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THE STUDY OF PREVALENCE OF LENS INDUCED GLAUCOMA AND ITS VISUAL OUTCOME AFTER TREATMENT

Ophthalmology

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ABSTRACT

Lens Induced Glaucoma (LIG) is a type of secondary Glaucoma characterised by an acute rise of IOP, pain, redness, diminished vision with senile hypermature, mature or rarely immature cataract in affected eye. Definitive treatment is removal of cataractous lens after prompt control of IOP. Visual outcome is good if operated earlier, otherwise due to long duration of raised IOP leads to Glaucomatous Optic Atrophy with poor visual prognosis. It was a hospital based prospective study done in Ophthalmology department of NMCH , Patna, Bihar. Total 44 patients of LIG were included in the study. It was found that phacomorphic type of LIG was highest in prevalence i.e. 65.91% and phacolytic type 29.54%. After surgery maximum patients (81.82%) were discharged with normal IOP. After 4 weeks of surgery majority of patients had good improvement of vision. Lens Induced Glaucoma is preventable & curable condition, by spreading awareness regarding its danger and encouraging people for timely cataract surgery. Late presentation is one of the reasons for irreversible loss of vision.

KEYWORDS

Lens Induced Glaucoma, Cataract, Visual Acuity.

INTRODUCTION

Lens Induced Glaucoma(LIG)is a type of secondary Glaucoma characterised by an acute rise of intraocular pressure(IOP), pain, redness, diminished vision with senile hypermature, mature or rarely immature cataract in affected eye while normal IOP & open angle in fellow eye. These symptoms are promptly relived with cataract surgery[1]. Vision restored to normal or near normal if early diagnosis & management is done. Gold standard treatment of LIG is removal of cataractous lens after prompt control of IOP[2,3]. The visual outcome after cataract extraction in LIG mainly depends upon duration between onset of symptoms & treatment[4,5] and presence of optic atrophy, uveitis & corneal edema[6,7].

Visual outcome is good if LIG patients are operated earlier, otherwise due to long duration of raised IOP, it leads to Glaucomatous Optic Atrophy with poor visual prognosis. So, late presentation of LIG is one of the most important cause of irreversible loss of vision in India.

In year 1900, Gifford[8]& Reuss[9]separately described about Lens Induced Glaucoma. Gifford described it as Glaucoma Associated with hypermature cataract & Reuss as Glaucoma associated with spontaneous absorption of lens substance through intact lens capsule.

AIMS OF THE STUDY

1. To estimate the prevalence of LIG in relation to age, sex, socioeconomic status, occupation, residence, literacy and its types.
2. The study is also designed to evaluate the visual outcome & reason for poor visual prognosis.

MATERIAL & METHODS

A hospital based prospective study was done in Ophthalmology department of NMCH, Patna, Bihar. Total 44 patients of LIG were included in this study. Detailed history regarding age, sex, duration, residence, socioeconomic status, literacy, occupation, duration between onset of symptoms & presentation to hospital was also noted.

Informed consent was taken from each patient for the study. Diagnosis of LIG was done on the basis of clinical signs & symptoms i.e. painful loss of vision, redness, presence of an intumescent hypermature, mature or immature cataract with raised IOP in affected eye and normal IOP & open angle in the fellow eye.

Phacolytic type of LIG was diagnosed on Slit Lamp Examination when patient presented with severe pain & redness with longstanding diminished vision having corneal edema, normal or deep anterior chamber containing liquefied lens particles and hypermature Morgagnian cataract in some cases. Patients of Phacomorphic type of LIG presented with severe Pain with red eye & longstanding diminished vision. On slit lamp examination ciliary congestion, corneal edema, shallow anterior chamber, dilated & fixed pupil with intumescent cataract and raised IOP were noted in affected eye while normal IOP & open angle in the fellow eye.

During examination, Best Corrected Visual Acuity (BCVA) & tonometry was done. Depth of anterior chamber & its angle and status of lens were examined by Slit Lamp. At first raised IOP was managed medically by I.V. Mannitol 20%, oral acetazolamide (250mg) TDS/QID and topical Timolol 0.5% BD. In phacolytic type, topical steroids were given to reduce inflammation. Informed consent for surgery was taken after explaining possible guarded prognosis. After controlling the IOP, all patients were subjected to small incision cataract surgery with IOL implantation under peribulbar anaesthesia. Postoperatively topical antibiotic with steroid & short acting cycloplegics were given. Patients were discharged on 2nd postoperative day after complete ocular examination and called for follow up on day 14 & 28.

Inclusion Criteria

All clinically diagnosed cases of LIG attending OPD of Ophthalmology department of NMCH, Patna.

Exclusion Criteria

Post traumatic cases of glaucoma or isolated glaucoma patients without cataract.

RESULTS

Majority of the patients 39(88.64%) presented in 6th to 7th decades of life. Out of 44 LIG patients studied 25 (56.82%) were female while 19(43.18%) male.

Table – 1

Age	Male	female	Total
51-60	1(2.27%)	2(4.55%)	3(6.82%)
61-70	10(22.73%)	16(36.36%)	26(59.09%)
71-80	7(15.91%)	6(13.64%)	13(29.54%)
>80	1(2.27%)	1(2.27%)	2(4.55%)
Total	19(43.18%)	25(56.82%)	44(100%)

42 patients out of 44 patients belonged to low socioeconomic status. By occupation, 33(75%) were farmers & labourers while 11(25%) were dependent idle at home.

41 (93.48%) patients belonged to rural and remote areas.

