

## Original Research Article

### **The Use of Ophthalmic and Nasal Naphazoline in the Outpatient Setting**

#### **ABSTRACT**

**Aim:** the present study aimed to describe the use of ophthalmic and nasal naphazoline in the outpatient setting.

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

**Results:** During the study period of 6 months, 393 patients received naphazoline. Most of them were male patients (77.35%) and the age of 34.35% of them was between 20 and 29 years. The majority of the prescriptions that contained naphazoline were prescribed by residents (99.75%). Most of the patients received naphazoline as nasal drops either alone (47.84%) or combined with chlorpheniramine (36.13%). The majority of the prescriptions were written by the emergency department (99.24%).

**Conclusion:** The present study showed that naphazoline was commonly prescribed in Alkharj. Further studies are needed to explore the frequency and pattern of naphazoline use as well as to explore the frequency of prescribing other sympathomimetic vasoconstrictors in different settings.

**Keywords:** Naphazoline, nasal, ophthalmic, outpatient, use

## INTRODUCTION

Eye redness is a condition that is caused by swollen blood vessels [1]. Dilated blood vessels in the nose cause stuffy nose (nasal congestion) [2]. Both conditions are caused by the dilatation that occurred in the eye or nose [1,2].

Ophthalmic naphazoline works by narrowing swollen blood vessels in the eyes and as a result it reduces the eye redness [1]. Naphazoline nasal is a decongestant that is used for temporary relief of stuffy nose caused by allergies, hay fever, or common cold [2].

Naphazoline is a sympathomimetic vasoconstrictor used for the symptomatic relief of redness and itching of the eye, and nasal congestion [3]. It is a rapid acting imidazoline sympathomimetic vasoconstrictor of nasal or ocular arterioles [4,5]. It is found in several over the counter eye drops and nasal preparations [4,5]. Its actions are increased by combining it with other active ingredients in the same formulation as a synergistic effect [6-10]. It is commonly combined with diphenhydramine hydrochloride, pheniramine maleate, and chlorpheniramine maleate [6-10].

Naphazoline could cause several side effects such as central nervous system effects (anxiety, tremor, dizziness, etc.), stinging, burning, sneezing, local irritation, dryness, and rebound congestion [11]. It should not be used in children and infants. It may cause severe slowing down of the central nervous system, which may lead to unconsciousness [12]. Furthermore, it may cause a severe decrease in body temperature [12]. Naphazoline may interact with Monoamine oxidase inhibitors that leads to a potentially fatal hypertensive crisis [13]. It also has moderate interactions with nicotine intranasal, Solriamfetol, and safinamide [11].

There are few studies about the frequency and pattern of using naphazoline in Alkharj. So, the present study aimed to describe the use of ophthalmic and nasal naphazoline in the outpatient setting.

## METHODOLOGY

### Setting

This was a retrospective study that includes reviewing the electronic prescriptions of naphazoline among outpatients in a public hospital in Alkharj.

### **Inclusion and Exclusion Criteria**

The inclusion criteria included the outpatient prescriptions that contained naphazoline in the study period between January 2018 and June 2018. Exclusion criteria include the prescriptions that were written by inpatient setting and the outpatient prescriptions that didn't contain an naphazoline dosage form.

### **Data Collection and Presentation**

The collected data included the demographic data of patients, the number of naphazoline prescriptions that were prescribed during different months of the study, duration of naphazoline use, the level of prescribers who prescribed naphazoline, the prescribed dosage forms of naphazoline, and the departments that prescribed naphazoline. The data were collected and analyzed by Excel spreadsheet and data were represented descriptively as frequencies and percentages.

## **RESULTS and DISCUSSION**

During the study period of 6 months, 393 patients received naphazoline. Most of them were male patients (77.35%) and the age of 34.35% of them was between 20 and 29 years. The personal data of the patients are shown in table 1.

