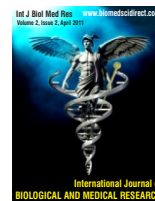


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### Original article

## Self-medication with over the counter ophthalmic preparations: is it safe?

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#### ABSTRACT

**Aim:** This study was conducted to evaluate the misuse of 'Over the Counter' (OTC) ophthalmic topical preparations, to determine the public attitudes to and knowledge of such self-medication, and the factors motivating the indiscriminate use of these easily available remedies. **Method:** Responses to a semi-structured questionnaire covering various aspects of OTC eye drops and ointments usage were obtained from patients attending an ophthalmic outpatient department. **Results:** 116 patients took part in this cross-sectional study. 115 (99.1%) of the patients had no awareness of OTC ophthalmic preparations. Redness in 52 (44.8%) was the most common complaint for which the patient opted self medication, followed by itching in 21(18.1%) and foreign body sensation in 17 (14.7%). 41 (35%) of the patients did not know what drug they had obtained. 28 (24.1%) obtained chloramphenicol ointment, 34 (29.3%), decongestant preparation containing naphazoline hydrochloride, 6 (5.2%), gentamicin and 7 (6%), ciprofloxacin eye drops. Conditions worsened in 11 (9.5%). Accessibility in 88 (86.3%) was the most important motivating factor for obtaining OTC eye medication. **Conclusion:** OTC ophthalmic topical drugs that are meant for self-medication are of proven efficacy and safety. Misuse and abuse of these medications due to lack of knowledge of their side effects has to be curbed. Educating the public about the dangers of self-diagnosis and treatment, possibly leading to delay in detection of more serious underlying ailments, is essential.

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### 1. Introduction

Self-medication with 'Over the Counter' (OTC) medicines is a common patient behaviour and has long been a feature of the health system [1]. More than 80 ingredients or 100 medications have been changed from prescription to OTC status [2]. Safe and effective use of these medications is a herculean task faced by health care providers. Eye care is largely affected by the rampant usage of OTC ophthalmic preparations. This study was conducted to evaluate the misuse of OTC ophthalmic preparations, to determine the public attitudes to and knowledge of such self-medication, and the factors motivating the indiscriminate use of these easily available remedies.

### 2. Methods

327 patients attending an eye OPD were interviewed in this cross-sectional study. Of these, 116 (35.47%) who had used OTC eye preparations were included in this study. Written informed consent was obtained from all the participants and the study was approved by the Ethical Committee of our institution, where the study was conducted. All patients were interviewed with a semi-structured questionnaire. The questions were as under.

- OTC preparations used
- Duration of usage
- Common complaints that motivated self-medication
- Awareness of OTC eye-drops
- Role of pharmacist in influencing self-medication
- Worsening or improvement of the condition

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### 3. Results

Of the 116 patients who took part in this cross-sectional study, 76 (65.5%) were males. 69 (59.4%) had basic education (Primary and High School) and 23 (19.8%) were illiterates. The rest were graduates. 115 (99.1%) had no awareness of OTC eye-drops.

**Table1. Ocular complaints of the patients**

Ocular complaints	Frequency	Percent
Burning sensation	2	1.7
Foreign body sensation	17	14.7
Itching	21	18.1
Pain	6	5.2
Redness	52	44.8
Redness and foreign body sensation	2	1.7
Redness and itching	1	0.8
Redness and pain	3	2.6
Trauma	8	6.9
Watering and discharge	4	3.4

shows the various ocular complaints of the patients. Redness was the most common complaint for which the patient chose self-medication.

**Table 2. Eye drops used by the patients**

Eyedrops	Frequency	Percent
Chloramphenicol tubes	28	24.1
Gentamicin	6	5.2
Ciprofloxacin	7	6
Decongestants	34	29.3
Don't know	41	35.3

shows the various eye drops obtained by the patients. 41 (35.3%) of the patients were not aware of the names of the eye drops supplied to them. Improvement in the symptoms was seen in 74 (63.8%) and worsening in 11 (9.5%). 48 (47.1%) of the patients were advised to consult a doctor. Easy accessibility 88 (86.3%) was the major motivation factor for self-medication. Other factors included 'time saving' in 13 (12.7%) and reduction of expense in 1 (1%). 16 (13.8%) of the patients used prescriptions from relatives and 2 (1.7%) used old prescriptions. 27 (23.27%) of the participants had the knowledge that the solution should be used within one month of opening the bottle. 48 (47.1%) of the patients were advised by the pharmacist to consult an ophthalmologist.

### 4. Discussion

Public awareness and consciousness regarding safety of self-medication with OTC eye preparations has always been extremely low, especially in developing countries like India where education level is very low. In our study 115 (99.1%) of the patients were not aware of the existence of two separate categories of eye drops namely the OTC ones and those available only on prescription. Decongestants, antihistamines and lubricants are the eye-drops which have been approved for self-medication as OTC drugs [3].

Recently chloramphenicol eye drops too have been removed from the prescription list and included in the OTC category [4]. All other available groups of eye drops should be procurable only on prescription. Educating the public about safe OTC eye preparations which could be used to self-manage simple and common eye problems is therefore absolutely essential.

In our study redness 52 (44.8%) was the most common complaint for which the patients used OTC eye-drops. 'Red-eye' patients could be suffering from a wide variety of ocular diseases (Table 3) [5]. These patients could also be suffering from more serious underlying conditions like uveitis, keratitis or acute angle closure glaucoma, which require immediate and precise treatment. There will be an inevitable delay in obtaining expert treatment from a qualified ophthalmologist when the patient opts for self-medication with OTC preparations.

