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ReSTOR® diffractive versus Array®2 zonal-progressive multifocal intraocular lens: A contralateral comparison

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PURPOSE. *To evaluate near and distance visual performance after implantation of a diffractive multifocal intraocular lens (MIOL) (AcrySof ReSTOR®) or a refractive MIOL (Array®2) in bilateral cataract surgery.*

METHODS. *In this prospective, comparative trial, 18 patients with bilateral cataract were selected to have lens surgery with asymmetric MIOL implantation. Eighteen eyes received ReSTOR MIOL and the 18 fellow eyes were implanted with Array 2. Five months after second lens implantation, main postoperative outcomes were uncorrected and distance corrected near visual acuities (VA). Secondary outcomes were distance VA and near acuity with power add, contrast sensitivity with and without glare (Pelly-Robson Contrast Sensitivity Chart, CSV 1000 HGT). Quality of vision was measured by comparing the severity of visual symptoms as referred to a masked interviewer.*

RESULTS. *Patients reported similar postoperative distance visual acuities for both eyes. ReSTOR-implanted eyes showed better uncorrected and distance corrected near acuity than eyes with Array 2 (p=0.002 and p=0.003, respectively). Intermediate VA with distance correction was slightly higher with the Array 2 MIOL (p=0.058). No important difference was observed in contrast sensitivity, glare disability, and subjective rating of light sensations. Severe photic phenomena were reported only for one Array 2-implanted eye.*

CONCLUSIONS. *The diffractive MIOL showed better uncorrected and distance corrected near VA. The refractive Array 2 MIOL had a tendency to better value for intermediate distance. Disturbing photic phenomena were observed only in one case with the Array 2 MIOL. (Eur J Ophthalmol 2007; 17: 720-8)*

KEY WORDS. *Cataract surgery, Contrast sensitivity, Glare disability, Multifocal intraocular ocular lenses, Presbyopia correction*

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INTRODUCTION

Modern cataract surgery with foldable intraocular lenses (IOL) enables very fast and excellent restoration of visual acuity. However, the lack of accommodation in pseudophakic eyes leaves the patients presbyopic after surgery. This problem has been partly solved by the introduction of multifocal IOLs (MIOLs) (1-3). Various types of MIOLs have been developed in recent years, and even though the first MIOL with some diffusion in clinical practice had a diffractive optic with bifocal add (4), the most intensively studied MIOL to date is the silicone AMO Array (Allergan)

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(5). This lens has a zonal-progressive, refractive multifocal design. The AMO Array MIOL has been reported to improve the quality of visual rehabilitation after cataract surgery, by reducing the need for postoperative spectacle correction, thus providing better visual acuity at near and intermediate distances (6-11). Recently, an acrylic version of the AMO Array has been introduced, the AMO Array 2, with the same multizonal, refractive optic. New foldable diffractive MIOLs in acrylic material have also been developed and are entering clinical practice, among them the Alcon ReSTOR with a diffractive apodized optic.

The aim of this study was to compare the potential for near vision restoration after cataract surgery using a refractive MIOL (AMO Array 2) and a diffractive one (Alcon ReSTOR). In the current trial, patients received a refractive MIOL in one eye and a diffractive MIOL in the fellow eye, so that a within-subject paired comparison of vision (distance, intermediate, and near), of contrast sensitivity, and subjective evaluation of visual outcome could be made.

PATIENTS AND METHODS

In this prospective nonrandomized study, 18 patients (36 eyes) with bilateral cataract were implanted with a refractive MIOL (model AA50, Array 2, AMO) in one eye, and with a diffractive MIOL (model SA60D3, AcrySof ReSTOR, Alcon) in the fellow eye. Inclusion criteria were age between 60 and 75 years, bilateral cataract, motivation to receive a multifocal IOL and to participate in the study, in-the-bag IOL implantation, and satisfaction after the first surgical procedures, since patients were not implanted bilaterally during the same surgical session. Exclusion criteria included astigmatism more than 1.0 diopters (D), amblyopia, anterior segment congenital anomalies, or other ocular affections that might influence the visual outcome (e.g., glaucoma, chronic uveitis, iridocyclitis, corneal dystrophy or scars, and color vision disturbance such as red-green weakness). Patients with macular diseases, diabetic retinopathy, or previous eye surgery, such as retinal detachment or refractive procedures, were also excluded from the study.

