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MANAGEMENT OF CASES OF LENS INDUCED GLAUCOMA ATTENDING J A GROUP OF HOSPITALS, A PROSPECTIVE STUDY

Ophthalmology

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ABSTRACT

Lens Induced Glaucoma (LIG) is a disease entity which arises when the cataract extraction is not done in time thereby leading to hypermaturity and eventually lens induced glaucoma by various mechanisms.

PURPOSE: To evaluate damage to optic disc in cases of LIG in relation to duration of LIG and IOP at presentation.

METHODS: Hundred cases of LIG attending tertiary hospital in Gwalior were selected. Duration of LIG (time interval between onset of pain and presenting to hospital) and IOP at presentation of every patient were recorded. All the cases underwent SICS with IOL implantation. Optic disc evaluation was done 45 days after surgery. Glaucomatous damage to optic disc were noted and graded . Correlation of glaucomatous disc damage with duration of LIG and IOP at presentation were made.

RESULT: In this study, 81.8% of the patients who presented within 1 week had optic disc ranging from normal to mild glaucomatous damage whereas 64.3% of the patients who presented after 1 week had moderate to severe optic disc damage. Amongst the 40 patients who presented with an initial IOP between 20 and 30 mmHg, 22 (55%) cases had normal optic disc, 12 (30%) cases had mild-moderate and 6 (15%) cases had severe glaucomatous disc damage. Out of the 54 cases who presented with an initial IOP of >40 mmHg, 22 (40.7%) cases had normal optic disc, 22 (40.7%) cases had mild to moderate and 10(18.5%) cases had severe glaucomatous optic disc damage.

CONCLUSION: Glaucomatous damage to optic nerve head had a linear correlation with duration of LIG and IOP at presentation.

KEYWORDS

LIG, IOP, cataract, glaucomatous disc damage

INTRODUCTION

LIG is a distinct pathological entity, clinically recognisable, easily preventable and often curable by cataract extraction. LIG may occur as secondary angle closure glaucoma (phacomorphic or ectopia lentis) or secondary open angle glaucoma (phacolytic or phacoanaphylactic).

Proper counselling of the patients with visually disabling cataract to get cataract extraction done timely can prevent occurence of LIG. Early clinical diagnosis of cases of LIG and cataract extraction can prevent permanent damage of vision.

Hence, the present study was undertaken to evaluate various factors for late presentation of cataract / LIG cases. Besides, the control of intra-ocular pressure and improvement in vision were also evaluated as outcome variables.

Hence, the findings of the present study can contribute to the existing knowledge of this subject and help in planning healthcare services in the rural India.

AIMS AND OBJECTIVES

1) To study the pattern of LIG attending JAH.
2) To evaluate various factors for late presentation of cataract/LIG.
3) To evaluate the outcome in cases of LIG following cataract extraction.

MATERIAL AND METHODS

This study was carried out in J A Group of Hospitals, Gwalior between January 2016 to August 2017. Fifty cases of LIG in fifty patients were examined.

The patients were diagnosed as LIG on the basis of clinical features, IOP measurement with GAT and gonioscopy findings. Clinical features included pain, redness of eyes of recent onset in a case of cataract associated with raised intra-ocular pressure. These patients were then admitted in eye ward, managed by various medications and finally operated for cataract. The outcome of the cataract surgery were then monitored in terms of IOP control and BCVA on 3rd and 45th post-operative day.

The details of the patients were recorded in a pre designed proforma.

Phacomorphic glaucoma were diagnosed when patients presented with red eye, acute pain and reduction of vision of certain duration. On clinical examination the eye showed circumcorneal congestion, corneal edema, shallow anterior chamber, dilated and fixed pupil, intumescent cataract and in untreated cases IOP>21 mm Hg.

Likewise the patients were diagnosed with phacolytic glaucoma when they complained of acute pain and redness in the eye with longstanding poor vision. On examination the eye showed marked diminution of vision, corneal oedema, normal or deep anterior chamber containing floating lens particles and/or pseudohypopyon in severe cases and hypermature morgagnian cataractous lens in some cases. Dense flare was seen with extensive keratic precipitates.

At final presentation on 45th post operative day, optic disc damage were graded as mild-disc cupping <0.7, moderate-disc cupping-0.7 to 0.9 and severe-disc cupping >0.9.

