROINCISIONAL IOLS ACRYSOF IQ AND ZARACCOM ULTRAFLEKS IN RABBIT MODEL

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ABSTRACT

**Purpose:** to compare two foldable hydrophobic single piece microincisional IOLs ACRYSOF and ZARACCOM in rabbit model.

**Methods:** Both eyes of 5 New Zealand albino rabbits were applied phacoemulsification surgery and ACRYSOF lenses were implanted in one eye and ZARACCOM lenses in the other eye of each rabbits from a 2.2 mm incision with Alcon Monarch II injector systems. Anterior and posterior chamber reactions and posterior capsule opacification(PCO) were evaluated in post operative 6 months test period. Then the rabbits were sacrificed. Histopathologic examinations were applied to the all eyes and lenses.

**Results:** At the 4-week dilated anterior segment photography, the mean PCO score with EPCO2000 program was 0.072 ± 0.077 in the ZARACCOM group and 0.32 ± 0.19 in the ACRYSOF IQ group, respectively. There was a significant difference between the lenses for posterior capsule opacification scores at 4 weeks. Significant differences were not found between the lenses for anterior or posterior reactions in the test period. Both lenses had same wound size. Both of the lenses did not cause any toxic or anaphylactic reactions.

**Conclusion:** Both lenses are safe to use. Although ZARACCOM Ultraflex is superior to ACRYSOF IQ for PCO in rabbit model, there is need to make long term human studies for determining its clinical performance.
INTRODUCTION

Zaraccom F260 lens (Anatolia Medicine Technologies Co., Sivas, Turkey) is a first Turkish made CE certified single piece foldable hydrophobic acrylic intraocular lens. Zaraccom Ultraflex is newer and 100 µ thinner version of Zaraccom F260 with 300 µ edge thickness. Their manufacturing technique photopolymerization is different from the other traditional foldable hydrophobic acrylic intraocular lenses manufacturing by lathe cutting such as single-piece AcrySof SN60WF. The photopolymerization technique is a cast-moulding method.

It is known that cast-moulded contact lenses are associated with apparently ‘stickier’ surfaces, which may be indicative of surface degradation during the manufacturing process. For this reason, the surface properties of Zaraccom lenses can be different from the other foldable hydrophobic acrylic intraocular lenses.

PURPOSE

In this study, we compared two foldable hydrophobic single piece microincisional IOLs ACRYSOF IQ and ZARACCOM Ultraflex in rabbit model.

METHODS

Both eyes of 5 New Zealand albino rabbits were applied phacoemulsification surgery and ACRYSOF lenses were implanted in one eye and ZARACCOM lenses in the other eye of each rabbits from a 2.2 mm incision with Alcon Monarch II injector systems under dissociative anesthesia. Anterior and posterior chamber reactions and posterior capsule opacification(PCO) were evaluated in post operative 6 months test period. Then the rabbits were sacrificed. Histopathologic examinations were applied to the all eyes and lenses.

RESULTS

At the 4-week dilated anterior segment photography, the mean PCO score with EPCO2000 program was 0.072 ± 0.077 in the ZARACCOM group and 0.32 ± 0.19 in the ACRYSOF IQ group, respectively.
ACRYSOF
IQ

ZARACCOM
ULTRAFLEX
There was a significant difference between the lenses for PCO scores at 4 weeks. Significant differences were not found between the lenses for anterior or posterior reactions in the test period. Both lenses had same wound size and did not cause any toxic or anaphylactic reactions.

After sacriﬁcation of the rabbits at 6 months of the surgeries, histopathologic examinations were made. The enucleated eyes were normal in macroscopic appearance. The cornea, iris, ciliary body, choroid, sclera and retina of the both eyes were microscopically normal.

Any inﬂammations or deposits different from the control eyes were not seen. The explanted IOLs were normal in macroscopic and microscopic appearance. Any inﬂammations (giant cells, macrophages, etc.), cell-debris or ﬁbrinous deposits different from the Acrysof IQ IOLs were not seen on Zaraccof Ultraﬂex lenses.

**DISCUSSION**

Thinning so that softening of the IOL could provided a better compatibility to ZARACCOM Ultraﬂex with posterior capsule especially in optic-haptic junction area. Thus, the space between posterior capsule and optic-haptic junction of ZARACCOM Ultraﬂex can be more less than the previous model and Acrysof IQ.

We thought that the most important factor decreasing the PCO is this lesser space between posterior capsule and optic-haptic junction of the IOL.

**CONCLUSION**

Finally, both lenses are safe to use. Although ZARACCOM Ultraﬂex is superior to ACRYSOF IQ for PCO in rabbit model, there is need to make long term human studies for determining its clinical performance.