Assessment of the Utilization Pattern and Related Knowledge of Nasal Decongestants among University Students in Ajman, UAE

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ABSTRACT

Objectives: 1. To assess the utilization pattern of nasal decongestants among University students in Ajman, UAE. 2. To assess the students’ knowledge related to the use of nasal decongestants. 3. To evaluate the factors related to the nasal decongestant use.

Materials and Methods: A cross sectional study was carried out using a validated, self-administered questionnaire which addressed socio-demographic details and information about knowledge and practice related to use of nasal decongestants. A scoring system assessed knowledge; median knowledge score was used as a cut-off value to identify adequacy of knowledge.

The SPSS version 21 was used to analyze the data and Chi-square test was used to test the significance of association. A p-value of <0.05 was accepted as a significant level.

Results: The study included 440 respondents who were mostly females (75%), medical students (34%), from junior batches (53%) and students without health insurance (52%). Majority of the respondents admitted that they had no knowledge or little knowledge regarding the use of nasal decongestants (64%). A lower knowledge score was observed in females as compared to males (54% Vs 51%, P>0.05). This was observed to be similar with junior students (p=0.001). Significant association was found between knowledge score and program (P=0.02). The use of nasal decongestants as reported by 70% of respondents was found to be almost the same for participants below and above 20 years (70% Vs 69%), for junior students (P=0.002) and for those with health insurance (74% Vs 68%). Significant association was found between nasal decongestants use and program of study (P<0.001).

Conclusion: Majority of the respondents had poor knowledge about nasal decongestants. The knowledge and the usage were significantly associated with the program of study. Junior students displayed lower knowledge and higher usage of nasal decongestants as compared to their seniors.

Keywords: Nasal decongestant, knowledge, use, related factors
INTRODUCTION

Nasal decongestants are medications commonly used for the relief of nasal and sinus congestion, seasonal rhinitis, common cold and allergic rhinitis. Allergic rhinitis is an illness that affects around 10% to 20% of the world's population, and 15% to 25% of children and adolescents.

In some patients, a change in humidity, temperature, or exposure to cold or dry air can cause the nasal symptoms that cause congestion and rhinitis such as nasal blockage, sneezing, running nose, and irritation. There are different dosage forms of nasal decongestants, viz. topical, spray, tablets and syrups, which are all used in relieving pain and stuffiness of nose, the oral nasal decongestants take approximately 15-30 minutes to produce their action, while the topical decongestants are much faster.

Over-the-counter nasal decongestants are most frequently used to overcome symptoms like sneezing and running nose. Decongestants improve the nasal ventilation and drainage by causing vasoconstriction, thereby reducing congestion and edema of the nasal mucosa. Oral and topical decongestants such as pseudoephedrine/phenylephrine may in short-term relieve nasal blockage associated with the common cold. A 2007 meta-analysis on the effects of this type of decongestants in common cold evaluating five studies that involved 286 adult patients suggested a net (6%) decrease in the subjective symptoms after a single dose of decongestant comparable to the use of a placebo. This result was further supported by a net significant reduction in nasal airways resistance in patients who have been treated with decongestants. Repeated doses of the nasal decongestants produced a small and perhaps clinically insignificant benefit (around 4%) from repeated use continued over 3-5 days.

The most effective drugs used for nasal congestion include phenylephrine, pseudoephedrine, oxymetazoline, naphazoline, and xylometazoline. Tablet dosage forms, mostly a combination of decongestants and antihistamines (e.g. Cetirizine, triprolidine, and dimethindene) provide symptomatic relief in allergic conditions. The utilization of nasal decongestants differs from person to person and depends on the brand. Most commonly used brands include, Actifed, Cirrus, Panadol cold & flu day, Sapofen, Ocean Spray, and Clarinase.