Informed consent was obtained from all subjects.

Proforma included - demographic data, socio-economic status and the associated relevant examinations including visual acuity, pupillary reaction, slit lamp bio-microscopy, IOP measurement, gonioscopic evaluation and serial IOP measurements following various treatments.

SELECTION CRITERIA :

1) Patients of 30-80 yrs age group of both sexes.
2) LIG of all types.
3) Hospital based

EXCLUSION CRITERIA :

1) Patients with primary open angle glaucoma.
2) Patients with primary angle closure glaucoma.
3) Patients with glaucoma secondary to trauma except those with glaucoma secondary to traumatic cataract or traumatic subluxation of lens.
4) Patients with inflammatory glaucomas.
5) Various other reasons of glaucoma other than lens induced glaucoma.



Figure 1: PHACOMORPHIC GLAUOMA



Figure 2: LENS PARTICLE GLAUCOMA

OBSERVATIONS AND RESULTS:

Table 1: AETIOLOGICAL DIAGNOSIS

AETIOLOGICAL DIAGNOSIS	NO. OF PATIENTS	PERCENTAGE
PHACOMORPHIC GLAUCOMA	34	68
PHACOLYTIC GLAUCOMA	11	24
LENS PARTICLE GLAUCOMA	02	04
PHACOANAPHYLACTIC GLAUCOMA	00	00
SUBLUXATION/DISLOCATION	02	04

Table 2 : FINAL IOP vs.IOP AT RESENTATION

IOP at presentn (in mmHg)	Final IOP (in mmHg)					
	<20		20-30		>30	
	No.	%	No.	%	No.	%
22-30	3	100	-	-	-	-
30-40	16	80	4	20	-	-
>40	21	77.7	6	22.3	-	-
Total	40	80	10	20	-	-

Table 3 : FINAL IOP vs DURATION OF LIG

Duration (in weeks)	Final IOP (in mm Hg)					
	<20		21-30		>30	
	No.	%	No.	%	No.	%
<1	22	100	-	-	-	-
1-2	12	66.67	6	33.33	-	-
>2	6	60	4	40	-	-
Total	40	80	10	20	-	-

Table 4 : FINAL BCVA vs DURATION OF LIG.

Duration of LIG	Final BCVA					
	6/6-6/12		6/18-6/60		>6/60	
	No.	%	No.	%	No.	%
< 1week	18	81.8	04	18.2	-	-
1- 2weeks	10	55.5	05	27.7	03	16.6
>2 weeks	00	0	05	50	05	50
Total	28	56	14	28	08	16

Table 5: FINAL BCVA vs IOP AT PRSENTATION

IOP(in mm Hg)	Final BCVA					
	6/6-6/12		6/18-6/60		>6/60	
	No.	%	No.	%	No.	%
22- 30	02	66.6	0	0	01	33.3
30- 40	13	65	05	25	02	10
>40	13	48.1	9	33.3	05	18.5
Total	28	56	14	28	8	16

Table 6 : OPTIC DISC CHANGES vs. DURATION OF LIG

Optic Disc	Duration of symptoms (in weeks)					
	<1 week (n= 22)		1 - 2 weeks (n=18)		> 2 weeks (n= 10)	
	No.	%	No.	%	No.	%
Normal	18	81.8	6	33.3	-	-
GDD: mild-moderate	4	18.18	10	55.5	4	40
GDD: severe	-	-	2	11.1	6	60
Total	22	100	18	100	10	100

Table 7 : OPTIC DISC CHANGES vs IOP AT PRESENTATION

Optic Disc	IOP at presentation (in mmHg)					
	22-30 (n=3)		30-40 (n= 20)		>40 (n= 27)	
	No.	%	No.	%	No.	%
Normal	2	66.7	11	55	11	40.7
GDD: mild-moderate	1	33.3	6	30	11	40.7
GDD: severe	-	-	3	15	5	18.5
Total	3	100	20	100	27	100

DISCUSSION :

In this study, the causes of delayed presentation of cataract/LIG was found out to be advanced age, female gender, better vision in the fellow eye, rural population and lower socio-economic status. Also other factors like illiteracy, ignorance, no escort to accompany the patient and poor accessibility to healthcare services can contribute for delayed presentation. Damodar Pradhan et. al had found occurrence of LIG in the age range of 40 to 80 years and highest in the 60 to 69 years (43.1%) age group, indicating that the lens- induced glaucomas are a condition of old age. Dr.Jyoti Bhuyan et. al study in 2016 found 88.2% of their patients belonged to age group greater than 50 yrs. Damodar Pradhan et. al had reported female to male ratio of 1.7:1. Dr.Jyoti Bhuyan et. al study in 2016 also found females (60.78%) to be affected more than males amongst the LIG patients.

