



## The use of Ophthalmic Dorzolamide in Al-Kharj

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### **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

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### **ABSTRACT**

**Aim:** The present study was to explore the use of ophthalmic dorzolamide in Al-Kharj.

**Methodology:** This is a retrospective study that includes reviewing the electronic prescriptions of ophthalmic dorzolamide among outpatients in a public hospital in Alkharj.

**Results:** Only 24 patients received ophthalmic dorzolamide during the study. The age of more than 54% of the patients was more than 59 years and more than 54% of them were males. More than 54% of the patients received ophthalmic dorzolamide for 2 months and 37.50% of them received ophthalmic dorzolamide for 3 months. All of the prescriptions were prescribed by ophthalmology department and more than 95% of the prescriptions were written by residents.

**Conclusion:** The present study showed that ophthalmic dorzolamide was uncommonly prescribed in Al-Kharj. Further studies are needed to explore the frequency of using dorzolamide in other settings and to explore the frequency of using other eye drops that are used to decrease intraocular pressure.

*Keywords: Carbonic anhydrase inhibitors; dorzolamide; ophthalmic; use.*

## 1. INTRODUCTION

Ocular hypertension is occurred when the intraocular pressure (the pressure inside the eye) is higher than normal [1]. Eye pressure is measured in millimeters of mercury (mm Hg) and the normal eye pressure is between 10-21 mm Hg. Ocular hypertension is an eye pressure of greater than 21 mm Hg [2].

Dorzolamide is used to reduce the increased pressure in the eye and to prevent the gradual loss of vision [3]. It is in a class of medications called carbonic anhydrase inhibitors that works by decreasing the pressure in the eye [1]. It is used to manage high pressure inside the eye due to glaucoma or other eye diseases and as a result helps to prevent blindness [4,5]. It is available as Eye drops and single-dose units [6].

Dorzolamide is used also pre-operatively in order to prevent elevated intraocular pressure after neodymium yttrium aluminum garnet laser posterior capsulotomy [7]. In addition to its use as a single agent, it can also be used in combination with timolol for the same indication in patients who are insufficiently responsive to ophthalmic beta-blockers [8].

Dorzolamide could cause several adverse effects; the most common adverse effects are ocular burning, stinging, discomfort, superficial punctate keratitis, bitter taste, and ocular allergic reactions [9]. There are also several medications known to interact with dorzolamide ophthalmic such as aspirin, acetazolamide, choline salicylate, bismuth subsalicylate, and dichlorophenamide [10]

Looking into the increasing importance of drug utilization studies, there was a need to conduct a similar study in the field of ophthalmology [11]. The present study was to explore the use of ophthalmic dorzolamide in Al-Kharj.

## 2. METHODOLOGY

This is a retrospective study that includes reviewing the electronic prescriptions of ophthalmic dorzolamide among outpatients in a public hospital in Alkharj.

The inclusion criteria include outpatient prescriptions that contain ophthalmic dorzolamide in the study period from 1<sup>st</sup> of January 2018 to the end of June 2018. Exclusion criteria include all of the inpatient prescriptions in addition to the outpatient prescriptions that don't contain an ophthalmic dorzolamide dosage form.

The collected data included the demographic data of patients, the number of ophthalmic dorzolamide prescriptions that were prescribed during different months of the study, duration of ophthalmic dorzolamide use, the prescribed dosage forms of ophthalmic dorzolamide, the level of prescribers, and the departments that prescribed ophthalmic dorzolamide.

The data were collected and analyzed by Excel spreadsheet software and the descriptive data were represented as a frequencies and percentages.

## 3. RESULTS AND DISCUSSION

Only 24 patients received ophthalmic dorzolamide during the study. The age of more than 54% of the patients was more than 59 years and more than 54% of them were males. Table. 1 shows the personal data of the patients.

Table 2 shows the duration of ophthalmic dorzolamide use. More than 54% of the patients received ophthalmic dorzolamide for 2 months and 37.50% of them received ophthalmic dorzolamide for 3 months.

Table 3 shows the number of ophthalmic dorzolamide prescriptions that were prescribed during different months of the study. About 16.67% of the prescriptions were prescribed in October and 12.50% of the prescriptions were prescribed in January, 12.50% in April, 12.50% in May and 12.50% of the prescriptions were prescribed in June.

All of the prescriptions were prescribed by ophthalmology department and more than 95% of the prescriptions were written by residents. Table 4 shows the level of the prescribers who prescribed ophthalmic dorzolamide.

Ophthalmic dorzolamide was uncommonly prescribed in Al-Kharj. This could be due to the availability of numerous drugs that are used to decrease intraocular pressure such as prostaglandins, beta blockers, alpha-adrenergic agonists, Rho kinase inhibitor, and miotic or cholinergic agents [12]. Ahmed reported that the most frequently used medications in the outpatient ophthalmology department in Al-Kharj were artificial tears eye drops (29.32%) olopatadine (12.96%), fusidic acid (11.42%) and fluorometholone (10.19%) [11]. Ahmed also stated that dorzolamide is used by only 3.09% of the patients who visited outpatient ophthalmology department [11].

**Table 1. The personal data of the patients**

<b>Variable</b>	<b>Category</b>	<b>Number</b>	<b>Percentage</b>
<b>Age</b>	20-29	3	12.50
	30-39	0	0.00
	40-49	3	12.50
	50-59	5	20.83
	More than 59	13	54.17
<b>Gender</b>	Male	13	54.17
	Female	11	45.83
<b>Nationality</b>	Saudi	19	79.17
	Non- Saudi	5	20.83

**Table 2. The duration of ophthalmic dorzolamide use**

<b>Duration</b>	<b>Number</b>	<b>Percentage</b>
7 Days	1	4.17
1 Month	1	4.17
2 Months	13	54.16
3 Month	9	37.50

**Table 3. The number of ophthalmic dorzolamide prescriptions.**

<b>Month</b>	<b>Number</b>	<b>Percentage</b>
January	3	12.50
February	0	0.00
March	1	4.17
April	3	12.50
May	3	12.50
June	3	12.50
July	1	4.17
August	0	0.00
September	2	8.33
October	4	16.67
November	2	8.33
December	2	8.33

**Table 4. The level of prescribers**

<b>Prescribers Level</b>	<b>Number</b>	<b>Percentage</b>
Specialist	1	4.17
Resident	23	95.83
Consultant	0	0.00

Most of the patients in the present study received ophthalmic dorzolamide for 2 months or for 3 months. This is rational because ophthalmic dorzolamide is used as a long term treatment to decrease the intraocular pressure. Moreover, all of the prescriptions that contained dorzolamide in the present study were prescribed by ophthalmology department.

Dorzolamide should be used wisely because the inappropriate use could cause several side effects. Dorzolamide can cause unwanted side-effects although not everyone experiences them [6].

These side effects include blurred vision, itching, irritation, headache, a bitter taste in the mouth, nausea, and feeling tired [13]. Moreover, it could interact with other medications such as choline salicylate, aspirin, bismuth subsalicylate, acetazolamide, and dichlorphenamide [10].

#### 4. CONCLUSION

The present study showed that ophthalmic dorzolamide was uncommonly prescribed in Al-Kharj due to the availability of numerous drugs that are used to decrease intraocular pressure. Further studies are needed to explore the frequency of using dorzolamide in other settings and to explore the frequency of using other eye drops that are used to decrease intraocular pressure such as timolol, betaxolol, pilocarpine, brimonidine.

#### DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

#### CONSENT

It is not applicable.

#### ETHICAL APPROVAL

As per international standard or university standard ethical approval has been collected and preserved by the authors.

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#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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