Original Article

Self-Medication in Persistent Rhinitis: Overuse of Decongestants in Half of the Patients

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What is already known about this topic? Rhinitis is a common reason for self-medication with over-the-counter drugs. However, this self-treating population has remained largely unstudied.

What does this article add to our knowledge? Half of individuals self-medicating persistent rhinitis overused intranasal decongestants, despite the fact that they were educated about the limit on duration of use. Use of intranasal glucocorticosteroids was strongly (but inversely) related to nasal decongestant overuse.

How does this study impact current management guidelines? This study draws attention to the problem of intranasal decongestant overuse among subjects self-medicating persistent rhinitis. Our findings also suggest that patient education alone is not effective in preventing and/or managing overuse.

BACKGROUND: Patients with rhinitis often self-medicate with over-the-counter drugs, however this self-treating population has remained largely unstudied.
OBJECTIVE: To characterize individuals self-medicating persistent rhinitis and to determine the prevalence of and risk factors for intranasal decongestant overuse within this population.
METHODS: A cross-sectional observational study of individuals self-medicating persistent rhinitis (defined according to the Allergic Rhinitis and its Impact on Asthma guidelines). Participants (n = 895) completed a self-administered questionnaire to assess current symptoms, rhinitis medication, and previous physician diagnosis. Intranasal decongestant overuse was defined as daily use for at least 1 year.
RESULTS: The vast majority of subjects (95%) had moderate-to-severe rhinitis. Nasal congestion was the predominant symptom (median visual analog scale, 6.6 cm; interquartile range, 3.4 cm). Sixty-five percent had had their current nasal problems for more than 5 years. Approximately 80% had a physician diagnosis (mainly allergic rhinitis or rhinosinusitis). The prevalence of intranasal decongestant overuse was high (49%), despite the fact that most of the patients (80%) were educated about the limit on duration of use. Use of intranasal glucocorticosteroids was inversely related to being an overuser (odds ratio 0.24 [95% CI, 0.17-0.35]). The risk of intranasal decongestant overuse also was reduced by use of other medications (oral H1 antihistamines and decongestants), use of nasal saline solution, and more symptoms of itchy and/or runny eyes or colored mucus. Risk was increased by a more severely blocked nose, longer duration of symptoms, the presence of sleep disturbance, higher body mass index, and previous advice to limit the duration of intranasal decongestant use.
CONCLUSION: Half of the individuals self-medicating persistent rhinitis overused intranasal decongestants, despite the fact that they were educated about the limit on duration of use. © **2014 American Academy of Allergy, Asthma & Immunology (J Allergy Clin Immunol Pract 2014;2:313-9)**

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Rhinitis is a prevalent condition characterized by nasal congestion, rhinorrhea, sneezing, and/or itching. It is classified as allergic or nonallergic, but some types of rhinitis have both

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Abbreviations used
ARIA- Allergic Rhinitis and its Impact on Asthma
OTC- Over-the-counter
SFAR- Score For Allergic Rhinitis
VAS- Visual analog scale

allergic and nonallergic components (eg, occupational rhinitis). Although rhinitis is sometimes regarded as a trivial disease, it may significantly affect patients' quality of life and can be associated with conditions such as sleep disturbance and headache. Also, the financial burden to society is substantial.[1] Observational studies that investigated the management of rhinitis showed that patients often self-medicate with over-the-counter (OTC) drugs.[2-5] For example, in a large patient survey on intermittent allergic rhinitis in France, 44% of patients reported to self-medicate frequently.[2] Nevertheless, this self-treating population has remained largely unstudied.[6] We found only 1 article that described individuals with rhinitis who had not consulted a physician in the past 2 years, with the majority of them not using medication.[6] Thus, it is currently unclear what type of rhinitis symptoms are self-medicated, whether these symptoms were ever physician diagnosed and what type of medications are used. Furthermore, self-medication is frequently associated with risks.[7] In the case of rhinitis, the repetitive and prolonged use of intranasal decongestants is the major concern. Long-term use of intranasal decongestants is associated with rebound nasal congestion on withdrawal, which, in turn, encourages further use that can result in hypertrophy of the nasal mucosa (rhinitis medicamentosa).[8,9] Therefore, a short course of up to 7 days is recommended.[10] Other possible adverse effects include nasal burning, irritation, and dryness.[10] An article published in *The New York Times* suggests that intranasal decongestant overuse and dependence is a considerable problem in the United States.[11] Also, confessions of nasal spray addiction crop up regularly on Internet discussion forums (eg, a Google [Google Inc, Mountain View, Calif] search on "nasal spray addiction" results in 6,630,000 hits [search done on November 4, 2013]). However, accurate data on the magnitude of this problem are currently lacking.

