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Research Article

**PUBLIC PERCEPTION REGARDING THE MISUSE OF NASAL
DECONGESTANTS IN ABHA-SAUDI ARABIA****Saif Saad S Alkhidhran¹, Waleed Saeed S Alqahtani¹, Ahmed Mousa B Asiri¹,
Almohannad Saleh A Algarni¹.**¹ Medical Intern, Faculty of Medicine, King Khalid University, Abha, Saudi Arabia**Abstract:**

Background: The estimated prevalence of nasal congestion in the population is 30%. The quality of life has been affected severely by nasal congestion especially school, sleep, work and social life. The efficacy of nasal decongestion has remarkable outcome in clinical practice that led to inappropriate prescription and excessive self-prescribed medication. Rhinitis medicamentosa [RM] is a syndrome of rebound nasal congestion caused by overuse or misuse of topical nasal vasoconstrictive decongestants.

Method: The study was a descriptive cross-sectional study among public people in Abha city, Saudi Arabia. The study was conducted during the period from May to October 2018. The study targeted general population with exclusion of patients whom are using nasal decongestions for chronic diseases. The total sample obtained was 460. A pre-structured anonymous self-administered questionnaire about the usage of nasal decongestants, knowledge about their side effects, and perception of abuse of nasal decongestants was administered to each participant. The questionnaire responses were analyzed using the Statistical Package for the Social Science [SPSS version 23] using frequencies and percentages for categorical variables.

Result: Of total 460 participants, [17.4%] were using nasal decongestant for more than three days [RM] and [82.6%] were not using nasal decongestants at all or were using it for less than three days. Significant relation reported between participants with rhinitis medicamentosa and age groups. More than half of participants [53.3%] who use nasal decongestants did not know about nasal decongestants overuse.

Conclusion: In conclusion, majority of the respondents had poor knowledge about the recommended duration for nasal decongestants use and its complications. We need more efforts to increase awareness and knowledge about nasal decongestant.

Key words: Rhinitis Medicamentosa, Nasal decongestants. Overuse, Duration

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INTRODUCTION:

The estimated prevalence of nasal congestion in the population is 30% [1]. The quality of life has been affected severely by nasal congestion especially school, sleep, work and social life [2]. The efficacy of nasal decongestion has remarkable outcome in clinical practice that led to inappropriate prescription and excessive self-prescribed medication [3-5]. Central nervous system adverse effects consist of headache, seizures and stroke [6]. Cardiovascular adverse reactions include hypertensive crisis, tachycardia or palpitations [7, 8]. Rhinitis Medicamentosa [RM] is a syndrome of rebound nasal congestion caused by overuse or misuse of topical nasal vasoconstrictive decongestants. RM is recorded in European Position Paper on Rhinosinusitis and Nasal Polyps [EPOS] consensus as a condition associated with the use of intranasal decongestants, in which the nasal mucosa undergoes atrophy [9]. These medications fall into two general classes, the sympathomimetic amines, such as ephedrine or phenylephrine [short-acting agents] and imidazoles, including oxymetazoline and xylometazoline [long-acting agents] [10]. The first criteria for the diagnosis of RM were proposed in 1952 and included “[1] history of prolonged nasal medication, [2] constant nasal obstruction, and [3] poor shrinkage of nasal mucous membranes on examination” [11]. Studies showed that the onset of RM occurs after the use of topical sympathomimetics for 3 to 10 days [1, 12]. It is worth noting that, the use of oxymetazoline is recommended for 3 days [13]. This is supported by a study that shows increased nasal airway resistance after 3 days of daily or intermittent oxymetazoline [14]. However, studies by Graf and Juto [15, 16] showed that the onset of RM does not begin until after 10 days of use. In addition, the congestion continues to worsen from day 10 to day 30. Those authors also found that doubling the dose of oxymetazoline in 9 healthy volunteers for 30 days does not increase rebound congestion [15]. The diagnosis most heavily relies on the history of use of a causative medication and the physician must ask about nose spray usage to diagnose rhinitis medicamentosa [16]. The incidence of RM is equal in both males and females but is more common in young and middle-aged adults [1, 10]. The incidence reported in ENT clinics ranges from 1% to 7% [1, 17, 18]. Out of 500 patients with nasal congestion in an allergy clinic, 9% had RM [1, 18]. In a survey of 119 allergists, 6.7% of the patient population was reported to have RM [19]. Patients with RM may have snore, insomnia, dry mouth and sore throat [8, 20]. Some authors describe patients with RM as addicted due to its Psychological dependence and abstinence symptoms and signs following

discontinuation of nasal decongestants [19, 21]. The pathophysiology of RM is idiopathic. There are various hypotheses as to why it exists. It may be secondary to the decreased production of endogenous sympathetic norepinephrine through a negative feedback mechanism with a prolonged use or following a discontinuation, the sympathetic nerves may be unable to maintain vasoconstriction because norepinephrine release is suppressed [1].

