

# Comparison Between an Intraocular Lens With Extended Depth of Focus (Tecnis Symphony ZXR00) and a New Monofocal Intraocular Lens With Enhanced Intermediate Vision (Tecnis Eyhance ICB00)

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**Purpose:** This study compared the extended depth of focus (EDOF) intraocular lens (IOL) (ZXR00; Tecnis Symphony, Johnson & Johnson Vision, Santa Ana, CA, US) to a novel, higher-order aspheric monofocal IOL (ICB00; Tecnis Eyhance, Johnson & Johnson Vision, Santa Ana, CA, US) which uses the same platform and material.

**Methods:** Medical records of patients undergoing cataract surgery with ZXR00 or ICB00 implantation between March 2020 and January 2021 and with the data available for the 3-month visit were reviewed. The uncorrected near, intermediate, and distance visual acuity (VA); corrected distance VA; and optical quality parameters were the main outcome measures.

**Results:** Among the 174 enrolled patients, 72 and 102 received the ZXR00 and ICB00, respectively. The average patient ages were  $59.6 \pm 10.6$  (range: 49 to 70) and  $65.2 \pm 8.2$  (range: 45 to 82) years in the ZXR00 and ICB00 groups, respectively, with significantly older patients in the ICB00 group. The other baseline parameters were not different for the 2 groups. Compared to the ICB00 group, the ZXR00 group showed markedly superior near VA ( $P < 0.05$ ) at 3 months post-operatively. In terms of optical quality, ICB00 was, statistically, significantly superior to ZXR00.

**Conclusions:** The ZXR00 showed remarkable near vision and defocus curve smoothness, while the ICB00 achieved better optical quality. The 2 IOLs had comparable distance and intermediate vision.

**Key Words:** extended depth of focus, extended range of vision, intermediate vision, intraocular lens, near vision

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Cataracts are a major cause of vision loss and cataract surgery is the most common ocular surgery in the world.<sup>1</sup> However, removal of the crystalline lens causes a loss of the capacity to accommodate.<sup>2</sup> More recently, patient expectations about the correction of presbyopia during cataract surgery are growing.<sup>3</sup>

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There is a growing patient desire for independence from spectacle requirements for intermediate distances, particularly with their increased use of computers and smartphones, as well as the need to see car dashboards.<sup>1</sup> Since the monofocal intraocular lens (IOL) provides one focus, long-distance glasses or reading glasses are needed for near and distant targets. Monofocal IOLs remain the most commonly implanted IOLs due to their relatively low cost, their outstanding distant vision, and the low incidence of photic phenomena including halo and glare.<sup>3</sup> On the other hand, more than a third of patients receive multifocal IOLs experiencing photic phenomena.<sup>4</sup>

To get through these problems, there is increasing interest in emerging technologies that can enhance the performance of monofocal IOLs and reduce the undesirable photic phenomena of multifocal IOLs. Extended depth of focus (EDOF) IOLs assume a continuous focus range for most distances.<sup>5</sup> These IOLs generate various overlapping focus points to produce the effect of continuous extended focus.<sup>6</sup> The EDOF IOL, Tecnis Symphony (Johnson & Johnson Vision, Santa Ana, CA, US) (ZXR00) is a hydrophobic-acrylic IOL with an achromatic diffractive surface that provides a continuous focus for distance-to-intermediate vision.<sup>7–9</sup> The recently introduced monofocal IOL, Tecnis Eyhance (Johnson & Johnson Vision, Santa Ana, CA, US) (ICB00) offers sufficient distant visual acuity (VA) and reinforced intermediate VA.<sup>10</sup>

Studies have compared ZXR00 and a standard monofocal IOL, Tecnis ZCB00 (Johnson & Johnson Vision, Santa Ana, CA, US) (ZCB00), as well as ICB00 and ZCB00 have already been reported.<sup>11–13</sup>

This study was designed to evaluate the visual results and optical qualities between ZXR00 and ICB00.