IOL power was between +17.0 D and +23.0 D (Tab. I). Postoperative emmetropia of ±0.25 D sphere was planned. In order to avoid bias, nine patients received the refractive MIOL (AMO Array 2) in the first operated eye, and the diffractive one (Alcon ReSTOR) in the fellow eye, whereas in nine patients the contrary was performed.

Full informed consent was obtained from each subject before enrollment in the study, and the tenets of the Helsinki declaration were observed. The protocol of this study was approved by the local ethics committee.

Surgical technique

All implantations were performed by the same surgeon (D.E.) with a standard phacoemulsification technique using topical anesthesia. A 3.2 mm sclerocorneal tunnel was placed at 12 o'clock position, and two paracentesis incisions were made 60 degrees away. After phacoemulsification and cortex aspiration, an Array 2 MIOL or a ReSTOR MIOL was folded and introduced into the capsular bag with its proper injector.

All patients were discharged 1 to 2 hours after surgery. Postoperative medications included dexamethasone and neomycin (Maxitrol®), and indomethacin (Indophtal®) 5

TABLE I - PREOPERATIVE DATA OF PATIENTS WITH MULTIFOCAL IOL IMPLANTATION

Characteristics	Values	p value*
Age, yr	66.27±4.34	
Gender	9 male, 9 female	
Preoperative median BCVA (range)		
AMO Array 2-implanted eyes	0.5 (0.32–0.63)	
Alcon ReSTOR-implanted eyes	0.5 (0.32–0.63)	0.859
MIOLs implanted		
AMO Array 2	+20.4±1.78 D	
Alcon ReSTOR	+20.6±1.80 D	0.138

*t-Test for paired data.
BCVA = Best-corrected visual acuity; MIOLs = Multifocal intraocular lenses

times a day. One week after surgery the local therapy was reduced to 3 times a day for each type of eyedrops, and maintained for 3 more weeks. The second eye was operated 4 weeks after the first one, following exactly the same operative and postoperative procedure. For each eye, postoperative follow-ups were scheduled at day 1, week 1, and after 1 and 3 months. Five months after cataract surgery in the second eye, an additional visit was scheduled for final measurements.

Intraocular lenses

The refractive MIOL implanted in this study was the AMO Array 2, model AA50. This latter model of the Array IOL was introduced in Europe in 2004, and differs from the previous silicone Array model SA-40N in respect to material and to edge design, since it has an optic made of hydrophobic acrylic and a sharp edge (OptiEdge design).
Like the previous model, the Array 2 AA50 has an optic of five concentric refractive zones with a continuous, smooth surface construction. Zones 1, 3, and 5 are distant dominant, and zones 2 and 4 are near dominant. The near addition of the lens is +3.5 D at the lenticular plane. The lens surface is aspherical to provide continuous focus between the base and power add. Under miotic conditions (pupillary size ≤2 mm), AMO Array 2 MIOL directs 90% of the light to far focus and 10% to intermediate foci. At pupil diameters over 3 mm, the lens directs 50% of the light to far focus, 35 to 40% to near focus, and the remaining light to intermediate foci.
The diffractive MIOL used was the Alcon AcrySof ReSTOR, model SN60D3. This lens has a central apodized diffractive region of 3.6 mm diameter and a peripheral refractive region. The central diffractive part has 12 concentric steps of gradually decreasing step heights, from 1.3 to 0.2 microns. This gradual reduction of the diffractive step heights is called apodization and should improve image quality, by distributing the appropriate amount of light to near and distant focal points. The diffractive region incorporates +4.0 D of additional power in the lenticular plane for near vision, resulting in +3.2 D at the spectacle plane, whereas the peripheral refractive region is dedicated to distance vision for larger pupil diameters. Under miotic conditions (pupil diameter of 1 to 3.6 mm), the Alcon ReSTOR MIOL directs 42 to 65% of light to far focus and 20 to 42% to near focus, whereas in pupils larger than 3.6 mm the lens becomes distant dominant. MIOL characteristics are summarized in Table II.

