DISCUSSION

Lens induced glaucoma is a condition to reckon within our ophthalmic patients from this part of the Country. The condition seems to be fairly common in our neighbouring districts. This may be due to the poor health, education, lower socio-economic status, illiteracy, poor geriatric care, fear of operation and inaccessibility to ophthalmic surgeon by these patients.

This condition is acute in onset violent in its course, clinically recognisable easily treatable and also preventable.

This present study have been undertaken with the view of observing symptoms, sings, effect of medical and surgical intervention, that is improvement in the visual acuity after operation in the cases of lens induced glaucoma.

This series consisted of 36 patients of lens induced glaucoma, out of which 29 eyes were subjected to surgery for glaucoma as well as lens extraction, and followed up for full period. Seven eyes operated only for glaucoma.
Incidence:

In present study the incidence of lens induced glaucoma in relation to the total cataract operated in this institution during one year period is 10.6%.

Table - 1

The incidence of lens induced glaucoma in present and other previous studies.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Study</th>
<th>Total no. of cataract operation</th>
<th>No. of cases of lens induced glaucoma</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jain et al (1982)</td>
<td>2719</td>
<td>108</td>
<td>3.91</td>
</tr>
<tr>
<td>3</td>
<td>Present study</td>
<td>339</td>
<td>36</td>
<td>10.6</td>
</tr>
</tbody>
</table>

The incidence in present study is much higher in comparison to the incidence of various workers, because the cases are smaller in number, people in this region are illiterate, very poor, does not know the meaning of health and living in the villages.

Age and sex:

The age of the patient varied from 35 to 80 years, with the \( M \pm SD = 55.7 \pm 12.46 \) years which is similar to previous studies (Jain et al 1982, Dhar et al 1984).
The patients included in this study were more female with a ratio of 1.12 female : 1.0 male, which is coinciding with those given in literature.

Table - 2

Age and sex incidence in present study and other previous studies

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Study</th>
<th>Average age (yrs)</th>
<th>Total cases</th>
<th>No. of male cases (%)</th>
<th>No. of female cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Flock's et al (1955)</td>
<td>70</td>
<td>138</td>
<td>82 (59.43)</td>
<td>56 (40.57)</td>
</tr>
<tr>
<td>3.</td>
<td>Dhar et al (1984)</td>
<td>65.5</td>
<td>214</td>
<td>93 (43.46)</td>
<td>121 (56.54)</td>
</tr>
<tr>
<td>4.</td>
<td>Present study</td>
<td>55.7</td>
<td>36</td>
<td>17 (47.22)</td>
<td>19 (52.78)</td>
</tr>
</tbody>
</table>

Maximum patients 66.66% belong to the rural and sub-urban area and only 33.33% came from urban area, indicate that this disease is much more common in villagers, which is comparable with other studies (Dhar et al 1984). We further observed that 34 (94.45%) patients belong to lower and lower middle class, who are unable to consult a specialist surgeon for their problem, and does not know that "prevention is better than cure".
Clinical feature:

The symptoms present in these cases given in observation table no. 4 are diminution of vision, eyeache, redness of eye, headache, nausea, vomiting, swelling of the lid and watering of eye are more or less similar to given in previous studies, Flock et al (1955), Jain et al (1982) and Dhar et al (1984).

In this study only 12 (41.37%) patients came within a week period of acute onset of disease and rest 17 (58.62%) came after a week period. Out of which 7 patients came after a month duration, which is a very detrimental factor in the visual prognosis.

The signs which are found on examination enumerated in observation table no. 5 are circumciliary congestion, dilated pupil and shallow anterior chamber were found in 100% cases intraocular pressure was raised in 35 (97.21%) eyes. In one (2.78%) case intraocular pressure was low inspite of shallow anterior chamber pupillary block and circum ciliary congestion.

The cause of this lowering of intraocular pressure may be the cyclitis, Duke Elder et al (1966). Deffective vision were found in all the 36 cases, out of which
29 eyes those are operated for both lens extraction and glaucoma 20 (66.97%) eyes have accurate projection while 9 (31.03%) eyes have inaccurate projection.

The iritis is present in 11 cases. Six cases are observed by gonioscope and found that angle is open in all six cases prove that in phacotoxic glaucoma angle is open.

In 31 cases (86.11%) senile cataract and in 5 (13.89%) traumatic cataract was present. Out of 31 in 30 cases of senile cataract, the cataract was present in the form of hypermature, or mature from indicating that lens induced glaucoma mostly occur due to hypermaturaiton of cataract.

