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PREVALENCE OF RAISED INTRAOCULAR PRESSURE IN POST CATARACT SURGERY FOLLOWING TOPICAL STEROID USAGE-A CROSS SECTIONAL STUDY

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ABSTRACT

Background: Cataract is the leading cause of blindness globally, and cataract surgery with intraocular lens implantation is the definitive treatment. Postoperatively, topical corticosteroids are frequently prescribed to control inflammation, but they may induce a rise in intraocular pressure (IOP), posing a risk of secondary glaucoma.

Aim: To assess the prevalence of raised IOP following topical steroid usage after uncomplicated cataract surgery and to categorize patients based on steroid response.

Methods: A cross-sectional study was conducted on 169 patients who underwent uncomplicated cataract surgery at Rohilkhand Medical College, Bareilly. All patients received postoperative topical prednisolone acetate on a tapering schedule over 8 weeks. IOP was measured with non-contact tonometry at baseline, day 1, and weeks 1, 4, 6, and 8. Patients were classified as low, intermediate, or high responders depending on IOP rise from baseline.

Results: The mean age was 62.8 ± 9.9 years; 63.3% were male. Preoperative IOP was normal in all subjects. At 6 weeks, 29.5% showed moderate to high IOP rise, and at 8 weeks, 36.6% had IOP >20 mmHg. Steroid response was mild in 63.3%, moderate in 32.5%, and strong in 4.1%. IOP normalized within 2 weeks of discontinuing steroids.

Conclusion: Steroid-induced IOP elevation typically appears after 4 weeks of topical therapy. Though usually reversible, careful monitoring is essential to prevent

INTRODUCTION

Any opacity that develops in a lens or its capsule is called a cataract; if treatment is not received, the condition will eventually lead to blindness. It is the primary cause of blindness in the globe. Intraocular pressure is the pressure exerted by intraocular content upon the coats of eyeball.

This pressure is maintained by the constant production & outflow of the aqueous humour. Since the globe may be thought of as a hard spherical, changes in volume of contents inside the eye as well as changes in external pressure dictate the pressure that is created inside it.

Aqueous humour is required to provide nutrition to the lens and cornea, and helps in maintaining the shape and volume to eye's internal structures. Moreover, the aqueous humour helps to protect & maintain the proper positions of refractive surfaces in order to permit the correct visual function

After cataract surgery, rapid vision rehabilitation is achievable with the implantation of an intraocular lens (IOL). Following cataract surgery, topical steroids are frequently used to minimise inflammation and enhance visual results

During surgery, steroids prevent the generation of prostaglandins and leukotrienes, which lowers intraocular inflammation. This inflammation is often assessed by looking at anterior chamber cells & flare. despite their ability to reduce inflammation and expedite healing.[7] Elevated IOP is one among the frequent adverse effects of topical steroids

When topical steroids are applied, the rise in intraocular pressure is greater than when steroids are taken systemically. If steroid-induced glaucoma persists for an extended period of time, it may result in irreparable blindness

According to research of Armaly *et al.,* those who have a rise in IOP of <6 mm Hg, between 6 and 15 mm Hg, or greater than 15 mm Hg after 4 weeks of starting to use topical steroids four times a day are classified as low, medium, or high steroid responders.

Steroids lessen ocular inflammation by preventing the post-operative generation of prostaglandins and leukotrienes. Even while steroids can reduce inflammation by expediting healing and enhancing visual results, whether used topically or systemically, they are well recognised to have significant adverse effects.

AIM AND OBJECTIVES

Aim

To determine the prevalence of increase in IOP after the usage of topical steroid in post operative period in patients undergone uncomplicated cataract surgery.

Objectives

1.To determine the effects of topical steroid in different grades of steroid responders.
2.To determine the effect of steroid in different grade of steroid responders.
3.To assess the optic nerve changes in post operative patients receiving topical steroid.

MATERIAL AND METHODS

Study was carried out among 169 patients, coming to Department of Ophthalmology; Rohilkhand medical college & hospital, Bareilly, U.P

Inclusion criteria:

- Patients who had senile cataracts who had gone through uncomplicated routine cataract surgery and received topical steroid post-operatively.
- Patients with central corneal thickness 520µ to 550µ.
- Patients who gave an informed consent for the study.

