



ORIGINAL RESEARCH PAPER

Ophthalmology

COMPARISON OF VISUAL OUTCOME AND PCO RATE FORMATION WITH ACRYLIC HYDROPHILIC AND HYDROPHOBIC IOL

KEY WORDS: Hydrophilic IOL, Hydrophobic IOL and PCO rate

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ABSTRACT

The study was conducted on 100 patients of cataract . patients were divided in two groups .Group A recieved hydrophilic IOL and Group B received hydrophobic IOL . Follow up was done on day 1 , day 7, 1 month 3, month ,6 month and 12 month regarding bcva and pco rate formation and found that both IOL are equqly effective however rate of pco formation was low in hydrophobic IOL.

Introduction

Advanced surgical technique and biomaterial science has improved the results of cataract surgery with IOL implantation. Posterior capsule opacification (PCO) is the most common long term complication which decreases the vision in 1 to 2 years after cataract surgery.[1,2]

Nd:YAG laser capsulotomy is effective for management of PCO. However, complications including retinal detachment, macular edema and rise in IOP may also occur.[3]

An ideal IOL would reproduce the original function of the crystalline lens and it should be biocompatible as well as design in such a way that it can prevent PCO formation.

Aim of the study was to compare the outcomes of acrylic hydrophilic and hydrophobic lens regarding visual aquity and PCO formation.

MATERIAL AND METHODS

Prospective randomized controlled study conducted on 100 patients of senile cataract in ophthalmology department at Jhalawar medical college Jhalawar (Raj.). Diabetic retinopathy, Uveitis ,glaucoma and retinal pathology patients were excluded.

Patients were equally divided in two groups.

1. Group A- Hydrophilic IOL group.
2. Group B-Hydrophobic IOL group.

An ocular examination was done to evaluate the anterior and posterior segment. Biometry was done for IOL power calculation. Written informed consent was taken and all patients underwent for clear corneal phacoemulsification with implantation of foldable acrylic hydrophobic and hydrophilic IOL respectively under local anesthesia.

Postoperatively all patients received topical antibiotic and steroid eye drop combination 6 times a day for 1 week than tapered in next 4 weeks. Follow up was done at day1, day 7, 1 month, 3 months, 6 months and 12 months regarding bcva and PCO grading.

PCO Grading

- Grade 1: No or slight PCO.
- Grade 2: Mild PCO.
- Grade 3: Moderate fibrosis.
- Grade 4: Severe fibrosis.

Results

Table no. 1 Distribution of cases according to age group.

Groups	41-50 yr	51-60 yr	61-70 yr	>70 yr	Total	chisquare	P value	Significance
Group A	13	18	08	11	50	6.0606	0.108699	NS
							p>0.05	

Group B	11	18	12	09	50			
Total	24	36	20	20	100			

Table no.2 Distribution of cases according to gender.

	Male	Female	Total	Chi square	P value	Significance
Group A	20 (40%)	30 (60%)	50	1.0101	0.314875	NS
Group B	25(50%)	25 (50%)	50		P > 0.05	
Total	45 (45%)	55 (55%)	100(100%)			

Table no.3 Distribution of cases according to BCVA.

GROUP	Visual aquity(BCVA)									
	HM Present close to face	FC3 mtr	6/60	6/36	6/18	6/12	total	Chi square	P value	Sig.
Preoperative	Grp A	05	16	24	05	00	50	0.4154	0.937053	NS
	Grp B	06	14	26	04	00	50		P>0.05	
Post op	1 st day Grp A	00	00	03	25	22	50	1.087	0.580725	NS
	Grp B	00	00	01	25	24	50		P>0.05	
7 th day	Grp A	00	00	00	05	45	50	0.5435	0.460995	NS
	Grp B	00	00	00	03	47	50		P>0.05	
1 st month	Grp A	00	00	00	04	46	50	1.8947	0.168669	NS
	Grp B	00	00	00	01	49	50		P>0.05	
3 rd month	Grp A	00	00	00	02	48	50	0.3436	0.557734	NS
	Grp B	00	00	00	01	49	50		P>0.05	
6 th month	Grp A	00	00	02	06	42	50	4.3048	0.116207	NS
	Grp B	00	00	01	01	48	50		P>0.05	
12 th month	Grp A	00	00	02	10	38	50	6.6196	0.036523	Significant
	Grp B	00	00	01	02	47	50		P<0.05	

Table no.4 Distribution of cases according to PCO formation.

Follo w up	PCO	GRA DE1	GRAD E2	GRAD E3	GRAD E4	TOT AL	chisquare	P value	Significance
1 st month	Grp A	48	02	00	00	50	0.3436	0.557734	NS
	Grp B	49	01	00	00	50		P>0.05	
3 rd month	Grp A	43	07	00	00	50	1.7778	0.182422	NS
	Grp B	47	03	00	00	50		P>0.05	
6 th month	Grp A	40	05	05	00	50	3.5853	0.166521	NS
	Grp B	46	03	01	00	50		P>0.05	

12 th month	Grp A	15	10	10	15	50	23.0159	0.0000 4 P<0.05	Signif icant
	Grp B	43	03	02	02	50			

Discussion

Graph 1. 36% patients were in 61-70 yrs age group. (P=0.108). Male-female ratio had P>0.05 Graph 2. (P=0.314). 76% patients in group A and 94% in group B had 6/6-6/12 VA at 12th month. (P=0.036). (Graph 3)

The PCO rate was 30% in group A and 4% in the group B at the end of 1 year. (Graph 4, P<0.05). VA decreased due to PCO was 16% to 24% of patients in group A and 4% to 6% in group B after 6month to 12 month of surgery.

Ursell PG et al. established that an acrylic IOL is associated with reduced incidence of PCO as compared with silicone or PMMA IOL.[4] In a study done by Bender et al. in 2004, the PCO rate was 16% after 1yr of hydrophobic acrylic IOL implantation.[5] which may be due to its sharp, square optic edge and sticky surface.[6]

Conclusion

Acrylic hydrophilic and hydrophobic both are equally effective however rate of PCO formation was lower in hydrophobic IOL.

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