In this study series, it is observed that the most frequent type of LIG was PMG (68%) followed by PLG (24%). A similar occurrence was noted by Madurai study (52.68%) and Damodar Pradhan et. al (72%).

IOP control is the primary outcome variable in this study. Three subjects who presented with an IOP < 30 mmHg had successful IOP control whereas 10 out of 47 (21.27%) subjects who presented with an initial IOP of > 30 mmHg did not have a successful IOP control. All the 22 subjects who presented within 1 week had a successful IOP control whereas only 10 out of 28 (35.7%) subjects who presented after one week had unsuccessful control of IOP. It was also found that 2 cases of LIG who had an intra-operative PCR with vitreous loss belonged to the group who presented beyond 1 week and had an initial IOP > 30 mmHg. These cases did not have a successful IOP control. Also, 8 out of 11 cases (72.7%) who had post-operative iridocyclitis did not have a successful IOP control. Dr. V.M.V.R.V. Prasadrao et. al found out that earlier the presentation of LIG and lower the IOP at presentation, better was the IOP control. Thus, **IOP control in cases of LIG following cataract surgery was better in those with lower IOP at presentation, lower time interval between onset of symptoms and surgery and no intraoperative complication like PCR or post-operative iridocyclitis.**

In this study, 81.8% of the patients who presented within 1 week had a good final visual outcome whereas 64.3% of the patients who presented after 1 week had a poor visual outcome . In this study, duration of symptoms had a linear relation with best-corrected visual acuity at final follow up. More the delay in presentation, poorer was the visual outcome, which was both clinically and statistically significant(p=0.001). Dr. Jyoti Bhuyan et. al study in 2016 reported a good visual outcome in 74.07% cases of LIG who presented within 7 days on onset of LIG . Madurai study (Prajna et. al) in 1996 found that cases who presented beyond 7 days had a poor visual outcome. 75% of the patients who presented with an IOP of less than 30 mmHg had a good final visual acuity whereas 46.8% of the patients with an initial IOP greater than 30 mmHg had a poor visual outcome. Dr. Jyoti Bhuyan et. al study in 2016 reported that 65% of the LIG patients with IOP at presentation <40 mmHg achieved a good final visual acuity. Madurai study (Prajna et. al) also found clinically significant relation between pre-operative IOP and final visual acuity. In this study, the correlation between pre-operative IOP and final visual acuity, was found to be clinically significant but statistically not significant. All the cases with PCR and VL had a poor visual outcome. Raghunandan Kothari et. al in 2013reported surgical complications and female gender to be causes for poor visual outcome. Majority of the cases (63.6%) with post-operative iridocyclitis had a poor visual outcome. Damodar Pradhan et. al found that duration of pain and high level of

intra ocular pressure at presentation in LIG was associated with poor visual outcome. Raghunandan Kothari et. al in 2013 reported late reporting for treatment as the most important cause for poor post-operative vision. **Thus, achieving a good final visual acuity following cataract surgery in LIG patients had a linear correlation with lower IOP at presentation and duration of LIG.**

The optic nerve head changes due to glaucomatous damage depended upon the duration of LIG and IOP at presentation. All the cases who presented after 2 weeks of onset of LIG were found to have glaucomatous disc damage of varying degree whereas 66% of the subjects who presented between 1 to 2 weeks had glaucomatous disc damage. Amongst those patients who presented within a week, only 18.18% patients had mild glaucomatous disc damage. Out of the 3 cases who presented with an initial IOP < 30 mmHg had normal to only mild glaucomatous damage.