• **Exclusion criteria:**

- Cataract due to metabolic disorders, paediatric cataract, complicated cataract, and traumatic cataract
- History of previous ocular surgery
- Cataract surgery with introaperative complications.

•**Methodology**

- After taking approval from the Institutional Ethics Committee, this study will be conducted by recruiting the patients, qualifying the inclusion as well as the exclusion criteria.
- IOP assessment with Non contact Tonometry (NCT) was carried out
- In the postoperative period, patients received topical e/d prednisolone. Dosages were tapered subsequently in 4 to 6 weeks as following 6 times a day in 1st week, 5 times a day in 2nd week,4 times a day in 3rd week, then 3times a day in in 4th week,2 times a day in 5th week and then once daily in 8TH week
- Vision assessment, Grading of aqueous cells and flare on slit lamp, Ophthalmoscopy and Tonometry were done on postoperative day 1, and end of 1st week (7th day), 4th week, 6th week, and 8th week postoperatively

- Patients with raised IOP following topical Prednisolone administration were classified into Low responder (IOP elevation less than 6mmHg from baseline), Intermediate responder (IOP elevation in between 6mmHg to 15mmHg from baseline) and High responder (IOP elevation more than 15mmHg from baseline)

OBSERVATIONS AND RESULTS

Gender

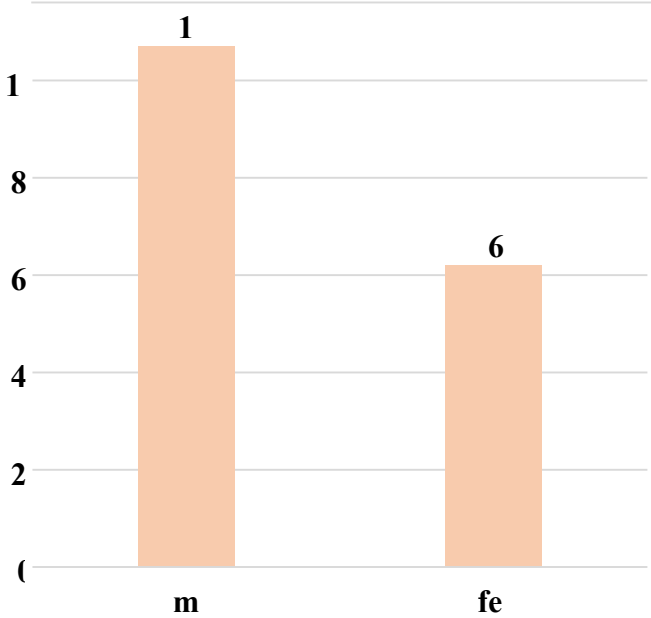

FIGURE 1: GENDER DISTRIBUTION OF STUDY SUBJECTS

IOP pre op

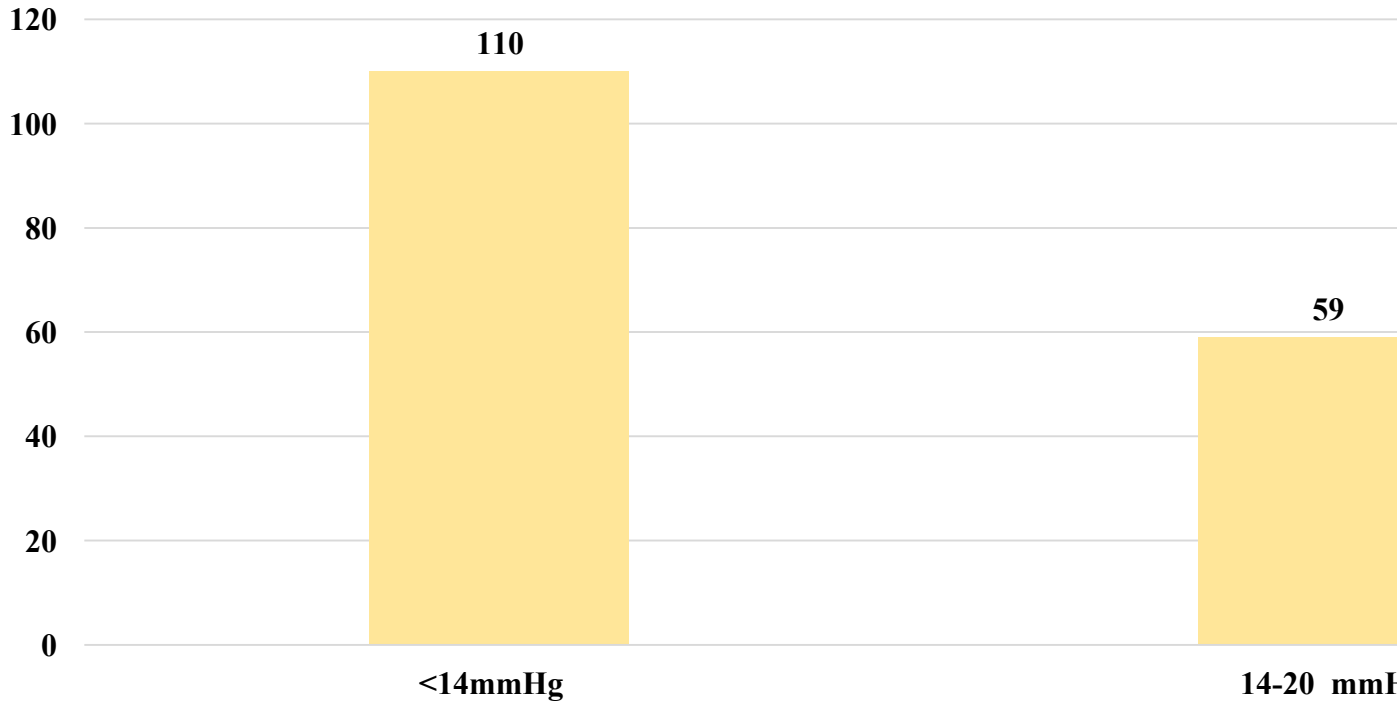

FIGURE 2: DISTRIBUTION OF STUDY SUBJECTS ACCORDING TO IOP PRE OPERATION

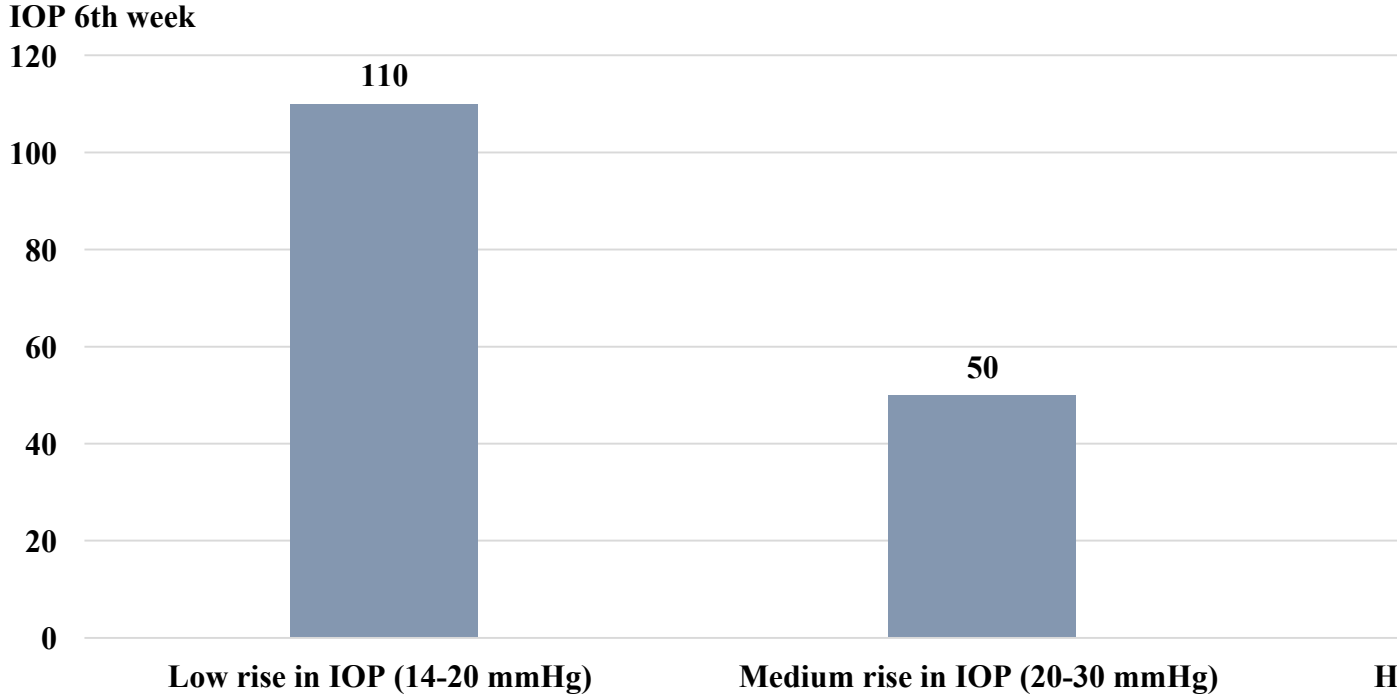

FIGURE 3: DISTRIBUTION OF STUDY SUBJECTS ACCORDING TO IOP 6TH WEEK IOP 8TH WEEK

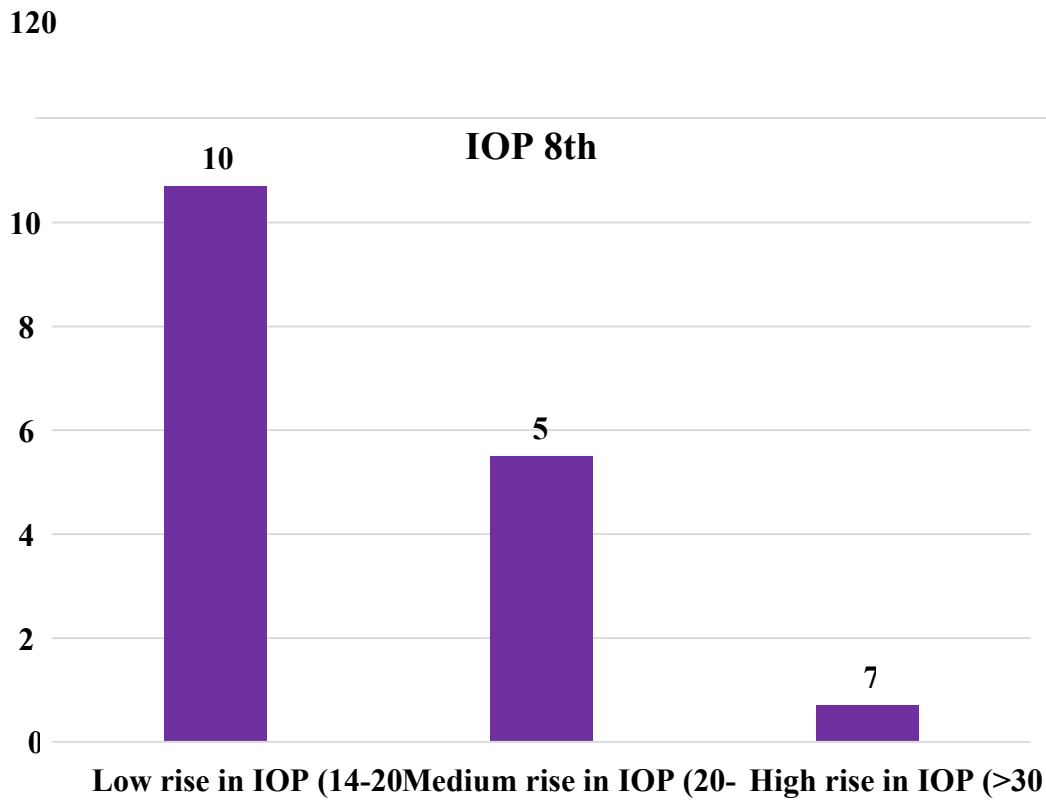

FIGURE 4: DISTRIBUTION OF STUDY POPULATION ACCORDING TO IOP 8TH WEEK

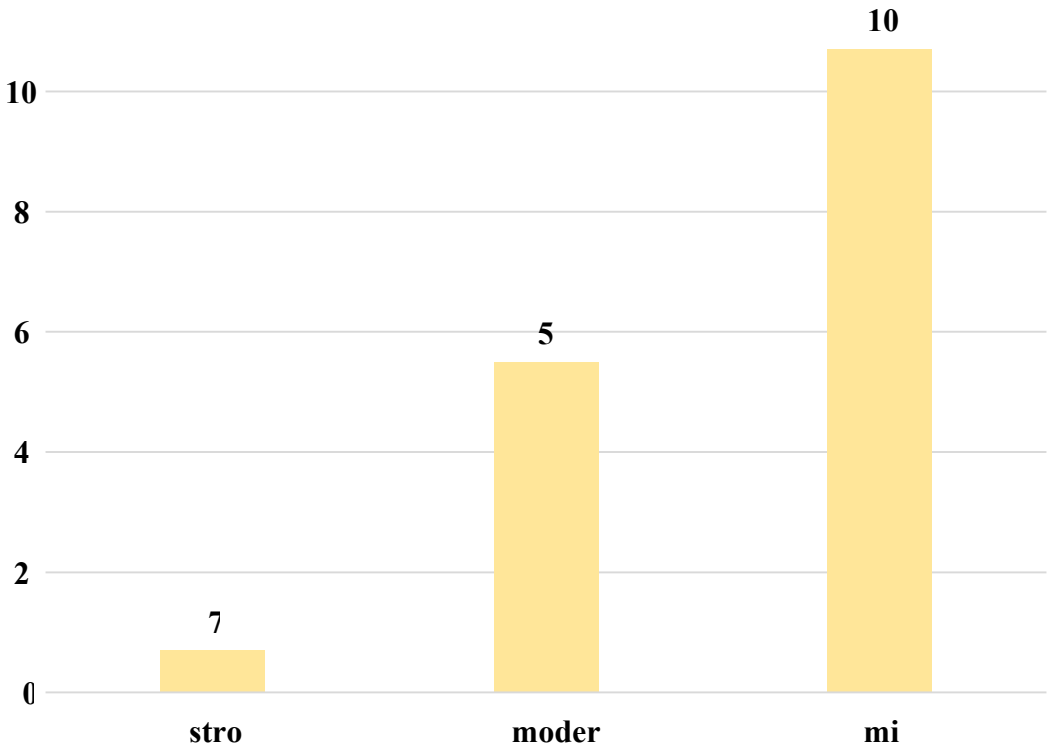

FIGURE 5: DISTRIBUTION OF STUDY POPULATION ACCORDING TO STEROID RESPONDER

SUMMARY