Outcome measures

Follow-ups were performed by a single observer and comprised uncorrected and best-corrected far and near visual acuities, autorefractometry, slit lamp examination, funduscopy, and tonometry. Three months after the second eye was operated, the following data were collected for each eye: distance visual acuity (VA) at 5 meters, both best corrected and uncorrected; near VA at 30 cm uncorrected, best distance corrected, and best distance corrected with additional add power; best distance corrected VA at 66 cm, and grade of photic phenomena. Two months later (i.e., 5 months after surgery), the above mentioned tests were repeated in addition with assessment of contrast sensitivity.
Distance VA was measured with Moeller Wedel Selectron projector (Moeller Wedel, Hamburg, Germany), whereas Birkhäuser chart (Oculus, Wetzlar, Germany) was used for near and 66 cm VA. Statistical significance for visual acuity was calculated after conversion of decimals into logMAR notation. Data were then converted again into decimals for presentation (12, 13).
Monocular contrast sensitivity was assessed with the Pelly-Robson Contrast Sensitivity Chart (Clement Clark International, London, UK), as well as with the CSV 1000 HGT. Pelly-Robson test was performed under stable illuminat-

TABLE II - LENS CHARACTERISTICS: REFRACTIVE AMO ARRAY 2 (Model AA50) AND DIFFRACTIVE ALCON RESTOR (Model SA60D3)

	AMO Array 2	**Alcon ReSTOR**
IOL type	Three-piece	Single-piece
Multifocal type	Refractive	Diffractive, apodized
Multifocal add	Anterior	Anterior
Optic material	Hydrophobic acrylic	Hydrophobic acrylic
Optic diameter	6 mm	6 mm
Overall length	13 mm	13 mm
Square edge	Yes	Yes
Refractive index	1.47	1.55
UV filter	Yes	Yes
Multifocal zone diameter	4.7 mm	3.6 mm
Light to far focus		
Miosis	~90%	~42%
Mydriasis	~50%	~73%
Haptic material	PMMA	Hydrophobic acrylic
Haptic angle	5°	0°

IOL = Intraocular lens

ing conditions and taking care that the chart luminance remained between 60 to 120 cd/m^2 (Gossen Starlite, Nürnberg, Germany). The test distance was set at 1 m, which corresponds to a spatial frequency of approximately one cycle per degree (cpd).

The halogen glare test CSV 1000 HGT (Vector Vision, Dayton, OH) was used to assess contrast sensitivity and glare disability. This instrument presents four rows, each with two test patches with decreasing contrast from left to right with eight contrast levels. The rows encompass four spatial frequencies (3, 6, 12, and 18 cpd). For each spatial frequency and contrast level, the patient is asked to identify which patch has a grating. The halogen light source of the instrument automatically calibrates the luminance of the test, being therefore independent of room illumination. The CSV 1000 HGT was performed without and with a glare source (glare disability) at a distance of 2.5 m with best distance correction.

Optic phenomena such as glare and halos were investigated by an independent masked observer using a previously described questionnaire (14). Following this questionnaire, each subject was specifically queried about curved streak of light (arc of light seen in the darkness or in dim lighting), halos (rings around lights), flare (tail of light coming from a light source), flashes (very brief spots of splashes not coming from a light source), and glare (reduced sharpness of vision due to bright light or oncoming headlights). Most care was used to let the patients rate their visual phenomena from 0 to 3, with 0 meaning not observed, 1 very little, 2 moderate, and 3 severe and disturbing photic phenomena.

Statistical analysis

Only data collected 3 and 5 months after second eye surgery were considered for statistical analysis. Results for continuous variables (VA in logMAR and contrast sensitivity) were expressed as median and quartiles and graphically shown on nonparametric box plots, accordingly. For VA comparison between the two lens types, differences between the eyes with Array 2 minus the ReSTOR implanted eyes were calculated. Statistical significance of VA differences was determined with the Wilcoxon test for paired samples. To compare the grading of photic phenomena between the two lens groups, cross tabulations and the marginal homogeneity test were used. To have an overall measure of contrast sensitivity evaluation by the CSV 1000 HGT at different spatial frequencies, the area under the measurements (area under the curve, AUC) was used as contrast sensitivity outcome.