Amongst the 20 patients who presented with an initial IOP between 20 and 30 mmHg, 11 (55%) cases had normal optic disc, 6 (30%) cases had mild-moderate glaucomatous disc damage and 3 (15%) cases had severe glaucomatous disc damage. Out of the 27 cases who presented with an initial IOP of >40 mmHg, 11 (40.7%) cases had normal optic disc, 11 (40.7%) cases had mild to moderate optic disc damage and 5(18.5%) cases had severe glaucomatous optic disc damage. This again showed that a relatively lower IOP at presentation resulted in less glaucomatous damage to optic nerve head whereas a higher IOP at presentation caused greater damage to optic nerve head. Dr.V.M.V.R.V. Prasadarao et. al found out that earlier thepresentation of LIG and lower the IOP at presentation, lesser was the glaucomatous damage to optic nerve. Dr.Lisha J Das et. al study reported that 14.28% of the patients who presented with an initial IOP between 21 and 30 mmHg, 23.6% of the patients with initial IOP between 31 and 40 mmHg, and 25% of the patients with an initial IOP > 40 mmHg had optic disc pallor at last follow up. It also stated that 11.1% of the subjects who presented within 3 days of onset of symptoms, 24.13% of the subjects who presented within 4-9 days and 60% of the subjects who presented later than 10 days had optic disc pallor. **This showed a linear relation between the duration of LIG and IOP at presentation with glaucomatous damage to optic nerve head.**

CONCLUSION :

1) Majority of the patients who presented with LIG were from rural areas, of poor socioeconomic background, good vision in fellow eye, female gender and of elderly age . Also other factors like illiteracy, ignorance, no escort to accompany the patient and poor accessibility to healthcare services can contribute for delayed presentation of cataract/LIG.
2) Phacomorphic glaucoma is the most common type of Lens Induced Glaucoma accounting for 68% of the cases followed by phacolytic glaucoma with 24% ofcases.
3) Surgery in the form of lens extraction was the definitive treatment.
5) A shorter time interval between onset of symptoms of LIG resulted in a better control of IOP, a better final visual acuity and less glaucomatous disc damage following cataract extraction.
6) Lower IOP at presentation was associated with a better control of IOP, better final visual acuity and less glaucomatous disc damage following cataract extraction.

It is to be stressed upon, imparting health education and creating awareness regarding cataract and its implications among the rural community, ophthalmic assistants and peripheral health workers.

REFERENCES:

1) Principles and Practice of Ophthalmology on CD ROM. Daniel M Albert, Frederick A Jakobiec. Media Solutions Corporation, Philadelphia : 1995.
2) Duane's ophthalmology 2005 CD ROM edition. Thomas D. Duane, Edward A Jaeger. Corporate Technology Ventures, Philadelphia, Pennsylvania : 1999.
3) Robert Ritch, M Bruce Sheild, Theodore Krupin. The glaucomas clinical sciences. 4th Edn. Mosby St. Louis.
4) R. Krishnadas and R. Ramakrishnan. Secondary Glaucomas : The Tasks Ahead. Community Eye Health 2001 ; 14 (39) : 40-42.
5) Prajna NV, Ramakrishnan R, Krishnadas R, Manoharan N. Lens induced glaucomas--visual results and risk factors for final visual acuity. Indian Journal of Ophthalmology 1996; 44 (3):149-55.
6) Mandal AK, Gothwal VK. Intraocular pressure control and visual outcome in patients with phacolytic glaucoma managed by extracapsular cataract extraction with or without posterior chamber intraocular lens implantation. Ophthalmic Surg Lasers. 1998 ; 29 (11) :880-9.
7) Thomas R, Braganza A. George T, Mermoud A. Vitreous opacities in phacolytic glaucoma. Ophthalmic Surgery and Lasers 1996; 27 (10) : 839-43.
8) Mandal AK. Endocapsular surgery and capsular bag fixation of intraocular lenses in phacolytic glaucoma. Cataract Refract Surg. 1996 ; 22(3) : 288-93.
9) Dr.Jyoti Bhuyan et. al Management of "Lens Induced Glaucoma " - A Clinical Study. IOSR-JDMS. Vol.15, Issue 8. Ver 9. August-2016.
10) Dr. Raghunandan Kothari et. al ISRN Ohthalmology. Volume 2013, article ID 581727.
11) Dr. Lisha J Das et. al Clinical Profile And Visual Outcome Of Phacolytic Glaucoma- A Prospective Study. JMSCR Vol. 5 Feb 2017.