
Results of Complicated Cataract Phacoemulsification with Implantation of Multifocal Intraocular Lenses ACRYSOF IQ RESTOR (ALCON)

State Budget Establishment
Yakutsk Republican Ophthalmologic Clinic
Northeast Federal University, Medical Institute.
Yakutsk.

Zaharova E.K., Poskachina T.R., Nazarov A.N.

Actuality.

The quantity of operations concerning replacement of crystalline lens with refracting purpose has increased significantly from the moment of IOL occurrence in the market for presbyopia correction. In the beginning this procedure was considered as removal of transparent crystalline lens, meanwhile crystalline lenses are not transparent any more at senior patients aged 50 and over. Even at high visual acuity the age kernel sclerosis can be observed influencing on sight quality and colour perception. These changes have been called as the syndrome of dysfunctional crystalline lens. This syndrome can be identified by its thickening and hardening in combination with disability to accommodation in patients aged 40 years as the kind of presbyopia [2]. For performing presbyopia in artiphacia updated models of «premium class» intraocular lenses are used such as multifocal and accommodating ones. Multifocal lenses Tecnis MF (AMO, Santa Ana, the USA), AcrySof IQ Restor+3,0 (Alcon, Ford-Yort, the USA) irrespective of optics design, being of refraction or diffraction, allow to reach high sight afar and thus to read without spectacles. There are such disadvantages of the given kind of lenses as low sight on intermediate distance as well as higher frequency of circles of light diffusion in the conditions of poor illumination. Nevertheless, many ophthalmologists-surgeons consider that the given models of lenses are considered to be optimal at present stage [3], besides the IOL data are economically profitable. Accommodating lenses Crystalens HD (Bausch and Lomb Surgical, the San-Dimas, the USA) are characterized not only by magnificent sight afar and in intermediate distance, high contrast sensitivity, but by lower indices of sight in short distance and lower ability to read as well. Early studies of accommodating lenses also have shown that their functional result is less predicted, and when the accommodation has been reached in sufficient volume, eventually it regressed in most cases [3,4].

For the purpose to decrease the demand in spectacle corrections after cataract surgical treatment, the multifocal lens Acrysof IQ Restor (Alcon) has been used. In the central part of lens optics the principle of apodisation is applied that allows to distribute the quantity of light energy between near and far focuses depending on the pupil width (and illumination). Gradual reduction of the height of steps from center to periphery guarantees the pure sight due to optimum distribution of light energy on retina concerning the illumination. The central part of optics in diameter of 3,6 mm forms the image in two focuses that provides possibility to read and see afar. In twilight the light energy is redistributed on distant focus while the pupil expansion (and reduction of illumination) that allows the patient to be guided well in space [1]. As the majority of ophthalmologists – surgeons admit who implant IOL multifocal, the latest invention Acrysof IQ Restor +3,0 has become considerably popular in comparison with Acrysof IQ Restor +4,0, as this lens has allowed to make purer sight on intermediate distance [5,6].

The purpose: to analyze functional results of implantation of multifocal intraocular lenses AcrySof Restor+3,0 made by "Alkon" in the patient with complicated cataract.

Material and methods. In the department of the Yakutsk Republican Ophthalmologic Clinic (YROC) the intraocular lenses Acrysof IQ Restor +3,0 have been implanted to 24 patients (38 eyes) with complicated cataract. Depending on the etiology of complicated cataract patients were distributed as follows: 42 % (16 eyes) with myopia of high and average degree, 31,6% (12) with hypermetropia of high degree, 18,4 % (7) with glaucoma I-II, 5,3 % (2) with age maculodystrophy of dry form, 2,7 % (1) with squint.

Patients' visual acuity (VA) before the operation has amounted 0,5 from light sensation (l/s) with correct projection. IOL calculation has been presented under the formulae SRK-T, Holladay, Haigis. Measurement of frontback axis of the eye was carried out by OcuScan RxP. During the operation and in the early postoperative periods there were no complications.

Results.

High functional results have been noted in the patients discharged. The visual acuity afar without correction has made 0,7 - 1,0 in 85 % of cases (32 eyes), as VA closely, 75% patients read the text № 6 without correction. The functional results in a year are presented in Table 1.

According to the Table the visual acuity afar without correction has been noted to be 0,7 - 1,0 in 68 % (26 eyes) in remote terms after the operation, the indices of close distance without correction by Sivtsev's Table № 6 in 75 %.

