

Alternative Medicine for Allergic Rhinitis

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Abstract

In this prospective study, individuals with perennial allergic rhinitis were asked about their usage of herbal remedies and natural items to treat their symptoms. Results 230 patients were enrolled in total. Overall, 37.3% of the patients reported using herbal remedies or natural items at least once. Herbal supplement consumption was more prevalent among women than males (38.3% vs. 32.4%). Stinging nettle (*Urtica dioica*), black elderberry (*Sambucus nigra*), and spirulina were the three most popular forms of herbal supplements (12.6%, 6.1%, and 5.7%, respectively). According to this study, Turkey has a significant prevalence of people using herbal remedies to alleviate their allergic rhinitis symptoms. There is discussion of the herbal products found in this study and the literature.

When Bostock first documented his own "periodical ailment of the eyes and chest," which he dubbed "summer catarrh," in 1819, the history of allergic disease began. This illness was also known as hay fever because people believed that the effluvium of fresh hay was what caused it. Later, in 1873, Blackley found that pollen was a significant factor in the development of hay fever. Today, the term "allergy" is defined as "An unfavourable physiological event mediated by a multitude of unrelated immunologic reactions." The term "allergy" will only be used to refer to IgE-dependent reactions in this review. Atopic dermatitis, allergic rhinitis, allergic asthma, and allergic conjunctivitis are the most significant clinical symptoms of IgE-dependent responses. However, the focus of this review will be allergic rhinitis. The development of oedema and plasma exudation as well as increased vascular permeability is the histological characteristics of allergic inflammation. Additionally, a series of activities that include various inflammatory cells take place. Chemotactic chemicals cause these inflammatory cells to go to the site of the injury where they trigger the healing process. The pathophysiology of allergic rhinitis has been linked to a variety of inflammatory cell types. In response to particular or general stimuli, the nose's primary effector cells-mast cells, antigen-presenting cells, and epithelial cells-as well as cells that have been recruited there-basophils, eosinophils, lymphocytes, platelets, and neutrophils-generate inflammatory mediators (secondary effector cells). The identification of each of the inflammatory cells and their mediators, which are involved in the recurring allergic reactions in patients with rhinitis, is covered in this review.

Keywords: Questionnaire; Conventional therapies; Unconventional treatments; Diagnosis; Cedar pollen; Environmental challenge chamber; Allergic rhinitis; Complementary and alternative medicine

Introduction

According to various statistics, allergic rhinitis is one of the most prevalent diseases, affecting 5-40% of the population. Depending on how frequently symptoms occur, it can be categorised as either persistent or intermittent allergic rhinitis. It has a high morbidity because it interferes with social interactions, career pursuits, and, particularly in youngsters, academic success [1].

Children frequently experience allergic rhinitis, which frequently denotes a stage of the atopic march. Despite the possibility of early children exposure to food and airborne allergens, signs of the condition typically show after the age of 3. The purpose of this study was to identify the most common food and respiratory allergens in the Piraeus area that induce allergic rhinitis in children. LPR is defined as the reflux of stomach contents into the upper aero digestive tract in the absence of heartburn and regurgitation. There are disagreements about whether to classify it as an unusual GERD presentation or as a completely distinct disease entity designated as LPR, as described in the literature. Heartburn and acidic regurgitation, which typically happen at night and while a person is supine, as well as the classic squeal that show the presence of esophagitis as determined by endoscopy or pH monitoring systems, can be used to discriminate between LPR and GERD. In contrast, determining the LPR's diagnosis is a difficult task. The diagnosis includes the overall findings of clinical examinations and interviews, as well as complex therapeutic approaches. LPR exhibits confusing symptoms such hoarseness, throat clearing, and globus

pharyngeous based on clinical history. Therefore, it is difficult to pinpoint the exact prevalence of LPR [2].

When an allergen sets off a hypersensitive immune system, allergic rhinitis, an IgE-mediated inflammation of the nasal mucosa, develops. It is seen as a complex condition brought on by gene-environment interactions. Allergy-induced inflammation is mediated by a number of inflammatory cells, cytokines, chemokines, mediators, and adhesion molecules. Inflammation caused by neurogenesis has recently been suggested as a key mechanism. As part of the complex nervous system that controls the nasal mucosa's defence and homeostasis, nociceptive, parasympathetic, and sympathetic nerves play a crucial role in the nose's ability to react quickly to physical and chemical stimuli by regulating processes such as glandular and vascular growth [3].

The degree of fluctuation of the beat-to-beat variations in cardiac rhythm is measured by heart rate variability (HRV), a noninvasive and accurate evaluation of both the heart and autonomic nerve system (ANS). Studies examining the connection between a particular disease

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and autonomic function have either used the time-domain method or the frequency-domain method in HRV analysis. However, relatively few researches have looked into how ANS may contribute to allergic rhinitis. Discovered a strong correlation between alterations to the nasal airway during postural change in normal persons and activity of the central and particularly the sympathetic nervous system that patients with allergic rhinitis had higher HRV indices which indicate a preference for the parasympathetic nervous system suggested that children with allergic rhinitis exhibit sympathetic withdrawal and parasympathetic predominance and that an autonomic imbalance may be responsible for the pathophysiology [4].

Materials and Methods

The fast Fourier transform (FFT) of the heartbeat contour was used to acquire the power spectrogram of the heartbeat. The frequency-domain measures used to quantify the power spectrum include the very-low-frequency power (VLF, 0.04 Hz), low-frequency power (LF, 0.04-0.15 Hz), high frequency power (HF, 0.15-0.40 Hz), and the ratio of LF to HF (LF/HF). The distribution's skewness was fixed by logarithmically transforming the LF, HF, and LF/HF. In general, the parasympathetic activity of the ANS was represented by the HF, whilst the sympathetic modulation was represented by the LF and LF/HF. LF was also shown as a percentage (%), which showed how much of the total power the LF component made up.