## MATERIALS AND METHODS

### Subjects

This single-center, retrospective, comparative study was undertaken in accordance with the tenets of the Declaration of Helsinki and approved by the Institutional Review Board (IRB file number: 2021-04-003) of Kim's Eye Hospital, Seoul, Republic of Korea, which waived the need for written informed consent because of its retrospective design and the use of deidentified patient data. In addition, this study contained no personal information that may lead to identifying any patient and the data were analyzed anonymously. We carefully reviewed the medical records of patients who had received cataract surgery with ZXR00 or ICB00 insertion between April 2020 and February 2021 at Kim's Eye Hospital, Seoul, Republic of Korea.

The inclusion criteria were cataract patients more than 40 years of age, had a preoperative corneal astigmatism of  $< 1.00$  diopters

(D), and who were eligible for 3 or more months of follow-up. Patients were excluded if they had a history of eye trauma, history of eye surgery, corneal or retinal problems, used systemic or ocular medications that may limit postoperative visual results.

Only 1 eye per patient was included in the study. If both eyes are included in the subject, the eye that underwent the initial cataract operation was included to reduce the influence of individual patient features. Overall, this retrospective study included 174 eyes from 174 patients who underwent cataract surgery with data available from the 3-month visit. The ZXR00 was implanted in 72 eyes of 72 patients, while the ICB00 was implanted in 102 eyes of 102 patients.

The principal outcome measures were uncorrected distance (at 4 m) visual acuity (UDVA), uncorrected intermediate (at 66 cm) visual acuity (UIVA), uncorrected near (at 40 cm) visual acuity (UNVA), and corrected distance visual acuity (CDVA) at 3 months postoperatively. The distance visual acuity (VA) was measured using an electronic target system (CCP-3100, Huvitz, Gunpo, Republic of Korea), while the intermediate and near VAs were measured using a Logarithmic Visual Acuity Chart 2000 New Early Treatment Diabetic Retinopathy Study (ETDRS). All VA results were converted to LogMAR for statistical analysis. Data on patient characteristics and postoperative refractory errors were also obtained. Parameters associated with refractory errors were all consistently based on the Barrett Universal II formula in a new anterior segment swept-source optical coherence tomography device (ANTERION, Heidelberg Engineering GmbH, Germany).

The defocus curves were obtained monocularly using defocusing lenses with a power range of 1.00 D to  $-3.00$  D in 0.5 D steps at 3 months after surgery. These lenses have been inserted into a test frame to account for the manifest error in the refraction of the distance.

The mean prediction error or the difference between the actual and predicted refractive errors was calculated from the predicted spherical equivalent using the Barrett Universal II formula. The mean absolute error (MAE) and the proportion of eyes within  $\pm 0.50$  D of the mean prediction error were also determined for comparisons of refractive predictability.

### Optical Quality Assessment

Assessment of the optical quality parameters using an optical quality analysis system (HD Analyzer, Visiometrics, Castelldefels, Spain) was performed under low light and revealed no mydriasis. Optical quality was evaluated using the Optical Quality Analysis System (OQAS), which analyzes visual quality based on aberration, scatter, and diffraction<sup>14</sup> and uses a double-pass technique to objectively measure the image formed on the retina by merging the quantification of optical aberrations and light scattering back and forth caused by the loss of eye transparency.<sup>15</sup> The instrument uses a 4.0 mm pupil to measure 3 values on the OQAS, namely, the objective scatter index (OSI), modulation transfer function (MTF) cutoff, and the point spread function (PSF) expressed as the Strehl ratio. OSI, which reveals the intraocular light scatter, is calculated by sizing the sum of light on the periphery of the double-pass image based on the quantity of light on the center.<sup>3</sup> The MTF is the ratio between the contrast of the image and object in terms of the frequency of the object. Therefore, the MTF cutoff is the spatial frequency at which the MTF decreases to zero. MTF serves as a useful translator of the image quality of IOL.<sup>16</sup> The OSI shows the extent of light