- Maximum research participants (37.3%) in our study were in the 60–69 age range, while lowest study participants (3.0%) were in the 40–49 age range.
- There were 62 female research participants and 107 male study participants out of 100.
- Most of the participants in our research, both male and female, were between the age group of 60 and 69. According to the chi square approach, there is a significant association between gender and age (p-value = 0.057).
- The average age in our sample was 62.8 years, with a standard deviation of 9.90.
- Left eye was implicated in 50 of the 100 research participants, whereas right eye was involved in 119 of them.
- The majority of research participants (71.0%) had IMSC, followed by MSC (23.1%) and brown cataract (5.9%).
- In our study, all the subjects had normal IOP on pre-operative day.

- 21 research participants had IOP more than 20mmHg on day 1st for which tablet acetazolamide 250 mg given to them for 3 days

- Mild steroid responders made up the bulk of study participants (63.3%), followed by moderate responders (32.5%) as well as strong responders (4.1%).

 No research subjects in our investigation had any modifications to their optic discs.

- Using the chi square calculation, we found a substantial statistical correlation between steroid responders and IOP on pre-op day, day 1, 6th week, & 8th week (p-value = 0.001).

CONCLUSION

IOP increase brought on by steroids usually happens four weeks after starting steroid medication. With a 4.1% prevalence of the steroid responders in our research group, we can conclude that topical steroids could be utilised in individuals who have had cataract surgery and that inflammation is mostly to blame for the increase in intraocular pressure observed in the initial weeks after the procedure. After quitting the steroid, the IOP usually drops on its own to the baseline in two weeks

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