Many clinical trials done to test the validity of nasal decongestants action also show a range of side effects that may occur patients using these drugs. Common side effects that may occur are headache, nausea, tachycardia and change in blood pressure (phenylephrine action), nervousness, tinnitus, sedation and drowsiness (triprodilide action), and stinging of nasal mucosa. Prolonged use of nasal decongestants may have harmful side effects, e.g. iatrogenic rhinitis, i.e. risk of mucosal injury and rebound vasodilation that leads to more sneezing. Studies have shown that prolonged use of either topical or systemic nasal decongestants for more than 3-5 days may cause rebound congestion.

Studies have shown that the utilization pattern differs from patient to patient depending on the patients’ knowledge about the nasal decongestant being used, their background information about the medication and its side effects and regarding the number of days for which it can be taken.

A study by the School of Health and Related Research has shown that nasal decongestants are a group of drugs that have been misused or abused by patients. This study has recognized that such drugs under the term of over-the-counter (OTC) medicines have the potential for harm as a result of misuse. Among the nasal...
decongestants used, Phenylephrine was observed to be the most frequently used decongestant (72.2%) followed by Pseudoephedrine (12.9%).

Despite the fact that people use nasal decongestants, little consideration has been given to the pattern of utilization or to the magnitude with which nasal decongestants could affect the health of individuals. Available data show a high frequency of nasal decongestants over-use among universal student from health sciences and although researchers found that self-medication among people using nasal decongestants is common in UAE, little data are available from the UAE regarding the utilization pattern of nasal decongestants. Moreover, health care professionals have the obligation to educate people while they practice their jobs, and to do so they should have prior knowledge about the nasal decongestant used by them, so as to tackle related misconceptions.

This study, will increase the awareness of health science students about the nasal decongestants, and can help in developing future education session that will focus on the identified gap in knowledge and related education needs.

MATERIALS & METHODS

- Research design: A cross-sectional study
- Study population: The study involved the students of Gulf Medical University, Ajman.
- Inclusion criteria
  - Male and female students from MBBS, Pharm D, DMD, BPT, BHS & BBMS Programs in GMU who are available in GMU Campus at the time of data collection.
  - Age ≥ 18 years.
  - Students that accept to give informed consents
- Exclusion criteria
  - Age <18 years.
  - Students that refuse to sign the consent form
- Sample size calculation
  - The sample size required was calculated based on the frequency of correct knowledge of nasal decongestants (32.9%) reported in another study from the Brazilian Journal of Pharmaceutical Sciences. A minimum sample size of 339 students using the convenience sampling technique was calculated using the formula:

\[ n = \frac{Z^2 \cdot \pi \cdot (1-\pi)}{E^2} \]

Where

- \( P \): Population Proportion (0.3)^2
- \( E \): Marginal Error of estimate
- \( Z \): \( Z \) value at the 95% Confidence level=1.96
- Study settings: Gulf Medical University Campus
- Duration of study: 3 months (October-December 2014)
- Study instrument & validation procedure

  - Self-administered questionnaires were used as a tool.
  - The questionnaires included 3 domains: socio-demographic factors, knowledge and utilization pattern.
Validation of the questionnaire was done by two faculties from the Community Medicine Department and the College of Pharmacy.

After validation, the tool was pilot tested for feasibility and for clarity of questions including 5-10 students.

Data from the pilot study was included in the final results.

Ethical issues

- The study was conducted after getting the approval from the Ethics committee of GMU.
- An informed consent was taken from the participants before they take part in the study.
- Confidentiality of the participants and the research information was assured.
- The information collected will only be used for research purpose.
- Only the Research team, Ethics Committee of GMU, Community Medicine Department and Statistical Support Division CABRI will have access to the information collected.
- The study related documents will be kept locked for 3 years as per GMU policy in the Department of community medicine.

Methodology

- After the approval of our research proposal by the Ethics Committee of GMU, official approval for data collection was taken from the identified Colleges. Dates were assigned for data collection.
- After explaining the purpose of our study, self-administered questionnaires were handed out to the participants, using the convenience sampling technique.

