



## Knowledge, Attitude and Practice Regarding Ocular Topical Steroid among Patients Visiting Tertiary Care Hospital at Rampurhat, West Bengal

Author

**Dr Raktima Baksi (Mandal)<sup>1</sup>**

<sup>1</sup>RMO-CT (Tutor), Dept. of Ophthalmology, Rampurhat Government Medical College, Birbhum

\*Corresponding Author

**Dr Raktima Baksi (Mandal)**

### Abstract

**Background:** It has been observed that majority of rural patients attending eye outpatient department (OPD) in a tertiary care hospital at Rampurhat, West Bengal, are in the habit of misusing steroid medications through self-medication, treatment by quacks, pharmacists, and general practitioners for various eye conditions which can lead to various complications in eye.

**Materials and Methods:** We conducted a prospective, cross-sectional study in ophthalmology OPD at tertiary care hospital in Rampurhat, West Bengal. A total of 150 patients of both sexes, aged between 15 and 70 years who visited hospital for the first time in eye OPD from May 2018 to April 2019 were interviewed. All patients underwent a short semi-structured questionnaire, especially prepared by the author. The results were statistically analyzed to come to a conclusion.

**Results:** A total of 112 patients reported using eye drops. Only 36 of them were using steroid eye drops of their own with or without antibiotics or other substances. By calculating binomial probability and normal approximation with this sample, it can be inferred that a significant number of patients do use self-prescribed steroid eye drops ( $P < 0.02$ ).

**Conclusion:** There is a menacing state of affairs in rural/semi-urban areas of Eastern India regarding misuse of eye drops, at least in regions of our study, which encourage bigger multicentric studies, and also, immediate measures should be taken to improve awareness and literacy on this issue.

**Keywords:** Misuse of eye drop, Ocular medicine, Topical steroids.

### Introduction

It has been observed that majority of rural patients attending eye outpatient department (OPD) at tertiary care hospital at Rampurhat, West Bengal, are in the habit of misusing steroid medications through self-medication, treatment by quacks, pharmacists, and general practitioners for various eye conditions which can lead to various complications in the eye. The importance of ocular steroids to all of ophthalmology cannot be

overstated. For more than 60 years, nothing has matched their effectiveness as fast-acting anti-inflammatory agents<sup>[1]</sup>. Steroid medication is useful in many conditions such as noninfectious uveitis, graft rejection, allergic disorders including vernal or atopic keratoconjunctivitis to control post-operative uveitis, and many more<sup>[2]</sup>. However, misuse of steroid can lead to severe eye-threatening complications. Adverse reactions of topical steroids include in decreasing order of frequency: Elevation

of intraocular pressure with possible development of glaucoma and infrequent optic nerve damage, posterior subcapsular cataract formation with subsequent anterior subcapsular involvement, secondary infection and delayed wound healing [3,4,5]. Although systemic effects are extremely uncommon, there have been rare occurrences of systemic hypercorticism after use of topical steroids. Corticosteroid-containing preparations have also been reported to cause acute anterior uveitis and perforation of the globe. Keratitis, conjunctivitis, corneal ulcers, mydriasis, conjunctival hyperemia, loss of accommodation, and ptosis have occasionally been reported following local use of corticosteroids. The development of secondary ocular infection (bacterial, fungal, and viral) have occurred. Fungal and viral infections of the cornea are particularly prone to develop coincidentally with long-term applications of steroids. The possibility of fungal invasion should be considered in any persistent corneal ulceration where steroid treatment has been used<sup>[2]</sup>. These steroid medications are easily available at low cost without prescription at various pharmacy shops and are often prescribed by self, pharmacists, quacks, etc., for various diseases of eye. In our OPD, we have observed that rural patients visiting our hospital were unaware of complications of these steroid medications and were in the habit of using them without any prescription.

### **Aim and Objective**

The aim of our study is to determine population at risk of adverse effects from use of topical steroid medication without proper prescription. To create awareness among people about self medication and use steroid eye drops. The objective of our study was to make a qualitative research on the knowledge, attitude, and practice of eye drop usage in a semi-urban setup through structured questionnaire and create awareness among patients visiting our hospital.

### **Materials and Methods**

A thorough study was carried out to assess the

knowledge, attitude, and practice on the usage of topical steroid medication for eye among patients visiting our hospital. This study not only assessed the gray area in the eye care but we also came to know the gaps in delivering them. We conducted a prospective, cross-sectional study in ophthalmology OPD at tertiary care hospital in Rampurhat, West Bengal.