dispersion in the eye. Although the spatial frequency of the target increases, the contrast sensitivity of the image passing through the optical system gradually decreases. Thus, the greater the MTF cutoff value, the better the optical quality. Furthermore, the Strehl ratio represents the focus speed of an image formed over a certain area of the retina. The greater the value, the clearer the optical quality. The PSF describes the quality response of an imaging system and is denoted by the Strehl ratio, with a value of 1 suggesting an ideal optical system.<sup>17</sup> The Strehl ratio is the ratio between the power of the real PSF and the diffraction-limited PSF.<sup>18</sup>

### Surgical Procedures

All operations were conducted by a single expert surgeon (K.K.) with a 2.8 mm corneal incision. All main corneal wounds were made at the steepest axis. After completing a capsulorhexis approximately 5.2 mm in diameter and phacoemulsification, the IOL was inserted into the capsular bag. All corneal wounds were sealed by stromal hydration. Postoperative topical treatment with combination antibiotics (Gatifloxacin 0.3%; Gatiflo, Samil Co, Ltd, Seoul, Republic of Korea) and steroids (fluorometholone 0.1%; Fulleylone, Binex Co, Busan, Republic of Korea) were prescribed to be instilled 4 times a day until 1 month after surgery.

### Intraocular Lenses

This study evaluated 2 IOLs (ZXR00 and ICB00) from the same manufacturer. The ZXR00 is a single-piece 6.0 mm biconvex hydrophobic acrylic monofocal IOL with an aspheric anterior surface that results in a negative spherical aberration.<sup>16,19</sup> The aspherical anterior surface makes up for the positive spherical aberration of the cornea. Instead of adding focus, the ZXR00 expands the depth of focus across the principles of the echelette diffractive ring.<sup>20</sup>

The ICB00 is a recently established monofocal IOL that improves intermediate VA with a modified aspheric anterior optic surface.<sup>13</sup> This new lens has a thickness deviation of 1.5 micron with a diameter of about 2 mm in the center and a continuous power profile that is designed to enhance intermediate VA.<sup>21</sup> Unlike ZXR00, the ICB00 is free of diffractive rings and zones.<sup>10</sup>

### Statistical Analysis

SPSS Statistics for Windows, version 22.0 (IBM Corp, Armonk, New York, US) was used for the statistical analysis. Kolmogorov–Smirnov tests were used to check the normality of the data distributions. *t* tests and Pearson chi-square tests (for sex and laterality) were used to verify the differences between the 2 groups. For all cases,  $P < 0.05$  was regarded as statistically significant. Data are presented as means  $\pm$  standard deviation (SD).

## RESULTS

Overall, 174 eyes were implanted with ZXR00 ( $n = 72$ ) or ICB00 ( $n = 102$ ) IOLs. All procedures were performed by a single expert surgeon. No intraoperative or postoperative complications were identified. The preoperative patient characteristics by group are summarized in Table 1. In the ZXR00 group, 53% of patients (38/72) were women and 51% (37/72) were for the right eye. In the ICB00 group, 56% of patients (57/102) were women and 52% (53/72) were for the right eye. The average age was  $59.6 \pm 10.6$

**TABLE 1.** Preoperative Characteristics of Patients Per Group

Parameter	Symfony ZXR00	Eyhance ICB00	P Value
Eyes, n	72	102	N/A
Female, n	38 (53%)	57 (56%)	0.361
Right eye, n	37 (51%)	53 (52%)	0.398
Age, y	59.6 ± 10.6 (49 to 70)	65.2 ± 8.2 (45 to 82)	<0.001*
UDVA (LogMAR)			
Mean ± SD	0.53 ± 0.37	0.55 ± 0.35	0.771
Range	0.16 to 0.9	0.2 to 0.9	
CDVA (LogMAR)			
Mean ± SD	0.30 ± 0.30	0.33 ± 0.32	0.382
Range	0.00 to 0.60	0.01 to 0.65	
MRSE (D)			
Mean ± SD	-1.38 ± 2.98	-0.74 ± 2.45	0.134
Range	-4.36 to 1.60	-3.19 to 1.71	

CDVA indicates corrected distance visual acuity; D, diopter; LogMAR, logarithm of the minimum angle of resolution; MRSE, manifest refraction spherical equivalent; N/A, not applicable; SD, standard deviation; UDVA, uncorrected distance visual acuity.