For the two main endpoints (distance corrected and uncorrected near VA) the overall significance level was set to 5%, using the Bonferroni correction this equals a local level of 2.5% for each of the two endpoints. p Values for all other endpoints are just descriptive measures as no adjustment for multiple testing was performed. All numerical and graphical analyses were performed using SPSS®, release 12.0 for Windows®, and StatXact 6 with Cytel Studio.

RESULTS

All 18 enrolled patients were satisfied after MIOL implantation in the first eye, enabling surgery in the fel-

TABLE III - VISUAL ACUITIES (VA) 3 MONTHS AFTER SECOND EYE SURGERY (N=18 for Each Lens Group)

	Group	Median	I Quartiles	III Quartiles	p value
Uncorrected distance VA	AMO Array 2	0.10 (0.8)	0.10 (0.8)	0.20 (0.63)	
	Alcon ReSTOR	0.10 (0.8)	0.00 (1.0)	0.20 (0.63)	0.59
Best-corrected distance VA	AMO Array 2	0.00 (1.0)	0.00 (1.0)	0.10 (0.8)	
	Alcon ReSTOR	0.00 (1.0)	–0.03 (1.0)	0.10 (0.8)	0.48
Distance corrected VA at 66 cm	AMO Array 2	0.10 (0.8)	0.10 (0.8)	0.20 (0.63)	
	Alcon ReSTOR	0.20 (0.63)	0.20 (0.63)	0.20 (0.63)	0.058
Uncorrected near VA	AMO Array 2	0.25 (0.5)	0.20 (0.63)	0.40 (0.4)	
	Alcon ReSTOR	0.10 (0.8)	0.10 (0.8)	0.20 (0.63)	0.002*
Distance corrected near VA	AMO Array 2	0.20 (0.63)	0.18 (0.63)	0.40 (0.4)	
	Alcon ReSTOR	0.10 (0.8)	0.00 (1.0)	0.10 (0.8)	0.003*
Best-corrected near VA (with add power)	AMO Array 2	0.00 (1.0)	0.00 (1.0)	0.03 (1.0)	
	Alcon ReSTOR	0.00 (1.0)	0.00 (1.0)	0.00 (1.0)	0.16

VA are shown in logMAR (decimals in parentheses).
*Statistically significant Wilcoxon test (nonparametric test for paired data)

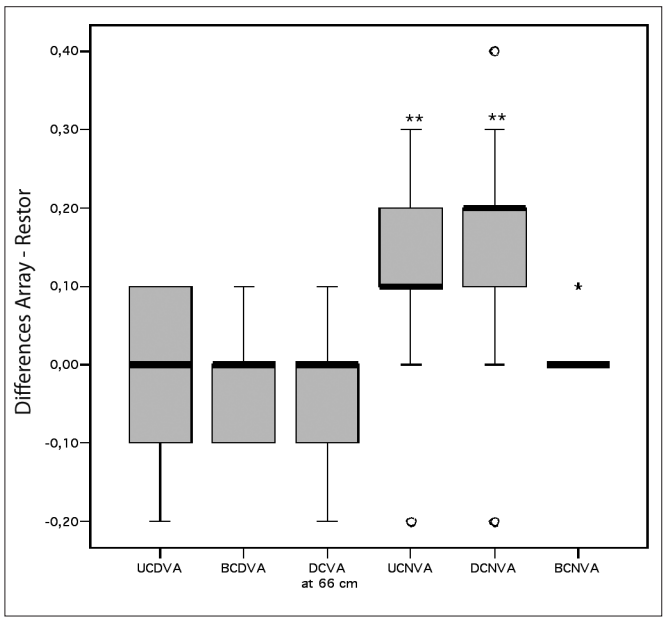

Fig. 1 - *Box plots of visual acuity (VA) differences between AMO Array 2 and Alcon ReSTOR MIOLs in logMAR. The line 0.0 shows no difference between the two groups. Values above the line indicate better VAs for ReSTOR, under the line better VAs for Array 2. UCDVA = Uncorrected distance VA; BCDVA = Best-corrected distance VA; DCVA = Distance corrected VA; DCNVA = Distance corrected near VA; BCNVA = Best-corrected near VA with power add. Double asterisks indicate significant difference in VA between the two groups (Wilcoxon test).*