A total of 150 patients of both sexes, aged between 15 and 70 years who visited the eye OPD of our hospital during the period of May 2018 to April 2019 were interviewed. All patients underwent a short semi-structured questionnaire, especially prepared by the author. The questionnaire collected demographic data such as patient's age, gender and level of education and also details concerning the knowledge, attitude and practice on ocular eye drop usage. All participants were informed about the scope and purpose of the study and told that it was voluntary to participate, without any compensation, and that their medical assistance would not be compromised if they refused or decided to participate in the survey. A written informed consent was taken from patients or their guardian if the patient was minor. The approval for study was taken from ethics committee of the institution where study was conducted. The types of medication used were classified into the following groups: Antibiotics, steroids, combination of antibiotics and steroids and other drugs not included in the previous classifications. When the patient used preparations that included two or more drugs, each of these associations was considered separately. When the interviewed subject failed to remember the drug used, first they were shown steroid medication easily available in the area to identify if they used any one of them; however, if they still failed to remember the drug, the answer was included under the category of failed to remember.

Regarding educational level, four divisions were established:

1. Illiterate
2. Basic/primary education
3. Completed matriculation
4. Graduation and above.

The age groups were arbitrarily assigned:  $\geq 15-40$  and  $41-70$ . Out of 112 patients: 50 patients were between 15 and 40 years and 62 were between 41 and 70 years.

**Result**

From our survey, we got our result as:

$n$  = Number of samples, i.e., 112 patients who were reported using of eye drops of their own

$r$  = Only 36 patients who were using steroids eye drops with or without antibiotics and/or other substances

$P$  = Probability of using this type of drugs=0.20.

The binomial distribution is as follows:

In sampling from a stationary Bernoulli process, with the probability of success equal to  $p$ , the probability of observing exactly  $r$  successes in  $N$  independent trials is:

$$P(X=r) = {}^n C_r p^r (1-p)^{n-r}$$

Whenever the sample size is large, you can use the normal distribution to approximate the exact probabilities of the items of interest.

As a general rule, you can use the normal distribution to approximate the binomial distribution so that, for large enough  $n$ , the random variable  $Z$  is approximately normally distributed.

Therefore, normal approximation to the binomial distribution is application of  $Z$  test as follows:

In short,

1st step – We have calculated binomial probability to find out the probability of getting how a good proportion of patients using antibiotic and steroids eye drops.

2nd step – From the binomial probability we have calculated the normal approximation to the binomial proportion (through  $Z$  test)

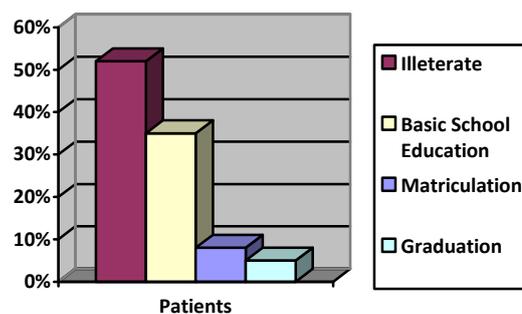
3rd step – To find out the  $P$  value for  $Z$  test for significance level.

Finally, we get our result as:

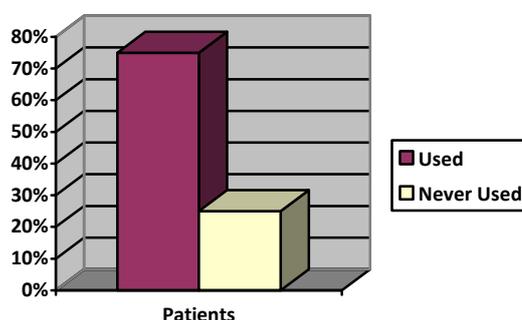
$Z = +2.11$  with binomial mean 11.2 and binomial standard deviation=2.99.

The  $P$  value is 0.017429. The result is statistically significant at  $P < 0.02$ .

In our study we found that 60 were male and 52 were female out of 112 patients.