\*P < 0.001.

(range; 49 to 70) years in the ZXR00 group and 65.2 ± 8.2 (range; 45 to 82) years in the ICB00 group, with patients in the ICB00 group significantly older than those in the ZXR00 group. In the ZXR00 group, the preoperative average UDVA, CDVA, and spherical equivalent (SE) were 0.53 ± 0.37, 0.30 ± 0.30, and -1.38 ± 2.98, respectively. In the ICB00 group, these values were 0.55 ± 0.35, 0.33 ± 0.32, and -0.74 ± 2.45, respectively. There were no differences in baseline parameters other than age.

Table 2 presents 3 months of postoperative visual results for both groups. The UDVA had excellent results in both groups (ZXR00: 0.13 ± 0.13; ICB00: 0.11 ± 0.10), without significant differences between the groups. The CDVA also showed excellent results in both groups (ZXR00: 0.05 ± 0.08; ICB00: 0.03 ± 0.05), without significant differences between the groups. The UIVA values were 0.22 ± 0.14 and 0.26 ± 0.10 for the ZXR00 and ICB00 groups, respectively, with no significant difference between the groups. The UNVA values were 0.32 ± 0.11 and 0.42 ± 0.11, for the ZXR00 and ICB00 groups, respectively. In comparison with the ICB00 group, the ZXR00 group showed a significantly better UNVA (P < 0.001).

The defocus curve is a visual performance analysis at different defocus levels corresponding to different seeing distances.<sup>22</sup> The defocus curve was tested for every 0.5 D 3 months postoperatively. The defocus curves of each group are illustrated in Figure 1. In accordance with the visual acuities of the various distances, the smooth defocus curve with a larger landing area for the ZXR00 was compared to that for the ICB00. The monocular defocus curve of the ZXR00 showed a mean VA equal or better than 0.32 LogMAR within the +1.00 D to -2.50 D interval, and equal or better than 0.22 LogMAR between +0.50 D and -1.50 D interval. The monocular defocus curve of the ICB00 showed a mean VA equal or better than 0.32 LogMAR within the +0.50 D to -1.50 D interval, and equal or better than 0.22 LogMAR between the +0.50 D and -1.00 D interval.

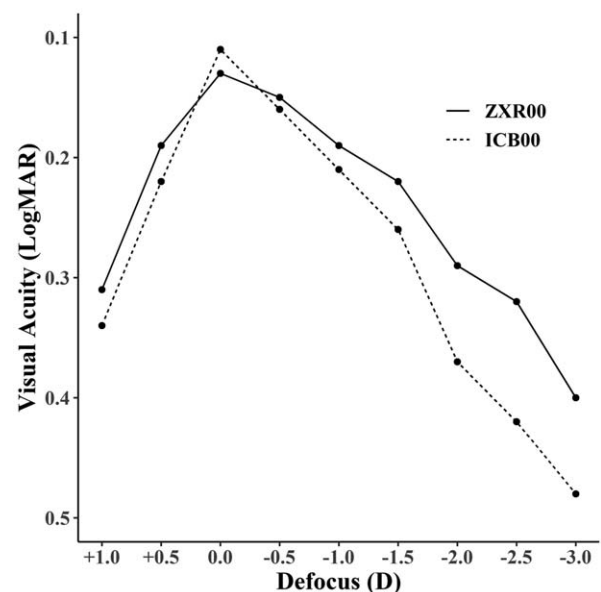
The target spherical equivalents (SE) were -0.35 ± 0.19 D in the ZXR00 group and -0.32 ± 0.20 D in the ICB00 group. The