The Department of Otorhinolaryngology at the Osmangazi University Medical Faculty in Eskişehir, Turkey, conducted this study. Between January 2012 and January 2013, patients who were diagnosed with perennial allergic rhinitis were requested to provide some information regarding their usage of herbal remedies. The participants in this study were those who agreed. Allergy was determined in all patients based on their natural histories, clinical examinations, and skin prick tests. Patients were asked about their use of herbal supplements at the time of diagnosis. Subjects with seasonal allergic rhinitis and paediatric patients were excluded [5].

A comparative prospective study was conducted between March and October 2015 with 90 allergy patients of both sexes, ranging in age from 14 to 80. The primary criterion for inclusion was nasal obstruction, which was assessed using the medical history, a 10-Point Visual Analogue Scale, and a thorough ENT examination. A prick test was used to diagnose the perennial allergic rhinitis that all of the study participants had; of these, 36 patients were monosensitized to D.pt. and 54 were positive for several allergens. They were split up into the two groups at random. No patient had asthma, intolerance to acetyl-salicylic acid, or any other concomitant conditions. Nasal polyps and acute infectious rhinitis were disqualified at the time of enrolment. Additionally excluded were patients who had recently had pharmaceutical therapy with vasoconstrictors, topical corticosteroids, NSAIDs, systemic corticosteroids, or mucolytic drugs [6].

The most significant allergic pollen in our study's children was Parietaria. This Urticacea plant, a feature of Mediterranean flora, has been identified as the most often occurring allergen in Mediterranean nations, affecting both adults and children. In a study conducted in Naples by D'Amato and Lobefalo, Parietaria was identified as the most prevalent allergen in adults. In a study of adult patients in western Athens, a nearby region, this allergen was identified as the second most prevalent after Graminae, and particularly *Dactylis glomerata*. In our analysis, hypersensitivity to no pollen allergens was linked to persistent rhinitis while the majority of pollen aeroallergens were related with intermittent rhinitis. The most frequent allergens, according to our

research, are home dust mites (*Dermatophagoides pteronyssinus* and *Dermatophagoides farinae*), which are also consistent with studies from other Mediterranean nations. A high incidence of positive reactions to *Dermatophagoides pt* and *fa*, reaching 70%, was discovered. Furthermore, high mite prevalence was discovered in Lebanon. Other investigations, like the one where a 20% incidence was discovered in Turkey, indicated lower rates. In nations where keeping house pets is not a prevalent practise, positivity to dog and cat allergies is less common. Additionally, it is crucial to note that food allergy may play a significant role in the aetiology of allergic rhinitis. We only discovered two cases of egg and milk allergies, but more research into a huge number of kids' food allergies is necessary [7].

Discussion

In children, allergic rhinitis is a serious clinical issue. The Mediterranean region has distinctive climatic conditions, such as a mild winter and little summer rainfall, which encourage the growth of a specific vegetation that produces allergic pollen. As a result, rich and lengthy pollination seasons are preferred, and large air concentrations of pollen grains from different plants can result in severe clinical symptoms of asthma and rhino conjunctivitis. Between 9.4% and 16.8% of children in the Mediterranean region have allergic rhinitis, according to reports? However, more than 40% of the kids said they had previously experienced allergic rhino conjunctivitis symptoms. Grasses, Parietaria, and *Olea europaea* are the most common allergenic plants with documented clinical importance [8].

Eleven individuals with allergic rhinitis, ages 19 to 39 (7 men and 4 females), were enrolled. Based on the clinical history, the symptoms, and a positive Phadiatop test, allergic rhinitis was identified. A screening test for allergic rhinitis was the Phadiatop test, a particular IgE test for several allergens. Patients with sinusitis, nasal polyposis, a history of diabetes mellitus, hypertension, stroke, cardiovascular illness, or an autoimmune condition were also disqualified. Two weeks prior to the HRV research, the participants were not permitted to utilise any oral or topical nasal medicines. The control group consisted of 13 healthy, age- and gender-matched volunteers (5 males and 8 females), who had never before had allergic rhinitis [9].

As previously mentioned, specific HRV analysis methodologies were outlined. The individuals were told to sit still in a chair for 10 minutes so that they could become used to the air conditioning's 25°C temperature. Two electrodes were positioned on the subject's forearms to record the ECG signals for 5 minutes while they were sitting and for an additional 5 minutes while they were lying flat. Using an ECG amplifier and an 8-bit analogy-to-digital converter with a sampling rate of 256 Hz, the ECG signals were recorded in digital format. A computer technique was then used to analyse the ECG signals, identifying each QRS complex and excluding ventricular premature complexes and noise based on how likely they were to be present in a typical QRS template. To create a uniformly sampled, smooth, time-domain heartbeat contour, each R-R interval was recovered, resampled, and interpolated at a rate of 7.11 Hz [10].

Conclusion

Based on skin prick tests and RAST tests, the detection of indoor and outdoor allergens in the Piraeus region revealed a high incidence of grass and food allergens, which is comparable to other Mediterranean nations. Our findings highlight the unique qualities of the Piraeus region, which has a densely populated area and is heavily polluted by industries, the port, and heavy traffic. However, the diversity of

allergens identified from our analysis was influenced by the fact that our participants also came from the neighbouring region's nation, two nearby islands, and the rural area of Trizinia.

Acknowledgement

None

Conflict of Interest

None

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