In this article, we aimed to contribute to addressing the lack of knowledge about self-medication of rhinitis. We conducted a questionnaire-based survey among individuals who self-medicate persistent rhinitis to elucidate their rhinitis characteristics and drug utilization. In addition, we aimed to determine the prevalence of and risk factors for intranasal decongestant overuse within this population.

METHODS

Study design

This cross-sectional, observational study was carried out from February until April 2012 in 181 randomly selected community pharmacies in Belgium. We chose the community pharmacy setting for this survey because, in Belgium, the sale of OTC medicines is limited to pharmacies, which means that, by recruiting in pharmacies, we sampled from the entire population of persons with self-medication intentions. Approval for the study was granted by the ethics committees of Ghent University Hospital (for Flanders) and CHU Liege (for Wallonia), and all patients gave written informed consent.

Participants

Pharmacy customers who were purchasing OTC medication for rhinitis were approached consecutively and invited to participate in the study (OTC rhinitis products available in Belgium are intranasal and oral decongestants, intranasal and oral H1 antihistamines, intranasal anticholinergics, intranasal cromones, and nasal saline solution). They were eligible when meeting the following inclusion criteria: purchasing the rhinitis medication for themselves, being age $\geq$18 years, and having persistent rhinitis (defined as symptoms during $\geq$4 d/wk and $\geq$4 consecutive weeks, according to the Allergic Rhinitis and its Impact on Asthma guidelines[12]). It was planned to recruit 6 patients from each of the pharmacies.

Data collection

Pharmacy customers who agreed to participate filled out a self-administered questionnaire developed by the multidisciplinary research team (an otorhinolaryngologist, a pneumologist, a general practitioner, a clinical pharmacologist, and pharmacists) on the basis of literature, the team's knowledge about the topic and one of our previous studies on self-medication of headache.[13] The questionnaire was piloted, before use, by 1 community pharmacist. It collected the following information: demographics, rhinitis characteristics (onset, type and severity [assessed by using a visual analog scale, which ranged from 0, not at all bothersome, to 10 cm, extremely bothersome]), physician diagnosis of rhinitis (if available), current rhinitis medication (prescribed and nonprescribed) with frequency and duration of use ("How many days a week do you use your rhinitis medication? (a) 1 day/week or less, (b) 2-3 days/week, (c) 4-6 days/week, (d) every day"; and "How long have you been using this medication at the above mentioned frequency? (a) 6 months or less, (b) 6 months to 1 year, (c) 1 to 2 years, (d) 2 to 5 years, (e) more than 5 years"), and whether they were ever advised to limit use of intranasal decongestants. Rhinitis severity was classified as moderate or severe in those patients who reported one or more of the following: sleep disturbance; impairment of daily activities, sport, or leisure; impairment of school or work; or the presence of troublesome symptoms; and was classified as mild in those patients who reported none of these items.[12] For this study, we defined intranasal decongestant overuse as daily use of intranasal decongestants for at least 1 year (there is no standard definition of intranasal decongestant overuse available in the literature).

In addition, participants also completed the Score For Allergic Rhinitis (SFAR) questionnaire[14] and an asthma screener (the questionnaire by Venables et al[15]).[16] The SFAR is a validated screening instrument for allergic rhinitis. It questions 8 features of allergic rhinitis, which results in a total score that ranges between 0 and 16. Allergic rhinitis is suspected in patients with an SFAR score $\geq$7.[14] The asthma screener of Venables et al[15] is a validated tool, which consists of 9 questions that assess the presence of asthma symptoms (cough, wheeze, chest tightness, difficulty with breathing) during the past 4 weeks. Whether asthma is suspected depends on the number of positive responses (probably no asthma, 1-2; possible asthma, 3-4; probable asthma, $\geq$5).[15,16]

Data analysis

Descriptive statistical analysis was performed by using SPSS 20.0 (SPSS Inc, Chicago, Ill) for Windows (Microsoft Corp, Redmond, Wash). In addition, a multivariate logistic regression model was constructed to identify factors associated with being

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