**TABLE 2.** Postoperative 3 Months Visual Outcomes

Parameter	Symfony ZXR00	Eyhance ICB00	P Value
UDVA (LogMAR)			
Mean ± SD	0.13 ± 0.13	0.11 ± 0.10	0.163
Range	0 to 0.26	0.01 to 0.21	
CDVA (LogMAR)			
Mean ± SD	0.05 ± 0.08	0.03 ± 0.05	0.253
Range	0 to 0.13	0 to 0.08	
UIVA (LogMAR)			
Mean ± SD	0.22 ± 0.12	0.26 ± 0.09	0.105
Range	0.10 to 0.34	0.16 to 0.36	
UNVA (LogMAR)			
Mean ± SD	0.32 ± 0.11	0.42 ± 0.11	<0.001*
Range	0.21 to 0.43	0.31 to 0.53	
Target SE (D)			
Mean ± SD	-0.35 ± 0.19	-0.32 ± 0.20	0.395
Range	-0.54 to -0.16	-0.52 to -0.12	
MRSE (D)			
Mean ± SD	-0.22 ± 0.50	-0.22 ± 0.40	0.993
Range	-0.72 to 0.28	-0.62 to 0.18	
Mean prediction error (D)			
Mean ± SD	0.12 ± 0.53	0.10 ± 0.39	0.720
Range	-0.41 to 0.65	-0.29 to 0.49	
Mean absolute error (D)			
Mean ± SD	0.36 ± 0.29	0.31 ± 0.21	0.121
Range	0.09 to 0.77	0.10 to 1.52	
RE within ± 0.5 D, n	65 (90%)	94 (92%)	0.211

CDVA indicates corrected distance visual acuity; D, diopter; LogMAR, logarithm of the minimum angle of resolution; MRSE, manifest refraction spherical equivalent; n, number; RE, refractory error; SD, standard deviation; SE, spherical equivalent; UIVA, uncorrected intermediate visual acuity; UNVA, uncorrected near visual acuity; UDVA, uncorrected distance visual acuity.

\*P < 0.001



**FIGURE 1.** Mean monocular defocus curves obtained from the Tecnis<sup>®</sup> Symfony<sup>®</sup> (ZXR00) and Tecnis<sup>®</sup> Eyhance<sup>®</sup> (ICB00) groups. D indicates diopters; LogMAR, logarithm of the minimal angle of resolution.

manifest refraction spherical equivalent (MRSE) was -0.22 ± 0.50 D in the ZXR00 group and -0.22 ± 0.40 D in the ICB00 group. The mean error was 0.12 ± 0.53 D in the

**TABLE 3.** Optical Quality Parameters Assessed by OQAS<sup>®</sup> With a Pupil Diameter of 4.0 mm After 3 Months of Surgery

Parameter	Symfony ZXR00	Eyhance ICB00	P value
OSI	2.08 ± 0.92 (1.00 to 4.30)	1.22 ± 0.37 (0.76 to 2.20)	<0.001
MTF cutoff (c/deg)	24.29 ± 9.08 (11.47 to 46.73)	27.29 ± 4.82 (17.22 to 40.12)	<0.001
Strehl ratio	0.14 ± 0.05 (0.08 to 0.26)	0.18 ± 0.03 (0.11 to 0.23)	<0.001

D indicates diopters; MTF, modulation transfer function; OQAS, optical quality analysis system; OSI, objective scatter index; SD, standard deviation.

ZXR00 group and  $0.10 \pm 0.39$  D in the ICB00 group. The mean absolute error was  $0.36 \pm 0.29$  D in the ZXR00 group and  $0.31 \pm 0.21$  D in the ICB00 group. The percentages of refractive outcomes within 0.5 D were 90% and 92% in the ZXR00 and ICB00 groups, respectively. There were no statistically significant differences between these 5 endpoints concerning postoperative refractive errors between both groups.

