

Comparison of Short Term Post-Operative Complications in Developmental Cataract Surgeries between 05-10 Years Aged Children with Hydrophobic Acrylic Intra Ocular Lens (IOL) Versus Poly Methyl Meth Acrylate Intra Ocular Lens Implantation

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Cataract Surgeries in Children with Hydrophobic Acrylic IOL VS Poly Methyl Meth Acrylate IOL Implantation

ABSTRACT

Objective: To Compare Short Term Post-Operative Complications in Developmental Cataract Surgeries between 05-10 Years Aged Children with Hydrophobic Acrylic Intra Ocular Lens (IOL) Versus Poly Methyl Meth Acrylate Intra Ocular Lens Implantation.

Study Design: Prospective and Interventional study

Place and Duration of Study: This study was conducted at the Ophthalmology division, PUMHSW, Nawabshah from June 2014 - May 2015.

Materials and Methods: Proposed clinical imminent interventional concentrate included 50 sequential pediatric patients (i.e., 100 eyes) of 05-10 years old, with reciprocal or one-sided formative waterfalls suffered waterfall medical procedure through back chamber essential implantation of intra ocular lens, without essential foremost vitrectomy and back capsulotomy. Average age of kids was 7.48 yrs. in which there were 51 guys and 49 females out of 100 participants. Most of the kids were in the age gathering of 5 to 9 years. All pediatric waterfall patients were partitioned in 2 groups.

Results: Children's average age was 7.48 years old. Males comprised 51% of the total, while females accounted for 49%. In table 1 all the variables about age, post-operative complications, (immediate and delayed) shown in table 1 and chart 1 and 2.

Conclusion: Posterior capsular opacification is a successive intricacy postoperatively connected with PMMA bunch contrasted with Hydrophobic Acrylic bunch. Subsequently Hydrophobic Acrylic Intra Ocular Lens is prescribed to use in formative waterfall medical procedures.

Key Words: Cataract Surgeries, Children, Hydrophobic IOL, Poly Methyl Meth IOL, Implantation

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INTRODUCTION

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Intraocular lense (IOL) is an implantation of focal point into an eye which is utilized for treating the refractive errors shortfall after evacuation of waterfall. IOL's sort utilized for waterfall treatment and are embedded after expulsion of cataractous regular lens is the pseudophakic IOL. ¹ They comprises as a rule of plastic little focal point with sides upholds called haptic, to be confined in the focal point inside pack of case inside the eye. ² Harold has discovered that after waterfall medical procedure, implantation of IOL inside eye is a massively compelling interaction. ³ IOLs are generally comprised of rigid substance such as Poly Methyl Meth Acrylate (PMMA) and adaptable substances such as Acrylic, and silicon. ⁴

Poly Methyl Meth Acrylate (PMMA) is the first utilized material effectively. Interpreting latent nature of PMMA is straightforward and valuable for implantation

of an eye. This intraocular focal point has been planned and embedded by Ridley. Improvements in the innovation of focal point fabricating have taken use of silicone and acrylic which are in genuine latent delicate foldable material. It licenses collapsing of focal point and addition of eye by cut which is little and makes a superior determination in people having retinopathy and uveitis history because of diabetes thus vitrectomy is required and silicone supplanting or at risk of separation of retina.⁵ Previous record of less recurrence of postoperative complexities in waterfall with intra ocular lens implantation, has made us relaxed and less watchful regarding cautious evaluation and medical procedure system testing and more up to date visual prosthesis.⁶ Recent advances in Ophthalmology have called attention to a few major issues related to opacification in regards to the post-usable waterfall IOL medical procedure, that incorporate,⁷ anterior capsular opacification, opacifications inside hydrophilic intraocular lens, acryl soft IOL glistening, snow flake opacifications of PMMA intraocular lens and capsular opacification Posterior.

Subsequently grown-up a medical procedure for waterfall any inconvenience that might have happened can likewise result in a high school suffering implantation of focal point. No confusions must have been organized that are one of a kind to youngsters when contrasted with grown-ups. However, the powerful reaction of aggravation of the youngster's eye to held cortical part and the inclination for another film creation, even where foremost and back capsulectomy have been done, commonly by and without implantation of IOL.^{8,9} produce a superior affinity for the synechiae advancement & dislocations IOL.^{10,11,13-15} Some proof recommends, but that essential intraocular focal point embedding diminishing its frequency in kids with glaucoma following formative and inborn waterfall medical procedure.¹⁶

MATERIALS AND METHODS

This study was conducted Ophthalmology division, PUMHSW, Nawabshah within a year i.e., June 2014 - May 2015.

Sampling: Proposed clinical imminent interventional concentrate included 50 sequential pediatric patients (i.e., 100 eyes) of 05-10 years old, with reciprocal or one-sided formative waterfalls suffered waterfall medical procedure through back chamber essential implantation of intra ocular lens, without essential foremost vitrectomy and back capsulotomy. Average age of kids was 7.48 yrs. in which there were 51 guys and 49 females out of 100 participants. Most of the kids were in the age gathering of 5 to 9 years. All pediatric waterfall patients were partitioned in 2 groups.