42(95.45%) patients were illiterate while rest had education below 5th standard.

Out of 44 patients of LIG 29(65.91%) were phacomormphic type, 13(29.54%) presented as phacolytic type while 2(4.55%) cases had subluxated cataractous lens.

Table – 2

Type of LIG	No.	%
Phacomorphic	29	65.91
Phacolytic	13	29.54
Subluxated	2	4.55
Total	44	100

Baseline IOP was measured at the time of admission.

Table-3

IOP in mmHg	On admission	After surgery
<10	-	3(6.82%)
10-21	-	36(81.82%)
22-30	2(4.55%)	5(11.36%)
31-40	16(36.36%)	-
41-50	15(34.09%)	-
51-60	7(15.91%)	-
>60	4(9.09%)	-
Total	44(100%)	44(100%)

Majority of patients 31(70.45%) had IOP between 31-50 mmHg. 2(4.55%) patients had IOP below 30 mmHg while rest had above 51mmHg. 4(9.09%) patients had IOP even more than 60mmHg at the time of admission.

After surgery at the time of discharge most of the patients i.e. 36(81.82%) had normal IOP. Only 5(11.36%) patients had IOP between 22-30 mmHg.

Visual Acuity were noted at the time of admission, on discharge & 4weeks postoperatively.

Table - 4

Visual acuity	On admission	On discharge	4weeks postop.
6/6 to 6/9	-	-	5(11.36%)
6/12to6/18	-	6(13.64%)	18(40.91%)
6/24to6/36	-	17(38.64%)	6(13.64%)
6/60to1/60	3(6.82%)	10(22.72%)	8(18.18%)
CF close to face	7(15.91%)	4(9.09%)	2(4.55%)
HM	17(38.64%)	2(4.55%)	-
PL	12(27.27%)	-	-
NPL	5(11.36%)	5(11.36%)	5(11.36%)
Total	44(100%)	44(100%)	44(100%)

Baseline visual acuity of majority of the patients (29 i.e.65.91%) had either Hand Movement or Perception of Light positive. 5(11.36%) patients had even no perception of light at the time of admission.

After surgery maximum patients(17 i.e. 38.64%) had vision between 6/24 to 6/36 at the time of discharge while 10(22.72%) patients had visual acuity between 6/60 to 1/60 and 6(13.64%) patients had 6/12 to 6/18.

5 Patients with no perception of light at the time of admission had the same visual status even after surgery.

After 4 weeks of surgery maximum patients (18 i.e. 40.91%) had gained vision between 6/12 to 6/18, 6(13.64%) patients had 6/24 to 6/36, 8(18.18%) patients had visual acuity between 6/60 to 1/60. 5 patients had improved vision upto 6/9 to 6/6 while 2 had vision as low as finger counting at half meter.

DISCUSSION

This study tells about prevalence of Lens Induced Glaucoma and its visual outcome after treatment.

Our study showed that 56.82% patients were famales while 43.18% males. Similar female dominance of prevalence of LIG were also seen in study conducted by Dr. Raghunandan Kothari et al[1] and Dr. Venkatesh Prajna et al[10]. It was found to be more prevalent in 6th to 7th decades of life, of low socioeconomic status people & residing in rural & remote areas. Majority of patients were illiterate, by occupation either farmers, labourers or dependent idle at home.

In this study phacomorphic type of LIG was highest in prevalence i.e. 65.91%, phacolytic type was 29.54% and 4.55% had subluxated cataractous lens. Similar findings were seen in study of Dr Venkatesh Prajna et al[10] and Dr. Raghunandan Kothari et al[1].

Baseline IOP of majority(36.36%) of patients were between 31-40 mmHg followed by 34.09% had 41-50 mmHg. 9.09% patients had IOP even more than 60 mmHg.

After surgery maximum patients (81.82%) were discharged with normal IOP. Only 11.36% patients had IOP between 22-30 mmHg. This shows drastic fall of IOP in LIG patients after surgery.

At the time of admission 65.91% patients had vision either Hand Movement or Perception of Light positive followed by 15.91% patients with finger counting close to face. Even no perception of light were seen in 11.36% patients. After surgery at the time of discharge 38.64% patients had vision between 6/24-6/36 followed by 22.72% between 6/60-1/60 and 13.64% had visual acuity 6/12-6/18.

After 4 weeks of surgery majority i.e. 40.91% patients had vision between 6/12-6/18, 13.64% had 6/24-6/36. 11.13% patients had improved vision upto 6/6-6/9.

So, we see that only cataract surgery in LIG patients resulted in drastic improvement of vision and IOP. It clearly indicates that definitive treatment of LIG is removal of cataractous lens after medical control of IOP. Although 11.36% patients had no PL at the time of admission had not got any visual improvement after surgery. Actually these patients presented very late for treatment after development of symptoms of LIG. These patients only got relief from pain & redness.

Therefore, early diagnosis & timely intervention is the key factor for good visual outcome in management of LIG and sustained rise of IOP for a long period is a poor prognostic factor.

CONCLUSION

This study enlightens the knowledge about importance of early diagnosis & timely intervention in LIG patients. Lens Induced Glaucoma is preventable & curable condition. It can be prevented by spreading awareness regarding its danger and encouraging people for timely cataract surgery. It can be cured by early diagnosis & timely intervention. Due to late presentation it becomes one of the reasons for irreversible loss of vision.

Education of community and awareness is the strong need especially among illiterate people of rural & remote areas of low socioeconomic status.

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