**Type of lens induced glaucoma:**

The commonest cause of lens induced glaucoma in this series is phacotoxic glaucoma (involving 29 (80.55%) of cases, including phocolytic and phaco-anaphylactic glaucoma. The second commonest causes is phacomorphic glaucoma including glaucoma due to pupillary block associated with swollen intumescent or hypermature cataract. Third cause is displacement (anteriorly) of lens as the result of trauma.
Therefore, the phacotoxic glaucoma due to
hypermaturatation of cataract is the main cause of
lens induced glaucoma. In hypermature stage due to
the capsular dehiscence the degenerated lens matter,
expelled out into the anterior chamber resulting in
the above consequences.

Control of Intraocular pressure:
All the cases were pre-operatively put on
acetazolamide. In 14 (48.26%) cases instill the
pilocarpine or timolol and, oral glycerol were given
in 7 cases alongwith above treatment. In 8 cases were
tension was not controlled by above, intravenous
mannitol was administered prior to lens extraction.

In 12 (41.37%) eyes patient become normotensive
following sector iridectomy and lens extraction. While
in 17 (58.62%) cases performed combind extraction
(filtering operation + lens extraction).

Complications:
In this series of cases operated for lens
induced glaucoma, some complications were seen during
the operation. These were blood in the anterior chamber
in 1 (3.44%) case. The literature had only a few reports
with the blood in the anterior chamber as operative complication. Dhari et al (1984) reported 7.4% case had blood in the anterior chamber.

In this study rupture of the lens capsule takes place in 2 (6.89%) cases because lens capsule become very then & fragile or some time already rupture present in the lens capsule. Dhari et al (1984) reported 4.20% rupture of lens capsule.

In two (6.89%) cases vitreous disturbances occur in the form of vitreous prolapse - vitreous disturbance had been quite a frequent occurrence during lens extraction in these cases, as evident from report of Dhari et al (1984) found vitreous prolapse in 3.27% cases.

In this type of cases the iritis is the most common complication after surgery. In present study it occur in 6 (20.86%) cases. During extraction of lens the lens matter releases act as foreign body and provoke a antigen antibody reaction. Shallow anterior chamber was observed in 5 (17.24%) cases reformed by more than 3 days. In literature Dhari et al (1984) reported with delay in chamber formation by 3 - 5 days in 5.60% cases.
These observations are quite comparable to the previous reports. In one eye, however, during dislocated lens removal accidental injury to the iris took place.

**Visual prognosis:**

The visual acuity was ranging from doubtful perception of light to hand movement or better at pre-operative examination. Out of 29 (100%) eyes, only 20 (68.97%) eyes had an accurate projection however, rest of the eye 9 (31.03%) has inaccurate projection ranging from doubtful perception of light to perception of light. After operation, however useful visual acuity was found to be present in 22 (75.86%) eyes ranging from 6/60 to 6/12 or better with aphacic correction.

We observed that the eyes seem to be with stand raised intraocular pressure for longer period than expected.

40% of the eyes with less than 2 days duration of acute attack recovered 6/12 visual acuity whereas only 14.28% of the eyes recovered this visual acuity in which the duration of attack lasted 3 - 5 days. Thus as the duration of attack increases there is a progressive decline in the recovery of visual acuity and beyond 3
weeks only light perception or hand movement could be observed. Out of 9 cases with inaccurate projection of light one case obtained 6/36 vision having history of attack of 5 days, one eye had hand movement however in other 7 eyes with inaccurate projection presenting 3 weeks or more after the attack, 6 eyes could achieve only the hand movement or perception of light. Thus in a case of lens induced glaucoma, who present early, a good functional recovery can be expected despite an initial inaccurate projection of light.

If we categorise the visual prognosis as good 6/24 or better, moderate 6/60 to 6/24 and poor HM to PL then results of visual prognosis of this series are shown in table no. 3.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Study</th>
<th>No. of cases</th>
<th>Good V.A. 6/24-2/12</th>
<th>Moderate 6/60-6/36</th>
<th>Poor HM to PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Jain et al (1982)</td>
<td>86</td>
<td>54 (62.8%)</td>
<td>20 (23.3%)</td>
<td>12 (13.4%)</td>
</tr>
<tr>
<td>2.</td>
<td>Dhar et al (1984)</td>
<td>214</td>
<td>169 (79.0%)</td>
<td>36 (16.8%)</td>
<td>09 (04.2%)</td>
</tr>
<tr>
<td>3.</td>
<td>Present study</td>
<td>29</td>
<td>09 (31.03%)</td>
<td>13 (44.82%)</td>
<td>07 (24.13%)</td>
</tr>
</tbody>
</table>
In the present study good visual acuity obtained in fewer member of cases in comparison to the previous studies because maximum patients came after long duration of acute attack.

Ophthalmoscopy:

Optic disc also showed changes which were significantly related to the duration of attack of glaucoma, upto 10 days of attack a large majority of optic disc retained good colour. When the attack lasted more than 3 weeks nearly all the eyes developed pallor or atrophy of the disc.