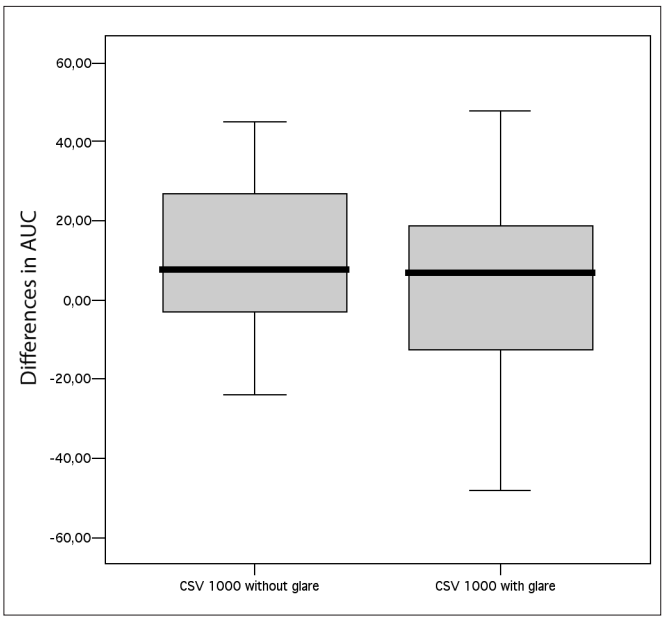

Fig. 2 - *Nonparametric box plots for differences (Array 2–ReSTOR) in contrast sensitivity and glare disability profiles (CSV 1000 without and with glare, respectively). The area under the measurements curve was considered as an overall measure of the test at different spatial frequencies (area under the curve, AUC). No significant difference between the two MIOLS was found with or without glare.*

low eye. No intra- or postoperative complications occurred. All subjects underwent all the follow-ups scheduled, and no drop out was observed. Only one patient, who received an AMO Array 2 in the second operated eye, experienced disturbing photic phenomena in this eye. The MIOL was explanted 3 months after surgery and replaced with an Alcon ReSTOR. The visual acuities reported include this latter case before MIOL exchange.

Visual acuity

Monocular visual acuity outcomes 3 months after implantation in the second eye are listed in Table III. Five months postoperatively, no changes in VA were recorded, except for the eye with MIOL exchange. AMO Array 2 and Alcon ReSTOR showed similar best-corrected near VA with add power, as well as uncorrected and best-corrected distance VA. Eyes implanted with Alcon ReSTOR showed significantly better uncorrected and distance corrected near VA than eyes with Array 2 MIOL (median difference 0.15 and 0.2 logMAR, p=0.002 and 0.003, respectively). Distance corrected VA at 66 cm was slightly better in eyes with AMO Array 2 (p=0.058, NS). VA differences are summarized in Figure 1.

Contrast sensitivity

Contrast sensitivity testing was performed 5 months after surgery. The patient with MIOL exchange in one eye was excluded from this part of the study. The monocular photopic measurement of contrast sensitivity with Pelly-Robson chart showed similar values for Array and ReSTOR implanted eyes (median 1.65 log contrast sensitivity for both lens groups and interquartile range 1.65–1.8 and 1.57–1.65, respectively, p=0.581).

By the CSV 1000 HGT with and without glare no important difference was reported between Array 2 and ReSTOR eyes (p=0.607 and p=0.607, respectively; Fig. 2). The MIOLs differed mostly at 3 and at 12 cpd spatial frequencies, whereas Array 2 eyes had a tendency for better contrast sensitivity values (Fig. 3).