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

<b>Variable</b>	<b>Category</b>	<b>Number</b>	<b>Percentage</b>
Gender	Female	89	22.65
	Male	304	77.35
Age	Less than 10	8	2.04
	10-19	83	21.12
	20-29	135	34.35
	30-39	90	22.90
	40-49	43	10.94
	50-59	20	5.09
	60-69	10	2.54
	More than 69	4	1.02
Nationality	Saudi	316	80.41
	Non- Saudi	77	19.59

Table 2 shows the number of prescriptions that contained naphazoline during the study period. More than 20% of the prescriptions were prescribed in April (20.61%) and 20.36% of the prescriptions were prescribed in May.

**Table 2.** The number of prescriptions that contained naphazoline during the study period.

Month	Number	Percentage
January	53	13.48
February	71	18.07
March	42	10.69
April	81	20.61
May	80	20.36
June	66	16.79

Table 3 shows the duration of naphazoline use. More than 58% of the patients used naphazoline for 1 week and 32.06% of them used naphazoline for 5 days.

**Table 3.** The duration of naphazoline use

Duration	Number	Percentage
Less than 5 Days	37	9.41
5 Days	126	32.06
1 Week	230	58.53
Total	393	100

Table 4 shows the level of prescribers who prescribed naphazoline. The majority of the prescriptions that contained naphazoline were prescribed by residents (99.75%).

**Table 4.** The level of prescribers.

Prescribers Level	Number	Percentage
Specialist	0	0.00
Resident	392	99.75
Consultant	1	0.25

Table 5 shows the prescribed dosage forms of naphazoline. Most of the patients received naphazoline as nasal drops either alone (47.84%) or combined with chlorpheniramine (36.13%).

**Table 5.** The prescribed dosage forms of naphazoline.

Dosage form	Number	Percentage
Naphazoline eye drops	63	16.03
Naphazoline nasal drops	188	47.84
Naphazoline and Chlorpheniramine nasal drops	142	36.13
Total	393	100

Table 6 shows the departments that prescribed naphazoline. The majority of the prescriptions were written by the emergency department (99.24%).

**Table 6.** The departments that prescribed naphazoline.

<b>Department</b>	<b>Number</b>	<b>Percentage</b>
Emergency	390	99.24
Internal Medicine	1	0.25
Nephrology	2	0.51
Total	393	100

Naphazoline was commonly prescribed in the outpatient setting in Alkharj. It is frequently used as a vasoconstrictor in the hospital's ophthalmology and otorhinolaryngology [14]. Wigle et al stated that naphazoline, oxymetazoline, xylometazoline, and phenylephrine are commonly available nasal decongestants in the U.S [15]. Díaz et al informed that naphazoline is commonly used as a decongestant in adult patients but its indication in Pediatrics is not frequent [16].

The age of 21.12 % of the patients was between 10 and 19 years and the age of 2.04 % of them was less than 10 years. This results shows that some patients received naphazoline incorrectly because naphazoline should be used for patients who are more than or equal to 12 years old [16]. It may cause severe slowing down of the central nervous system, which may lead to unconsciousness and shouldn't be used in infants and children [12].

In the present study, more than 58% of the patients used naphazoline for 1 week and 32.06% of them used naphazoline for 5 days. Nasal naphazoline should be used three to four times a day and should not be used for longer than three to five days at a time [17]. Eye drops that contain a topical decongestant such as naphazoline provide excellent short-term relief [18]. According to guidance from the American College of Allergies, Asthma, and Immunology, the long-term use of naphazoline increases the risk of a condition known as conjunctivitis medicamentosa. The condition can increase symptoms and lead to greater dependence on eye drops for relief [18].

The majority of the prescriptions were written by the emergency department and this is rational because several patients who visited emergency department have nasal or eye problems and receive nasal and eye drops.

## CONCLUSION

The present study showed that naphazoline was commonly prescribed in Alkharj. Further studies are needed to explore the frequency and pattern of naphazoline use as well as to explore the frequency of prescribing other sympathomimetic vasoconstrictors in different settings.

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