DATA ANALYSIS

The data collected were compiled into an Excel spreadsheet, analyzed using the SPSS version 21 and finally, the data were presented in the form of tables and graphs. For associations, Chi square test was used. A scoring system was used to assess the knowledge; Participants whose knowledge score ≥ the average score were considered to have adequate knowledge.

RESULTS

The study included 440 participants who were mostly females (75%), from Eastern Mediterranean Region countries (37%), students in the MBBS programs (34%), students of the junior batches (53%), living with their families (57%), and have no insurance (52%), as shown in table-1.

Table 1: Socio-demographic characteristics of the participants

<table>
<thead>
<tr>
<th>Socio-demographic factor</th>
<th>Sub-category</th>
<th>Number of students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationality</td>
<td>African Region</td>
<td>110</td>
<td>25.5</td>
</tr>
<tr>
<td></td>
<td>South-East Asia Region</td>
<td>120</td>
<td>27.8</td>
</tr>
<tr>
<td></td>
<td>Eastern Mediterranean Region</td>
<td>159</td>
<td>36.9</td>
</tr>
<tr>
<td></td>
<td>Other*</td>
<td>42</td>
<td>9.7</td>
</tr>
<tr>
<td>Programs</td>
<td>MBBS</td>
<td>148</td>
<td>33.8</td>
</tr>
<tr>
<td></td>
<td>Pharm D</td>
<td>98</td>
<td>22.4</td>
</tr>
</tbody>
</table>
Figure 1: Shows the student perception of their nasal decongestant knowledge. Majority of the respondents admitted that they had no knowledge or little knowledge (63.8%).

Analysis of knowledge scores showed that the number (%) of student who had low and adequate knowledge scores were 382 (86.8%) and 58(13.2%) respectively.

Distribution of participants by socio-demographic characteristics and the knowledge scores was shown in table 2. Low knowledge was found more commonly in males in comparison to females (88.5% Vs. 85.6%, P>0.05), junior students (p=0.014). Higher proportion of adequate knowledge was found among students in the Pharm D program.

Only 30% of participants knew the recommended duration of nasal decongestants’ use, which is 3-5 days, and 10.7% thought it can last 2 weeks / one month. Only 59 respondents (13.7%) had heard about rebound congestion.

Nasal decongestants were used by 304 respondents (69.9%). Fig 2 shows the...
The most common indications for using the nasal decongestants. Common cold was the most common reason and reported by 50% of the respondents.

Table 3 shows the association between the use of nasal decongestant and socio-demographic factors. The use of nasal decongestant was found to be more common by participants aged <20 Y (70.2% Vs 68.9%), junior students (P=0.002) and those who had health insurance (74.1% Vs 67.5%). Significant association was found between nasal decongestants use and program of study (P<0.001).

Table 2: The association between knowledge and socio-demographic factors.