1) Group A: 50 eyes of pediatric waterfall patients were embedded inflexible PMMA IOLs in this bunch.

2) Group B: This group consisted of every one of

the excess 50 eyes of pediatric waterfall patients went through a medical procedure were embedded the foldable Hydrophobic Acrylic IOL in back chamber.

Transient postoperative complexities were thought about in the two gatherings An and B under study for Twelve a year.

Inclusion Criteria

- The pediatric cataract patients in the study ranged in age from five to ten years old.
- Patients with uniocular or binocular developing cataract in children.
- Pediatric cataract patients who followed the post-operative instructions to the letter.

Exclusion Criteria

- Patients with other eye problems, such as glaucoma, uveitis, microcornea, colobomas, microphthalmia, and corneal opacity, were not included in this study.
- Kids with traumatic and complex cataracts were ruled out of the research.
- B.Scan revealing various ophthalmic abnormalities such as retinoblastoma, retinopathy of prematurity (ROP), retinal detachment, and PHPV (primary hyperplastic primary vitreous).

Experiment: All activities were executed under broad sedation utilizing every one of the standard procedures of general sedation and under a qualified and accomplished anesthetist. Every one of the medical procedures were done by a specialist with at least 10 years of experience in the related field. Entire setting was done at Department of Ophthalmology, PUMHSW, Nawabshah.

Every patient with waterfall complication and had gone through treatment ranging between 05-10 years were encouraged to go to eye OPD at legitimate time stretches, where they were analyzed through actually looking at V/A, direct and aberrant ophthalmoscopy and cut light bio-microscopy by utilization of +90 D focal point or +78D focal point to notice any post usable difficulty uniquely back capsular opacification.

Follow up sessions of post usable patients was scheduled as mentioned below:-

1. first development on first post employable day.
2. second development following multi week of first development.
3. third development following fourteen days of second development.
4. fourth development following three weeks of third development.
5. fifth development following a month and a half of fourth development.
6. 6Th development following 03 months of fifth development.
7. 7th and last development following 06 months of sixth development.

RESULTS

Children's average age was 7.48 years old. Males comprised 51% of the total, while females accounted for 49%. A high percentage of the children were between the ages of 5-7 years (n=48%), between 7.1-9 years n=42%, and between 9.1-10 years n=10%.

When the two groups were compared by age, there was no significant difference in the age ranges that were affected (p value 0.781). In both the PMMA and acrylic IOL groups, no statistical difference was seen in terms of gender (i.e., p- value 0.841). Postoperative problems in early days (such as within 7 days) and delayed (such as from 2nd week to 12th month) were discovered. In both groups, the immediate complications were statistically negligible (p value 0.934). (Table 1).

Table No.1: Detail of both groups

Table 1: Detail of both groups			
Variables	Group 1	Group 2	P value
	PMMA IOLs (n=50)	Foldable acrylic IOLs (n=50)	
Age			0.781
5-7yrs	24(48%)	24(48%)	
7.1-9yrs	22(44%)	20(40%)	
9.1-10yrs	4(08%)	06(12%)	
Gender			0.841
Male	25(50%)	26(52%)	
Female	25(50%)	24(48%)	
Postoperative Complications			
Immediate			
Iritis	08(16%)	07(14%)	0.934
Raised Intra ocular Pressure	04(08%)	03(06%)	
Striate Keratitis	15(30%)	14(28%)	
Endophthalmitis	0	0	
None	23(46%)	26(52%)	
Delayed			
Posterior capsular opacification	19(38%)	08(16%)	0
Decentred IOL	13(26%)	04(08%)	
Raised Intra Ocular Pressure	01(02%)	0	
Pupillary Capture	12(24%)	04(08%)	
Retinal Detachment	0	0	
None	05(10%)	36(72%)	

Post-operative immediate complications in patients were noted as, in iritis 16% in PMMA lens implantation, and 14% in hydrophobic acrylic lens implantation, while in raised intraocular pressure 08% in PMMA lens implantation, and 06% in hydrophobic acrylic lens implantation, and in striate keratitis 30% in PMMA lens implantation, and 28% in hydrophobic

acrylic lens implantation were the most common immediate complications, with the PMMA group having a higher frequency of complications than the Hydrophobic Acrylic group (chart 1)

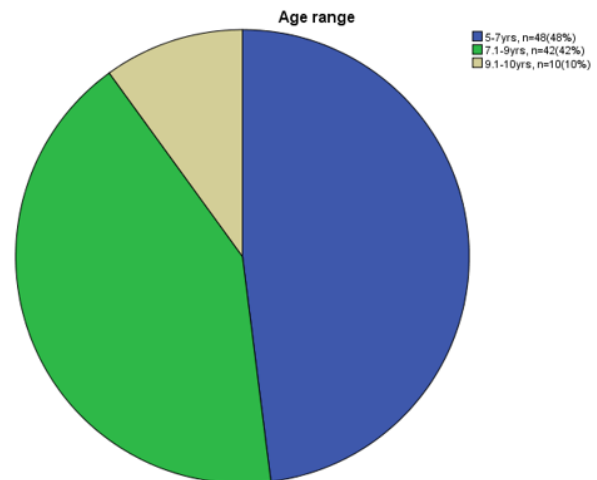


Figure No.1: Age range.