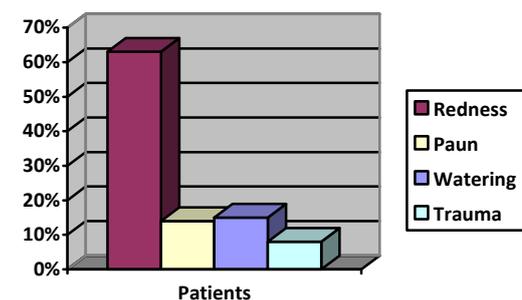


**Figure 1:** Educational status- 58 patients (52%) were illiterate, 39 patients (35%) had basic school education, 9 patients (8%) had done matriculation and 6 patients (5%) were graduates.

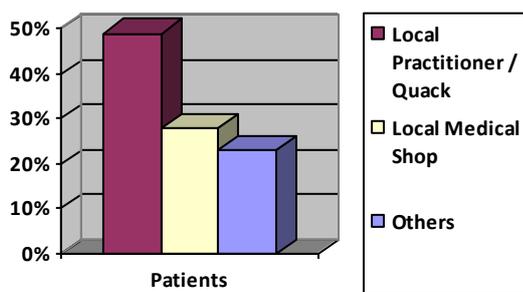


**Figure 2:** Prevalence of use of ocular medication without prescription

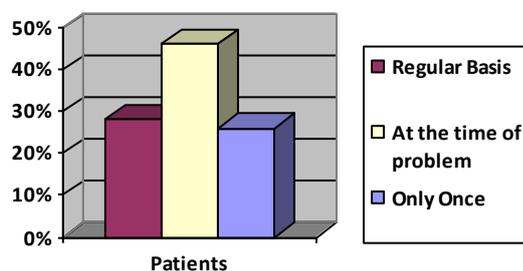
- Out of 112 patients, 84(75%) accepted that they used ocular medication without prescription in form of eye drops for various eye conditions.
- Only 28 patients (25%) said they never used any ocular medication without prescription.



**Figure 3:** Conditions for which patients used medication: Redness was the most common complaint for which 63% patients used medication without prescription, followed by 15% for watering, 14% for pain & 8% for trauma.

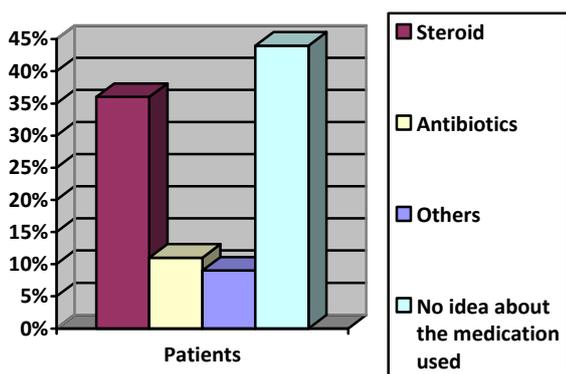


**Figure 4:** Source of medication: Local practitioner/Quack were main source of these un-prescribed medications accounting for 49%, Local pharmacy were the second largest source accounting for 28%, 23% being from other sources.



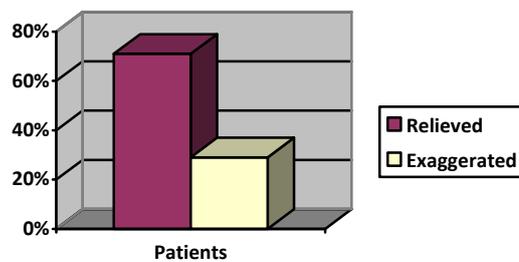
**Figure 5:** Frequency of drug administration

- 46% of patients accepted that they used medication only at time of eye problem, whereas 28% were using regularly and 26% used un-prescribed ocular medication only once.



**Figure 6:** Drugs used

- 36% of the patients were using steroids containing eye drops, 11% were using antibiotics, 9% others and 44% had no idea about the medication they used.



**Figure 7:** Effect of medication used

- 71% of patients said that their problems got relieved after using the medication, however in 29% patients the problems did not get relieved & were exaggerated.

Knowledge about side effects of steroid containing eye drops-85% of patients accepted that they did not have any knowledge about the adverse effects of steroid containing eye drops, whereas 15% said they already knew about the side effects.

### Discussion

In our study, it has been found that out of 150 patients included initially in our study, 112 patients reported using eye drops without proper consultation and of them 36 used steroid eye drops with or without antibiotics and or other substances. By calculating binomial probability and normal approximation, with this sample, it can be inferred that a significant number of patients do use self-prescribed or at least improperly prescribed steroid eye drops ( $P < 0.02$ ).