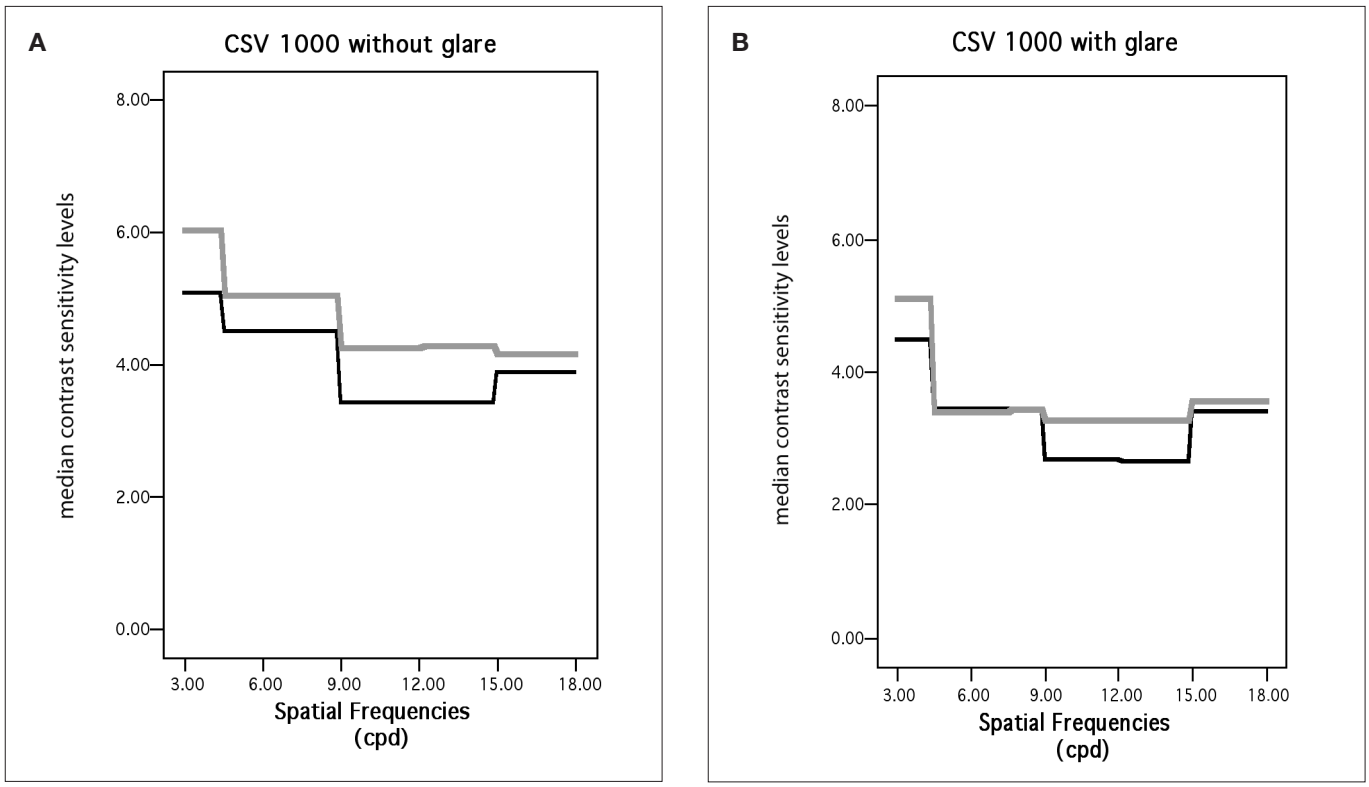

Fig. 3 - *Median contrast sensitivity at different spatial frequencies for Array 2 (grey line) and for ReSTOR multifocal intraocular lenses (black line) without and with glare source. Cpd = Cycles per degree.*