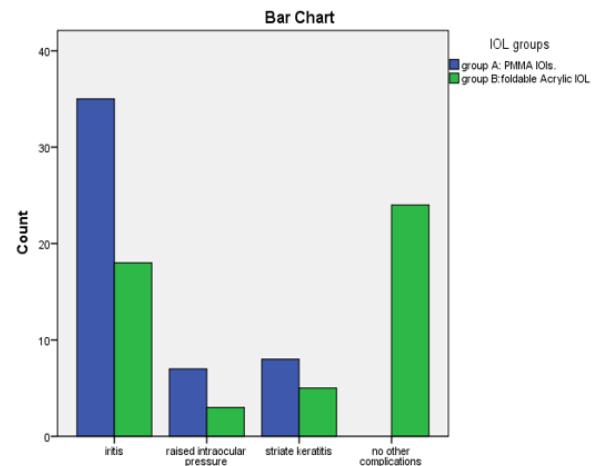


Chart No.1:Postoperative immediate complications

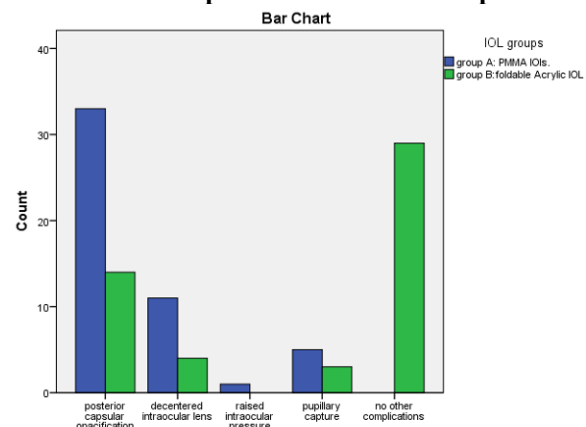


Chart No.2:Postoperative delayed complications

The delayed complication rate in both groups was statistically significant, with the PMMA group experiencing more difficulties than the Hydrophobic

Acrylic group (p value=0.000). In posterior capsular opacification delayed complications were observed as 38% in PMMA lens implantation versus 16% in hydrophobic acrylic lens implantation, in de-centered intraocular lens 26% in PMMA lens implantation versus 08% in Hydrophobic Acrylic lens implantation, while in raised intraocular pressure 02% in PMMA lens implantation versus 0% in Hydrophobic Acrylic lens implantation, and in pupillary capture 24% in PMMA lens implant versus 0% in Hydrophobic Acrylic lens (chart 2).

DISCUSSION

These days waterfall careful result have worked on impressively because of headway in advances and treatment in present day medical procedure^{1,17,18}. These days each 3 out of 10,000 youngsters are found to have waterfall, but fluctuation lies all through the world. In Pakistan as per one review waterfall assessed to be 0.12% detailed visual issues¹⁹.

In our concentrate each of the youngsters have a place with 05-10yrs old enough. This is like ages impacted generally as obvious from various studies^{20,21}. There were more guys in our review contrasted with females. This has likewise been steady finding in various examinations^{21,22}, Sami et al has additionally tracked down expanded occurrence in guys than females^{21,23}.

In this study, most severe continuous entanglement was back capsular opacification, which occurred in 27 patients out of 100. Back capsular opacification was discovered in 19 (38%) of the 50 cases of PMMA focal point implantation, and in 08 (16%) of the 50 cases of Hydrophobic Acrylic focal point implantation. Iritis increased intraocular pressure, Striate Keratitis, Decentred IOL, and Pupillary Catch were among the other issues discovered. Uveitis, hyphema, and back capsular opacification have all been identified by Asghar et al. Hasan et al discovered a 34% risk of back opacification in patients after a waterfall medical operation, with striate keratopathy being the most common early postoperative entanglement²².

Foldable IOLs feature good visibility and excellent biocompatibility, with no surface modifications during collapsing and a low risk of damage. In a clinical trial with randomised control groups, Bazaz et al found that 10% of the acrylic group had uveitis after surgery, compared to 25% of the PMMA group²³. Other issues, such as shade affidavit, iridocorneal attachments, and Synechiae arrangement in PMMA bunch, were also observed.

In our review there were additionally expanded difficulties found in PMMA bunch contrasted with Hydrophobic acrylic bunch. While in our review the most often happening confusion I-e; back capsular opacification anyway uncovered genuinely critical worth (p esteem 0.00). This is almost like outcomes closed from past studies.

CONCLUSION

Posterior capsular opacification is a successive intricacy postoperatively connected with PMMA bunch contrasted with Hydrophobic Acrylic bunch. Subsequently Hydrophobic Acrylic Intra Ocular Lens is prescribed to use in formative waterfall medical procedures.

Author's Contribution:

Concept & Design of Study:	Muhammad Khalid Shaikh
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Final Approval of version:	Muhammad Khalid Shaikh

Conflict of Interest: The study has no conflict of interest to declare by any author.

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