

COMPARATION OF REFRACTIVE RESULTS WITH BIFOCAL IMPLANTS AT LISA 809 AND TRIFOCAL AT LISA TRI839

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Accepted: April 16, 2015

Abstract

The purpose of this paper is to make a comparison between the results obtained with AT LISA 809 bifocal IOL and trifocal AT LISA 839. Interest was represented especially by the evaluation of intermediate vision for the 2 implants. 18 patients (36 eyes) operated in Gauss Clinic in 2014 were included in the study: 9 patients (18 eyes) with bifocal implant AT LISA 809 and 9 patients (18 eyes) with bilateral implantation AT LISA 839 trifocal lens. Results showed that implant trifocal provided better visual results for intermediate vision to bifocal implant, as there were not significant differences between the two, in terms of distance vision and near vision.

Keywords: implant bifocal, implant trifocal, intermediate

Introduction

Since bifocal implants on the market fail to provide a satisfactory intermediate vision, new models of IOL appeared to satisfy this need.

AT LISA 809 is a single piece diffractive bifocal implant of acrylic hydrophilic material with hydrophobic surface, total diameter of 11 mm, 6 mm optical diameter and addition of 3.75. Light is distributed asymmetrically between distance - 65% and near - 35%. Provides independence regarding pupillary size, microstructure diffractive covering 6 mm optical surface. It can be implanted through 1.5 mm incisions [1].

The new implant trifocal AT LISA 839 tries to solve intermediate vision.

AT LISA 839 is a diffractive trifocal implant with 3.33 addition for near and 1.66 addition for

intermediate, with 6 mm optic diameter and a total diameter of 11 mm.

The optics is divided into two areas:

- A central area with a diameter of 4.34 mm built in trifocal concept
- A peripheral ring of 4.34 - 6 mm - in bifocal concept.

It can be implanted through incisions of 1.8 mm. Light is distributed 50% for distance, 20% for intermediate vision and 30% for near [1,2].

Purpose

The aim of the paper is to make a visual comparison between the results obtained with bifocal implants AT LISA 809 and trifocal implant AT LISA 839.

We were particularly interested in assessing intermediate vision for the 2 implants.

Material and methods

18 patients (36 eyes) operated in Gauss Clinic in 2014 were included in the study.

9 patients had bilateral implantation of bifocal lens AT LISA 809 and 9 patients bilateral implantation AT LISA 839 trifocal lens.

Follow-up of patients was done over a period of 6 months. Distance vision, intermediate vision and near vision were evaluated.

We also studied the optimal distance for reading. We conducted a comprehensive eye examination (IOP, anterior pole and FO examination, OCT for retinal and optic nerve.)

Results

We measured the average of AV (visual acuity) for distance, intermediate and near. We considered both uncorrected vision and corrected vision and proper correction was used both as intermediate and near.

AV		AT LISA 839 TRIFOCAL	AT LISA 809 BIFOCAL
BCVA		0.96	0.96
UCVA		0.84	0.88
IVA 70 CM		0.88	0.64
		0.76	0.52
NAV 35 CM		0.92	0.96
		0.68	0.80

Fig. 1 Uncorrected visual acuity at distance was 0.84 for trifocal implant and 0.88 for bifocal