Subjective symptoms

As mentioned before, only one patient experienced disturbing photic phenomena in one eye. All other patients who reported visual phenomena were not disturbed in their common life activities. Three months after second eye surgery, photic symptoms were reported for 11 of 18 Array 2-implanted eyes (61%), and for 7 of 18 eyes with ReSTOR MIOL (39%, p=0.121, NS, marginal homogeneity test). Patient-reported symptoms were halos for both ReSTOR and Array 2 implanted eyes; one subject experienced halos and flashes in the eye with Array 2 MIOL. Halos were reported with greater frequency and higher rating in Array eyes. No variation of visual phenomena was observed 3 and 5 months after surgery, except for the eye with MIOL exchange which reported a significant improvement of visual disturbances after MIOL exchange. Six out of 18 patients preferred the ReSTOR-implanted eye, 5 because of less photic symptoms than in the fellow eye, and 1 because of better near vision. The remaining 12 subjects noticed no difference between the two lenses.

DISCUSSION

In the last few years a variety of MIOLs with innovative optic design have been developed and are entering clinical practice. To our knowledge, this is the first prospective clinical study comparing the recently introduced diffractive MIOL ReSTOR with the multizonal progressive MIOL Array 2. The Array 2 MIOL has the same optical principle as the AMO Array SA-40N, the first MIOL approved by the FDA for commercial distribution in the United States. To date, AMO Array is considered the MIOL gold standard because of its diffusion, and because of the high number of studies and clinical trials with a long follow-up (15). Therefore, investigations of new MIOLs should consider comparisons with the Array MIOL (15). A within-subject comparison, as performed here, avoids a lot of subjective bias. This could be of particular importance when evaluating MIOLs, since MIOL-acceptance and postoperative patient satisfaction may be influenced by patient psychological characteristics (14, 16). Within-subject studies are rare because they require strict patient selection and may

present ethical limitations. In a prospective, comparative trial, Steinert et al implanted the MIOL AMO Array SA-40N in one eye and a monofocal IOL in the fellow eye in a subset of 102 enrolled subjects to demonstrate better uncorrected and distance corrected near VA in multifocal eyes (7). Comparison among patient subsets showed a major subjective comfort at near for subjects with bilateral MIOL as opposed to multifocal/monofocal subjects. Asymmetric bilateral MIOL implantation has then been proposed to achieve simultaneous distance and near vision with improved contrast sensitivity after bilateral surgery (17-19). In this system, by directing a different amount of reflected light on different foci, the distance-dominant MIOL in one eye provides higher contrast sensitivity for distance focus, and lower contrast sensitivity for near focus, while the contrary happens in the fellow eye with the near-dominant MIOL. Alcon ReSTOR MIOL used in the present study has a stronger near power add (+4.0 D at IOL plane) than the Array 2 (+3.5 D at lenticular plane). On the other hand, this latter lens is thought to provide better VA at intermediate distance (50–150 cm) (7). Both lenses have a central part dedicated to distance vision and direct different amounts of light to different foci depending on pupil dilation, thus enabling some binocularity. On this theoretical basis, an asymmetric bilateral implantation of ReSTOR MIOL and Array 2 MIOL should lead to a good far, near, and intermediate vision, maintaining binocular function. The results of our study confirm this assumption. In fact, even if we considered a small number of patients, a large proportion of them never needed to wear spectacles postoperatively (11/18, 61%), and only 2 out of 18 (11%) needed near correction. In 5 patients (28%) spectacles were required only for distance vision. All subjects were satisfied with the final postoperative outcome except one. This case was a patient who received an Alcon ReSTOR in the first operated eye, and an Array 2 in the second one. The patient was satisfied after the first operation, but reported severe halos and flashes in the second operated eye. Even though he showed a centered MIOL and a good VA (0.8 uncorrected distance VA; 0.5 and 1.0 uncorrected and best corrected near VA, respectively), he underwent a MIOL exchange since photic phenomena did not seem to diminish over time. The disturbing visual phenomena disappeared after Array 2 was replaced with a ReSTOR MIOL.