The most common cause among the symptoms, for which eye drops are used abruptly and unscientifically without proper prescriptions of qualified ocular consultants, is redness and itching of the eyes (63%). The subsequent causes are pain in the eyes (14%), watering from the eyes (15%), and ocular trauma in the eyes (8%) (Figure 3). Sometimes, these are prescribed by general practitioners and quacks (49%) but are not infrequently advised by chemist shop (28%) and because simply an old vial is available which is ready at the hand (23%) (Figure 4). Often, they are advised by friends and relatives. Most of the patients use a steroid eye drop only when the problem is very irritating. Interestingly, more than

50% of the patients are not benefited by the eye drop. About 20% of the patients are totally ignorant about the side effects. It cannot be overemphasized that the knowledge of the composition of commonly used eye drops through self-medication as well as their side effects is extremely poor in the Indian subcontinent, through the practice is very much common and the attitude is simply indifference<sup>[6]</sup>. In a study in Mangalore by Kadri et al, it was found that out of 327 patients included in the study from OPD, 116 (35.47%) used eye drops of their own<sup>[7]</sup>. They did not consult any qualified eye specialist for this purpose. A total of 115 (99.1%) of the patients were not aware about what the eye drops were 59.4% of the patients misusing eye drops who had basic school education, 19.8 were illiterates, and the rest (20.8%) were graduates and above. Improvement in the symptoms was seen in 63.8% of patients (compared to 71% in our study), and 9.5% had worsening of their symptoms. In 86.3% of the patients, easy accessibility was the chief motivation behind this self-medication; other motivating factors were time-saving (12.7%) and reduction in expenses (1%).

In another study from Bangkok by Tayanithi et al. on self-medication with over the counter (OTC) ophthalmic preparations, the most common factor for which such usage was “dust in the eye” (55%)<sup>[8]</sup>. The second most common cause for using such eye drops was itching, irritation, and tears from the eyes. Decongestant eye drops are the most commonly used OTC eye drops. These types of eye drops often lead to both acute and chronic conjunctivitis<sup>[9]</sup>. Tappeiner et al. have observed that abuse of vasoconstrictive eye drop can cause ocular pemphigoid<sup>[10]</sup>. Blindness from the misuse of the OTC eye drops has also been reported<sup>[11]</sup>.

The said study reported that four patients became blind because of self-use of ocular decongestant in angle closure glaucoma. These drugs may augment existing mydriasis or may precipitate it, if used in excessive amount. Obviously, it cannot be estimated for sure the number of cases of blindness occurring due to misuse of OTC decongestant eye drops, particularly for prolonged period. Therefore, it is

best to infer that all patients when diagnosed as a case of “narrow-angle glaucoma” should strongly be advised by the treating ophthalmologist that in future throughout his life, the patient should not indulge in any ocular self-medication so as to prevent any unwanted blindness in future.

In another study, in Owo, Nigeria., it was designed to study the proportion of patients in that population, who practice ocular self-medication, the substances employed and the reasons for resorting to that thereby<sup>[12]</sup>. It was found that majority of the respondents (79%) admitted to using ocular self-medication and only the rest (21%) did not practice it. The substances used were of different types including steroids, antibiotics, and herbals. However, interestingly, 25 of them admitted that they used spiritually conditioned and/or blessed eye preparations. The reasons cited by respondents for resorting to self-medication which included their perceptions that the type of ocular diseases they had were minor enough to be amenable to self-care. The other reasons cited were a lack of readily available ophthalmic services, financial constraints to availing specialist care, ignorance of the potential adverse effects of self-medication, certainly of the efficacy of the self-medication used, and lack of escorts to take them to an eye care hospital. Their suggestions were that adequate health education is needed to stop the unwanted practice of ocular self-medication and also efforts of making eye care available and accessible to all should be intensified.

### Conclusion

The relevant data from our pilot study state that there is a lack of knowledge regarding self-medication with various eye drops among the population of Rampurhat area though it is quite prevalent in the said location. It is also deduced from statistical analysis that the misuse of topical ocular steroids is significant. The practice of medication without proper prescription and that with topical steroids when highly prevalent may lead to many complications. However, our studies do have certain limitations as not all patients revealed the truth because of the fear factor

commonly prevalent among rural populations. Anyway, this is only a pilot study. A more detailed study with a much larger population might be ventured in near future.

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