Unfortunately, in one case (the patient aged 75) due to accompanying age macular retina dystrophy (dry form), VA in the postoperative period has made 0,3. Before the operation, considering age and impossibility of eyeground ophthalmoscopy because of full cataract (before the operation VA = 1/s), the patient has been warned about probable low visual functions after the cataract extraction.

Even in monocular implantation the lens intolerance wasn't noted. All patients with the implantation of lens Acrysof IQ Restor +3,0 had high VA in the average distance, without decrease in quality of sight afar and close. In one case we did not observe the light phenomena, so-called galo and glare effects.

Conclusions. Our experience of implantation lenses Acrysof IQ Restor +3,0 of diffraction - refraction types testifies that given IOL models allow to achieve high sight as afar as close, and in the average distance too.

Table 1

Visual acuity afar in 1 year after phacoemulsification with IOL implantation
Acrysof IQ Restor +3,0 (n=38).

Kinds of cataract	0,3	0,4	0,5	0,6	0,7	0,8	0,9	1,0
Visual acuteness								
Myopia I and II				3	3	3	4	3
Hypermetropia I				4	2	3	3	
Glaucoma			1	3	2	1		
Maculodystrophy	1				1			
Squint						1		
TOTAL	1	-	1	10	8	8	7	3

The literature:

1. Ryabtseva A.A., Jugay M.P, Peretyagin O.V, Kompasov K.A. Experience of Implantation of Multifocal Lenses Acrysof Restor (Alcon) in Moscow Oblast // The Russian National Ophthalmologic Forum. The collection of scientific works. Edited by Neroeva V.V. M.: 2008. P. 508-511.
2. Jason E. Stahl, M.D. Crystalline Lens Replacement with Refractive Purpose... The Best in the World! // Eye World. The International Journal for Ophthalmologists. August, 2011. P. 40
3. Vanessa Caceres. IOL Evolution for Presbyopia Correction // Eye World. The International Journal for Ophthalmologists. March, 2011. P. 39 - 41.
4. Enette ngoei. The Market from Spectacles' Removal // Eye World. The International Journal for Ophthalmologists., March 2011. P. 33.
5. Michelle Dalton. The newest IOL ... European Countries in Perspective // Eye World. The International Journal for Ophthalmologists. T.2. №2. P. 28-31
6. Michelle Dalton. ИОЛ on Rise // Eye World. the International Journal for Ophthalmologists. September 2011. P. 40-43.

The resume.

The quantity of operations concerning replacement of crystalline lens with refractive purpose has significantly increased from the moment of IOL occurrence in the market for presbyopia correction. For performing presbyopia in aphakia updated models of «premium class» intraocular lenses are used such as multifocal and accommodating ones. Multifocal lenses Tecnis MF (AMO, Santa Ana, the USA), AcrySof IQ Restor+3,0 (Alcon, Fort-Wort, the USA) irrespective of optics design, refractive or diffractive, allow to reach high sight afar and thus to read without spectacles.

In the department of the Yakutsk Republican Ophthalmologic Clinic (YROC) the intraocular lenses AcrySof IQ Restor +3,0 have been implanted to 24 patients (38 eyes) with complicated cataract .

High functional results have been noted in all patients discharged. The visual acuity afar without correction has amounted for 0,7 - 1,0 in 85 % of cases (32 eyes), as VA closely was in 75% patients reading the text № 6 without correction.

Our experience of implantation of diffractive and refractive lenses Acrysof IQ Restor +3,0 testifies that given IOL model allow to achieve pure sight as afar as closely, and in the average distance as well.

Keywords:

Phacoemulsification, multifocal, diffractive, complicated cataract.

Authors:

1. Zaharova Ekaterina Kimovna, the head of in-patient department, the main non-staff ophthalmologist of MH RS (Y), State Budget Establishment RS(Y) «YROC», 677005 Yakutsk, 15, Sverdlova Str., ph. 89142757704, e-mail: [<mailto:Katya1961@mail.ru>](mailto:Katya1961@mail.ru)
2. Poskachina Tamara Romanovna, the cand. of medical sciences, the senior lecturer, the head of ophthalmologic department MI NEFU, 677000 Yakutsk, 5/1 Ordzhonikidze Square 28 ph. 89248766662 e-mail: [<mailto:doka14@list.ru>](mailto:doka14@list.ru)
3. Nazarov Anatoly Nikolaevich, the head physician, SBE RS (Y) «ЯРОБ», 677005, Yakutsk 15, Sverdlov Str., ph. 89142757704, e-mail: [<mailto:nazarov_anatoly@mail.ru>](mailto:nazarov_anatoly@mail.ru)