In this study the two MIOLs showed similar distance visual acuities, with 94% of Array 2-implanted eyes and 83% of ReSTOR eyes achieving 0.63 or better without correction. All eyes in both groups achieved 0.8 or better for best-corrected distance VA, whereas 1.0 was found in 72% and 55% of eyes with Array 2 and ReSTOR, respectively. These results for distance VA in Array 2-implanted eyes were similar or slightly better compared to those reported by other authors with the silicone Array MIOL (7-10, 20). Near uncorrected and distance corrected acuities were significantly better for ReSTOR MIOL, showing 0.63 or better in 100% of eyes. Near VA values for ReSTOR eyes were well in agreement with those recently reported in the European multicenter study of the AcrySof ReSTOR (21). Array 2 eyes achieved an uncorrected and distance corrected near VA of 0.63 in 50% and in 66% of cases. Without power add, Array 2 near acuities were lower than those previously reported for silicone Array (7-10, 20). Percentages in small data sets like the one presented here may be misleading, especially when comparing them with other trials encompassing a much higher number of cases. In a recent report comparing 20 patients with bilateral implantation of Array SA-40N and 20 patients with bilateral Acri.Twin diffractive MIOL, Mester et al found near acuities with Array SA-40N similar to ours (15). Other studies comparing diffractive and refractive MIOLs reported better uncorrected and distance corrected near VA with the diffractive ones (15, 20, 22, 23). Our patients showed better intermediate acuity with distance correction with Array 2 than with ReSTOR MIOL. Even though a large proportion of eyes in both lens groups achieved a VA of 0.63 or better at 66 cm (89% in both MIOL series), only 3 out of 18 eyes with ReSTOR (16%) achieved 0.8 or better versus 9 out of 18 eyes with Array 2. These findings are consistent with the multizonal-progressive design of Array 2 MIOL, where an amount of light is directed to an intermediate focus at any pupillary size.

We found similar contrast sensitivities and glare disabilities with the refractive Array 2 and the diffractive ReSTOR MIOL. In our study, contrast sensitivity values in both MIOL groups were in accordance with data published by Souza and associates and by Rubin and collaborators (24, 25).

Our asymmetric bilateral implantation allowed an interesting within-subject comparison of more subjective parameters than VA and contrast sensitivity, like photic phenomena. Interestingly, halos were reported in a lower number of eyes with the diffractive MIOL than with the refractive one. Data published with previous models of diffractive MIOL showed the contrary, with diffractive MIOLs causing more problems than refractive ones, with

light sensations described as ghost images (26, 27). Moderate to severe photic disturbances have also been reported for a recent model of diffractive MIOLs, the AcriTec TwinSet (15, 20). In the AcrySof ReSTOR European trial, the frequency of severe visual symptoms in 117 subjects with bilateral ReSTOR implantation was lower than those reported with AMO Array MIOL in other studies (21). The new apodized feature of ReSTOR MIOL seems thus to minimize visual disturbances with the advantage of diffractive optic for near acuity.

When data collection for this study was already completed, a new AMO zonal-progressive acrylic MIOL was introduced into the European market (AMO ReZoom). This second-generation MIOL has five refractive zones proportioned so that the distance-dominant zones are well positioned for low or bright light conditions. The new rezoned optic permits adequate light to be distributed to distance-dominant zones under extreme light conditions, and to near zones under more moderate illumination.

The present study presents some limitations. Besides the already mentioned small sample size, we also have to underline that patients were not completely masked for ethical reasons. In fact, patients knew that they would receive different lenses in their two eyes. Characteristics of each MIOL were explained without specifying which one would be implanted in the first or in the second eye. Only the patient who underwent MIOL exchange noted a remarkable difference between the two lenses. The other five subjects who preferred one eye in the interview were still satisfied with both implanted eyes.

In conclusion, we report excellent uncorrected and best-corrected distance VA, as well as corrected near VA with both Alcon ReSTOR and AMO Array 2 MIOLs. Eyes with ReSTOR MIOL showed better uncorrected and distance corrected near VA, whereas eyes with Array 2 had a better performance at an intermediate distance (66 cm). Photic phenomena were found more often with Array 2 MIOL, but without statistical significance. The new AMO ReZoom has been developed to improve near performance and subjective symptoms maintaining intermediate vision. Our results suggest that the new diffractive MIOL ReSTOR is promising, but the latest refractive zonal-progressive MIOL still needs to be investigated.

Proprietary interest: None.

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