**Table3. Causes of red eye**

Causes
<b>Conjunctival disorders and episcleritis</b>
•Allergic or seasonal conjunctivitis
•Chemical (irritant) conjunctivitis
•Episcleritis
•Infectious conjunctivitis
•Subconjunctival hemorrhage
•Vernal conjunctivitis
<b>Corneal disorders</b>
•Contact lens keratitis
•Corneal abrasion or foreign body
•Corneal ulcer
•Viral keratitis
<b>Other disorders</b>
•Acute angle closure glaucoma
•Acute uveitis
•Scleritis

Antibiotics have been commonly misused for the mildest forms of ocular complaints. Antibiotic eye drops when used for a long time result in both conjunctival and corneal toxicity [6]. Sosa & co-workers studied the effects of moxifloxacin, gatifloxacin, ofloxacin, ciprofloxacin & isotonic saline on immortalized conjunctival and human corneal epithelial cells. All these preparations showed both corneal and conjunctival cell toxicity with isotonic saline showing the least. Moxifloxacin showed the least amount of toxicity among the antibiotics tested. The rest of the antibiotics tested were statistically comparable from the toxicity point of view.

In a study performed by Tayanithi & co-workers [7] on self-medication with OTC ophthalmic solutions, the factor which influenced the use of eye drops most was 'dust in the eye' (55%). Ocular allergic symptoms such as itching, irritation, tearing were the second most common cause. In our study too, itching 21 (18.1%) was the second most common symptom. Majority of the antihistamines used for allergic eye symptoms contain decongestants.

Decongestant eye drops are commonly used to relieve redness. In our study 34 (29.3%) of the patients had used decongestant eye-drops. This variety of ophthalmic preparations causes different forms of conjunctivitis by pharmacological, toxic and allergic mechanisms [8,9]. Soparker and workers [8], in their study describe the different patterns of conjunctivitis caused by ophthalmic decongestants. In their study, decongestants were used daily for a median period of 3 years (daily range of 8 hours to 20 hours). Conjunctival hyperemia, follicular conjunctivitis and eczematoid blepharoconjunctivitis were observed with such long-term usage. In our study patients started using the solution at the time the influencing symptom began and used the same for a median period of 2 days (range 1 day to 3 months).

Blindness from the misuse of the OTC eye-drops has also been reported [10]. An active ingredient in most OTC decongestant eye drops is an alpha-adrenergic receptor stimulant. Rumelt MB [10] reported blinding of four eyes in their patients who used decongestants for angle closure glaucoma. These drugs may augment existing mydriasis or may precipitate it if used in excessive amounts. It is clearly not possible to estimate the number of cases of blindness from misuse of OTC ophthalmic preparations. Patients with narrow angles of the anterior chamber of the eye diagnosed by an ophthalmologist earlier should avoid these products. Individuals also need to be informed that OTC ophthalmic decongestants can lead to rebound congestion of the conjunctiva just as is observed with nasal decongestant drops.

OTC products are often the first line of self-therapy for ocular allergy and dry-eye. OTC eye drops have a wider reach because patients who do not want to visit a doctor will rely on them for their ocular problems. Long term use of OTC lubricants can produce corneal epithelial toxicity due to the preservatives they contain [11,12]. The preservatives polysorbate & benzalkonium are highly cytotoxic as compared to chlorbutanol [11]. Cytotoxicity decreases in the absence of preservatives. However preservative-free artificial tears are also not entirely safe. These eye drops when used in reusable containers are at a risk of contamination in a daily and multiple use setting, especially so in patients with poor administering technique, associated with finger-tip touch and advanced age [13]. However more studies are required to determine the most suitable lubricant for OTC use.

Ocular findings like corneal abrasions, uveitis and retinal detachment following trauma can be missed completely when the patients are treated by pharmacists. Risk of gross errors of diagnosis and serious health consequences are very common with self-medication [14]. Therefore information regarding the patients' OTC medication usage should be obtained during initial evaluation. 41 (35.3%) of our patients were not aware of the names of the eye preparations they had obtained from the pharmacy. This could be explained by the low literacy in our study group and this is a significant factor endangering the ocular health of our population.

There are a few weaknesses in our study. Firstly, results have to be extrapolated with caution because of the relatively small number of patients. Secondly, we could have missed many patients because of their fear to reveal the truth of having used OTC eye drops without consulting a specialist.

Although OTC eye preparations are safe and can be used when urgently required, extended use of any such medication needs to be approved by the ophthalmologist. Doctors and pharmacists play a very important role in creating awareness about self-medication by educating the patients. The Pharmacy Act, 1948 regulates pharmacy practices in India [15]. Prior to suggesting any OTC eye medications, pharmacists should thoroughly assess the nature and extent of the patient's ophthalmic condition and recommend that they seek expert care when needed. In India, easy availability of a wide range of prescription drugs across the counter without a valid prescription, lack of stringent controls over medical advertising, low medical literacy among the population and also the compulsion to reduce health-care costs seem to be the motivating factors for self-medication. However, more extensive studies need to be conducted to know the actual extent of use and misuse of OTC eye preparations. Public education on judicious use of topical ophthalmic OTC preparations is the need of the hour.

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