METHOD:

The study was a descriptive cross-sectional study among public people in Abha city, Saudi Arabia. The study was conducted during the period from May to October 2018. Our study included all people of all ages and regardless of gender with exclusion of patients whom are using nasal decongestions for chronic diseases. Sampling was stratified for the different malls of the city. The sample size was calculated based on the formula $n = Z^2 \cdot P(1-P)/d^2$, where n = sample size = 384, Z = standard normal variate = 1.96 [at 5% type I error, $p = 0.05$], P = expected proportion = 50%, and d = precision error = 5%. Additional 20 % was added to cover the missing data. The total sample obtained was 460. A pre-formed anonymous self-administered questionnaire about the usage of nasal decongestants, knowledge about their side effects, and perception of abuse of nasal decongestants was administered to each participant. The questionnaire responses were analyzed using the Statistical Package for the Social Science [SPSS Inc. Chicago, IL, USA] version 23. Categorical variables were described by frequencies and percentages. Descriptive analysis involving Chi-square test was used to test significance of association between categorical variables. The level of significance was set at $P < 0.05$. Participants were asked to give their written consents before participation in the study.

RESULTS:

The participants classified to four categories according to age: Less than 20 years, from 20 to 39 years, from 40 to 59, and 60 years or more. The majority was university graduates [53.3%] and the majority aged from 20 to 39 years [61.3%] [Table 1].

Of total 460 participants, [17.4%] were using nasal decongestant for more than three days [RM] and [82.6%] were not using nasal decongestants at all or were using it for less than three days. Of the participants who aged twenty years or below [<20 year], [9.1%] of them were having rhinitis medicamentosa. And for participants who aged twenty one to thirty nine [21-39 year], about [21.6%] of them reported to have RM. For age group [41-59

year], about [13.5%] of them have RM. And whom age were sixty year or more [60 or more] reported [12.5%] to have RM [Table 2].

Regarding the relation between those who use of nasal decongestants currently and the knowledge about nasal decongestants overuse. [%46.7] of participants who were using nasal decongestants currently know about nasal decongestants overuse, while [53.3%] of those who use nasal decongestants now did not know about nasal decongestants overuse. From the participants whom were not using nasal decongestants now, [34.1%] know about nasal decongestants overuse and whom did not know about nasal decongestants overuse [Table 3].

Regarding the prevalence of participants' sources that make them know about and use of nasal decongestants and a significant relation between these sources and heard about nasal decongestants overuse. Of total, participants who answered that their use of nasal decongestants was recommended by doctor [48.5%], pharmacist [17.6%], someone they know [2.8%], media [19.3%] and those who said there is no source [4.3%]. Participants who know about nasal decongestants overuse were [37%], and those who do not know about nasal decongestants overuse were [63]. Participants who know about nasal decongestants overuse and their use of nasal decongestants recommended by doctor were [72.9%], pharmacist [14.7%], someone they know [3%], media [3.5%], no source [3.5%], and those who do not use nasal decongestants but know about nasal decongestants overuse were [2.4%]. Participants who do not know about nasal decongestants overuse and their use of nasal decongestants were recommended by doctor were [34.1%], pharmacist [19.3%], someone they know [2.8%], media [28.6%], no source [4.8%], and those who do not use nasal decongestants and do not know about nasal decongestants overuse were [10.4%] [Table 4].

The relation between the knowledge about nasal decongestants overuse and the recommended duration of nasal decongestant use .[70.6%] of participant who know the recommended duration of nasal decongestant use heard about nasal decongestant overuse while [78.3%] of participant who do not know the recommended duration of nasal decongestant use never heard about nasal decongestant overuse [Table 5].