The optical quality parameters evaluated by the OQAS for a 4.0 mm pupil are presented in Table 3. The OSI, MTF cutoff, and Strehl ratio of the ZXR00 were  $2.08 \pm 0.92$ ,  $24.29 \pm 9.08$ , and  $0.14 \pm 0.05$  respectively, and  $1.22 \pm 0.37$ ,  $27.29 \pm 4.82$ , and  $0.18 \pm 0.03$  respectively, for the ICB00. In terms of optical quality, the ICB00 was significantly superior to the ZXR00.

## DISCUSSION

The comparisons of visual results after insertion of the ZXR00 and ICB00 IOLs in this study revealed comparable distance and intermediate visual outcomes between the 2 groups. The ZXR00 was notable for near vision and defocus curve smoothness, while the ICB00 achieved superior optical quality. Since the recent release of the ICB00, more than 10 research reports have compared it to the ZCB00. However, few studies have compared it with the ZXR00, which is composed of the same material as the ICB00 but with an achromatic echelette design that widens the range of vision.<sup>23,24</sup>

Multifocal IOLs conventionally offer patients with 2 focal points (bifocals) or 3 areas of acuity (trifocals); however, VA can be decreased between these distinct focal points with greater levels of photic phenomena.<sup>9</sup> Multifocal IOLs are designed to offer distance, intermediate, and near vision combined, which may cause variations in vision quality because of reduced contrast sensitivity.<sup>25</sup> Thus, EDOF IOLs attempt to fill these deficiencies.<sup>26,27</sup>

As activities involving intermediate distances become more important in daily life, bifocal IOLs may not be the best option after cataract surgery.<sup>2</sup> New-concept IOLs have been developed to meet the needs of patients for independence from spectacles without losing optical quality.<sup>28</sup> A new IOL concept based on generating a wide range of vision has been developed and is a potential technology to produce good visual results and spectacle independence while reducing visual disruption usually associated with multifocality.<sup>2,29</sup> Higher-order aspherical monofocal IOLs with continuous power changes in the optical zone aim to improve intermediate vision.<sup>30</sup> Increasing the power distribution from the periphery to the center expands the depth of focus and enriches intermediate VA.<sup>10</sup> The present study compared 2 relevant IOLs in this respect.

A previous clinical study demonstrated superior distant VA for the ZXR00 compared to not only multifocal but also monofocal IOLs.<sup>31</sup> Several studies also reported the excellent distance VA of the ICB00, with no difference from a typical monofocal

IOL.<sup>3,10,13</sup> These results are consistent with the results of the present study. In the current study, the UDVA values were  $0.13 \pm 0.13$  and  $0.11 \pm 0.10$ , and the CDVA values were  $0.05 \pm 0.08$  and  $0.03 \pm 0.05$  in the ZXR00 and ICB00 groups, respectively.

Earlier studies have reported monocular UIVAs of 0.12, 0.14, 0.15, 0.24, 0.26, and 0.28 for the ZXR00 and 0.11, 0.21, 0.28, 0.31, 0.39, 0.40, and 0.45 for the ICB00, respectively.<sup>2,3,10,11,32–37</sup> In the current study, the UIVA values were  $0.22 \pm 0.12$  and  $0.26 \pm 0.09$  for the ZXR00 and ICB00 groups, respectively. In this study, the monocular UDVA, CDVA, and UIVA results were similar for ZXR00 and ICB00 at 3 months postoperatively.

Prior studies have reported monocular UNVAs of 0.17, 0.27, 0.34, 0.35, and 0.38 for the ZXR00 and 0.43, 0.46, 0.47, and 0.50 for the ICB00, respectively.<sup>2,3,11,33,35–37</sup> In the present study, the UNVA values were  $0.32 \pm 0.11$  and  $0.42 \pm 0.11$  for the ZXR00 and ICB00 groups, respectively. The UNVA was considerably better in the ZXR00 group compared to the ICB00 group ( $P < 0.001$ ).