<table>
<thead>
<tr>
<th>Socio-demography</th>
<th>Knowledge</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low No.</td>
<td>%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤20</td>
<td>293</td>
<td>88.0</td>
</tr>
<tr>
<td>&gt;20</td>
<td>89</td>
<td>83.2</td>
</tr>
<tr>
<td><strong>Nationality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African</td>
<td>59</td>
<td>90.0</td>
</tr>
<tr>
<td>South-East Asia</td>
<td>93</td>
<td>84.5</td>
</tr>
<tr>
<td>Eastern Mediterranean</td>
<td>108</td>
<td>90.0</td>
</tr>
<tr>
<td>European</td>
<td>137</td>
<td>86.2</td>
</tr>
<tr>
<td>Other</td>
<td>36</td>
<td>85.7</td>
</tr>
<tr>
<td><strong>Program</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBBS</td>
<td>136</td>
<td>91.9</td>
</tr>
<tr>
<td>DMD</td>
<td>67</td>
<td>91.8</td>
</tr>
<tr>
<td>PHARMD</td>
<td>78</td>
<td>79.6</td>
</tr>
<tr>
<td>BHS</td>
<td>20</td>
<td>83.3</td>
</tr>
<tr>
<td>BBMS</td>
<td>43</td>
<td>82.7</td>
</tr>
<tr>
<td>BPT</td>
<td>36</td>
<td>83.7</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>92</td>
<td>88.5</td>
</tr>
<tr>
<td>Females</td>
<td>273</td>
<td>85.6</td>
</tr>
<tr>
<td><strong>Batch</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forth Year</td>
<td>18</td>
<td>66.7</td>
</tr>
<tr>
<td>Third Year</td>
<td>79</td>
<td>87.8</td>
</tr>
<tr>
<td>Second Year</td>
<td>76</td>
<td>90.5</td>
</tr>
<tr>
<td>First Year</td>
<td>200</td>
<td>87.3</td>
</tr>
<tr>
<td><strong>Health Insurance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>168</td>
<td>90.3</td>
</tr>
<tr>
<td>No</td>
<td>164</td>
<td>82.8</td>
</tr>
<tr>
<td><strong>Accommodation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With family /relative</td>
<td>223</td>
<td>88.1%</td>
</tr>
<tr>
<td>With friends/hostel/others</td>
<td>141</td>
<td>84.9%</td>
</tr>
</tbody>
</table>
DISCUSSION

Nasal decongestants are commonly used medication for common cold and for allergic rhinitis with congestion and although they are safe for most patients, but their are some precautions and essential knowledge that are needed to be considered by users\textsuperscript{12,13}. Most of the current respondents evaluated themselves to have low or little knowledge with regard to nasal decongestants and this is consistent with a study from Brazil which identified insufficient knowledge among the studied participants\textsuperscript{2}. A Study
from Australia showed that 67% of respondents stated they had no or little knowledge about intranasal corticosteroid treatment for allergic rhinoconjunctivitis14.

Having correct knowledge about the recommended duration for use of the nasal decongestant is important to prevent overuse of these drugs2. Extended use of nasal decongestants can increase probability of associated side effects. Rebound congestion is one of the complications for extended use of the decongestants15. Graf P defined Rebound Congestion as “A deterioration of the feeling of nasal congestion for which topical nasal decongestants were initially prescribed during repeated use or after stopping this treatment”16.

In this study, a minimal number of the respondents (13.7%) were aware of rebound congestion. Nasal decongestants were used by about 70% of the respondents indicating the popular use of these medications. In the United Arab Emirates, nasal decongestants, at 4% were among the most commonly prescribed12. The most common indication for using nasal decongestants is common cold which is in agreement with another study that was carried out in India4.

The pattern for utilization of OTC nasal decongestants can be affected by different factors such as age, health insurance, and level of education. However, the influence of the general practitioners, (GPs) and other physicians who are treating medical condition where a nasal decongestant is part of the management; are of special importance. A study done in Singapore investigating the management of Allergic Rhinitis by general practitioners (GPs) showed that nasal decongestants were frequently prescribed by all physicians. In addition, the frequency of prescribing nasal decongestants was higher among GPs with less than 5 years of experience (96%) as compared to GPs with more than 10 years of practice (77%) (P = 0.015)17. In this study 50.4% of the students admitted that nasal decongestants were mainly recommended by the physician. Another study from Malaysia18, on the use of nonprescription medications by the general public, showed that the use of nasal decongestants ranked the third most common type (11.7%) preceded only by oral analgesics (35.9%) and cough preparations (17.2%). Similar to our finding, an aforementioned study from Malaysia did not find significant associations between the utilization of nonprescription medications and age, gender, health expenses payment (by insurance or other sources; self/government/ private company).

LIMITATION

Result of this study cannot be generalized because of the nonprobability sampling method used to recruit the participants.

CONCLUSION

Majority of the respondents had poor knowledge about nasal decongestants. The knowledge and the usage were significantly associated with the program of study. Junior students displayed lower knowledge and higher usage of nasal decongestants as compared to their seniors.
REFERENCES