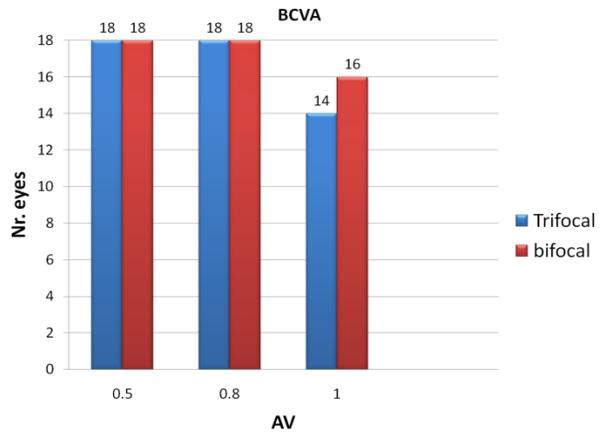
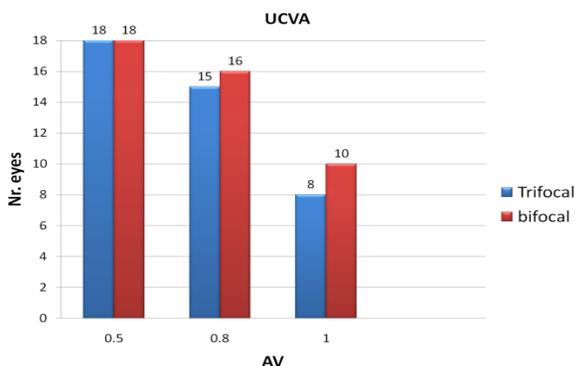


Fig. 2 Corrected visual acuity at distance was 0.96 for trifocal implant and 0.96 for bifocal implant

For intermediate vision (70 cm) uncorrected visual acuity was 0.76 for trifocal implant and 0.52 for bifocal implant and BCVA was 0.88 for trifocal implant and 0.64 for bifocal.

For near vision (35 cm), uncorrected AV was 0.68 for trifocal implant and 0.80 for bifocal, and corrected visual acuity was 0.92 for trifocal implant and 0.96 for bifocal.

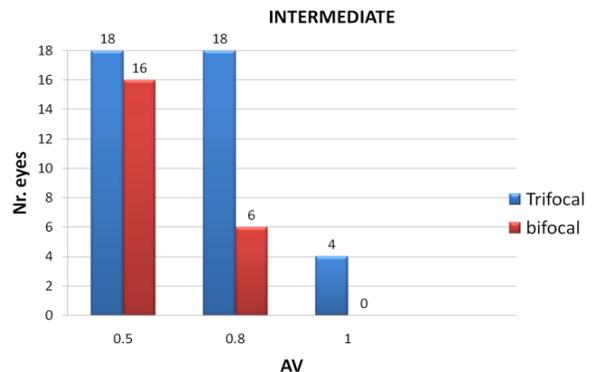
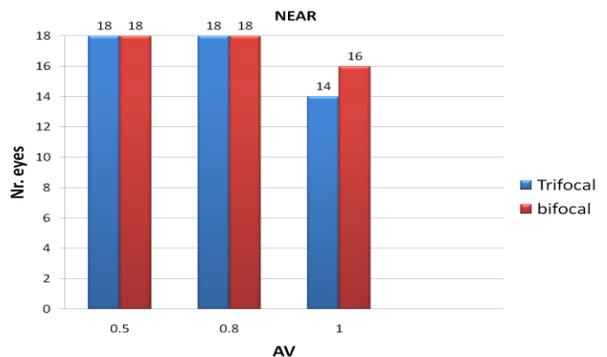


Fig. 3 Intermediate vision was better for trifocal implants than for bifocal implants [6]

No patient required any addition for the near vision. For the intermediate zone, the implant trifocal AT LISA 839 of the 9 cases was the following: 2 cases did not require any addition, 4 cases required addition of +0.50 dp and 3 cases required addition of 0.75 dp.

For the intermediate zone, bifocal implant AT LISA 809 of the 9 cases: 7 cases needed a +1 dp addition, one case required addition of +0.75 dp and one case needed addition of +1.25 dp.

The preferred reading distance for patients with bifocal implant AT LISA 809 was ≈ 35 cm and for those with trifocal implant AT LISA 839 was ≈ 40 cm [8].

Discussions

Although the group of patients was small, they could not get performance for intermediate vision. This demonstrates that further improvements are needed in the future [3].

Conclusions

Following the results, we concluded that the implant trifocal provides better outcomes for intermediate vision to bifocal implant, as there

are not significant differences between the two in terms of distance vision and near vision [8].

However, patient satisfaction was very good for both implants and most of them did not request any additional correction [4-7].

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