DISCUSSION:

To the best of our knowledge, there is no much data and insufficient studies done regarding the knowledge and perception of the proper use of nasal decongestants and recommended duration to use it and the associated side effects and complications. Nasal decongestants are commonly used medication for common cold and for allergic rhinitis with congestion and although they are safe for most patients, but there are some precautions and essential knowledge that are needed to be considered by users [22, 23]. A study done on students of Gulf Medical University, Ajman showed that most of the respondents evaluated themselves to have low or little knowledge with regard to nasal decongestants and the results were consistent with a study from Brazil [24, 25]. RM occurs at a similar rate in men and women but is more common in young and middle-aged adults [26, 10]. This study reported that the highest incidence of rhinitis medicamentosa was among age groups aged 21-39 years [21.6%] and those who were 41-59 years old [13.5%]. Another study reported RM at age groups 10-20 years and 40-50 years and accounted for [35%] and [35%] respectively [27]. Other results reported RM in otolaryngology clinics ranges from 1% to 7% [17, 18, 26]. This study showed that the physicians were the main health professionals reported as having provided patients with guidance on how to use this medication, and similar finding reported in study done in Ajman [25]. Having correct knowledge about the recommended duration for use of the nasal decongestant is important to prevent overuse of these drugs [25]. Extended use of nasal decongestants can increase probability of associated side effects. Rebound congestion is one of the complications for extended use of the decongestants [28]. In our study those who know the recommended duration for nasal decongestant use was [39.8%].

CONCLUSION:

In conclusion, majority of the respondents had poor knowledge about the recommended duration for nasal decongestants use and its complications. We need more efforts to increase awareness and knowledge about nasal decongestant.

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Table 1: General characteristics of participants

Personal data		
Age	Less than 20 years [n [%]]	110 [23.9%]
	From 20 to 39 years [n [%]]	282 [61.3%]
	From 40 to 59 years [n [%]]	52 [11.3%]
	60 years or more [n [%]]	16 [1.33.5%]
Gender	Male [n [%]]	255 [53.9%]
	Female [n [%]]	205 [46.1%]
Education	Elementary [n [%]]	5 [1.1%]
	Intermediate [n [%]]	90[19.5%]
	Secondary [n [%]]	120 [26.1%]
	Graduate [n [%]]	245 [53.3%]

Table-2: Prevalence of Rhinitis medicamentosa within age groups

Age	Rhinitis medicamentosa		Total [n [%]]	P
	No [n [%]]	Yes [n [%]]		
Less than 20 years old	100 [90.9%]	10 [9.1%]	110 [100.0%]	.256
from 21 to 39 years old	221 [78.4%]	61 [21.6%]	282 [100.0%]	
From 41 to 59 years old	45 [86.5%]	7 [13.5%]	52 [100.0%]	
60 years old or more	14 [87.5%]	2 [12.5%]	16 [100.0%]	
Total	380 [82.6%]	80 [17.4%]	460 [100%]	

Table 3: Relation between nasal decongestant use and knowledge about nasal decongestant misuse

Using nasal decongestant	Heard about nasal decongestant misuse			P
	Yes [n [%]]	No [n [%]]	Total	
Yes	54 [31.8%]	61 [21.0%]	115[25.0%]	.045*
No	116 [68.2%]	229 [79.0%]	345[75.0%]	
Total	170 [100%]	290 [100%]	460 [100%]	

* P < 0.05 [significant]

Table 4: Relation between knowledge about nasal decongestant overuse and who recommend its use.

nasal decongestant was recommended by	Heard about nasal decongestant misuse		P
	Yes n=170	No n=290	
Doctors	124[72.9%]	99[34.1%]	.001*
Pharmacist	25[14.7%]	56[19.3%]	
Someone they know	5[3%]	8[2.8%]	
Media	6 [3.5%]	83[28.6%]	
No source	6[3.5%]	14[4.8%]	
Do not use nasal decongestants	4[2.4%]	30[10.4%]	

* P < 0.05 [significant]

Table 5: Relation between knowledge of nasal decongestant overuse and knowledge of the recommended duration of using nasal decongestants.

Heard about nasal decongestant misuse	Know the recommended duration of nasal decongestant use		Total	P
	Yes n=183	No n=277		
Yes	120[70.6%]	50[29.4%]	170	.001*
No	63[21.7%]	227[78.3%]	290	

* P < 0.05 [significant]