Two studies conducted comparative evaluations of ZXR00 and ICB00 on the same basis. A study comparing the 2 groups 3 months after surgery revealed that monocular UIVA, binocular UIVA, binocular UNVA, contrast sensitivity rates, and rates of glare and halos were similar in both groups, only monocular UNVA was superior in the ZXR00 group.<sup>23</sup> Another study comparing the results of both groups 6 months after surgery found that binocular UIVA and contrast sensitivity rates were similar in both groups, ZXR00 showed superior binocular UNVA, but higher levels of halos and glare were observed compared with ICB00.<sup>24</sup>

In pseudophakic eyes, defocus curves have already been used to verify the subjective depth of focus (DOF) accommodating IOLs as a visual performance gauge.<sup>6</sup> Analysis of the defocus curve showed that ZXR00 provided a wider DOF range. This is in accordance with the objective of EDOF IOLs as they have been developed to produce a continuous focus range without specific focus generation for specific distances, as seen with trifocal or bifocal IOLs.<sup>6,38</sup>

One of the major drawbacks of multifocal IOLs is the photic phenomena.<sup>39</sup> The high incidence of photic phenomena is the major cause of patient dissatisfaction after multifocal IOL is implemented.<sup>37</sup> Most multifocal IOLs divide the light into several focal spots, which diminishes the visual quality. The incidence of glare is greater for multifocal IOLs than for monofocal IOLs.<sup>14,19,40</sup> Optical quality refers to the clarity of the image.<sup>14</sup> The OQAS assesses the objective optical quality of an IOL with the retinal image obtained by the double-pass system.<sup>41</sup> This device is useful for the characterization of the optical quality of IOLs and showed good reproducibility and repeatability.<sup>17,42,43</sup> The OSI value for multifocal IOL was significantly associated with subjective degrees of glare.<sup>17</sup>

It is important to compare the results of the ZXR00 and ICB00 IOLs, which are known to have excellent optical quality. The ICB00 exceeded the ZXR00 in all 3 measures obtained from the OQAS, which is a useful instrument for characterizing the optical quality of IOLs.<sup>44</sup> The ZXR00 offered consistent and excellent visual performance, with minimal degrees of visual disturbance in comparison with other multifocal IOLs.<sup>8,25,33,37,45–47</sup> However, it showed poor optical quality compared to the ICB00, which showed results similar to those for monofocal IOLs.<sup>3,14,21,34</sup>

The present study has several limitations in the interpretation of the results. The main limitation was the retrospective design and lack of randomization, as the patients were divided by their personal preference. Thus, it was not possible to match the subjects before surgery. Though exclusion and inclusion criteria were used to qualify subjects, data were collected from subjects who had previously undergone surgery. Second, a contrast sensitivity test and subjective measurements evaluated using a questionnaire were not carried out. Third, the age of the ZXR00 group was younger than that of the ICB00 group because young patients tend to require for near vision. This finding was also demonstrated in an earlier study comparing ZXR00 (61.6 ± 13.4, range; 31 to 80 years) and ICB00 (70.5 ± 8.0, range; 53 to 80 years).<sup>23</sup> Pupil size may decrease with age,<sup>48,49</sup> which can affect depth of focus and near vision. Therefore, there is a need for a study in which there is no age difference between the 2 groups. Fourth, the study subjects were homogenous and were drawn entirely from the Korean population. A longer-term prospective study involving more participants is needed to evaluate the efficacy of these 2 IOLs.

In conclusion, the ZXR00 provided remarkable near vision and defocus curve smoothness, while the ICB00 achieved better optical quality. Both groups had comparable distance and intermediate vision. (Supplementary Digital Content, <http://links.lww.com/APJO/A109>)

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