Peertechz

MEDICAL GROUP

GLOBAL JOURNAL OF Allergy

ISSN: 2455-8141 DOI: https://dx.doi.org/10.17352/allergy

Seyed Hesamedin Nabavizadeh[1], Mozhgan Moghtaderi[2]*, Soheila Aleyasin[1], Hossein Esmaeilzadeh[1] and Mohammadmehdi Araghi[1]

[1]MD, Allergy Research Center, Department of Pediatrics, Shiraz University of Medical Sciences, Shiraz, Iran
[2]MD, Allergy Research Center, Allergy Clinic of Ali-asghar Hospital, Shiraz University of Medical Sciences, Shiraz, Iran

Received: 14 September, 2018
Accepted: 02 November, 2019
Published: 04 November, 2019

***Corresponding author:** Mozhgan Moghtaderi, Allergy Research Center, Shiraz University of Medical Sciences, Shiraz, Iran, E-mail: moghtadery@sums.ac.ir

Keywords: Skin prick test; Saffron; Sumac; Barberry

https://www.peertechz.com

Check for updates

Research Article

The skin prick test results to saffron, sumac and barberry in patients with atopy

Abstract

Background: Food allergens appear to play a role in the etiology and deteriorating of atopy in some patients, little is known about hypersensitivity to some common food additives in these patients. The purpose of this study was to identify probable sensitization to saffron, sumac and barberry in patients with atopy.

Materials and Methods: This cross- sectional study included 390 patients with atopy and 300 healthy individuals with no history of atopic diseases. Skin tests were performed in both patient and control group with saffron, sumac and barberry.

Results: A positive skin test to saffron was seen in 61 (15.6%), to sumac in 29 (7.4%) and to barberry in 36 (9.2%) patients with atopy. None of individuals in control group showed sensitization to three studied extracts.

Conclusion: The results of the present study revealed sensitization to saffron, sumac and barberry in patients with atopy. A further research with food challenges is required to confirm food allergy in those patients with sensitization to saffron, sumac and barberry.

Introduction

Allergens are primarily proteins, capable of stimulating IgE synthesis in genetically susceptible people. They enter to human body by inhalation, contact and ingestion. These allergens may induce allergic diseases such as asthma, Allergic Rhinitis (AR) and Atopic Dermatitis (AD). Ingested allergens are thought to play an important role in the development and worsening the clinical symptoms in patients with atopy [1-3].

Saffron (Crocus sativus) is a kind of cooking spice that cultivated in some parts of Iran and near the studied area. It's now an essential part of some Eastern, Middle Eastern, and European dishes. It is expensive because only a small amount of each saffron flower is used and all harvesting must be done by hand. Clinical allergic symptoms to saffron are reported in eye, nose and respiratory system through an IgE-dependent mechanism [4,5].

Sumac (Rhus coriaria) in form of dried and powdered fruits is widely used in Asian countries. It is essential ingredient in Middle Eastern cooking. Sumac has been served as acidic taste in cooking prior to the introduction of lemons by the Romans. The reactions to sumac present as dermatitis in children and occupational disease [6,7].

Barberry (Berberis vulgaris) as a sharp acid flavor is used the most is Iran. Berberis vulgaris grows in the wild in much of Europe and West Asia. They are used in jams, a common flavoring for soft drinks and Persian rice with sugar. This plant is considered mostly allergy free and causes little or no allergy problems in people [8].

Skin prick test (SPT) is a primary test for the diagnosis of IgE-mediated food allergy and it is safe, inexpensive, informative, and easy to perform [9].

A number of patients with atopy describe clinical allergic symptoms after ingestion of some ingredients of foods. This study was designed to investigate how much saffron, sumac, and barberry may elicit positive skin test in patients with atopy in compared with control group.

Methods and Materials

This cross-sectional study was performed on 390 patients with atopy and 300 individuals without atopy from June to

Citation: Nabavizadeh SH, Moghtaderi M, Aleyasin S, Esmaeilzadeh H, Araghi M (2019) The skin prick test results to saffron, sumac and barberry in patients with atopy. Glob J Allergy 5(1): 001-003. DOI: https://dx.doi.org/10.17352/2455-8141.000022

November 2016. All the patients were from southwestern Iran who was regularly referred to an allergy clinic at Namazee Hospital affiliated to Shiraz University of Medical Sciences, Iran. The diagnosis of asthma was based on the Expert Panel Report 3, AR according to allergic rhinitis and its impact on asthma and AD based on the criteria of Hanifin and Rajka in order with the supervision of allergist [10-12]. Clear, watery discharge and itching in the eyes were considered allergic conjunctivitis and the timeline of 6 weeks of daily or nearly daily urticaria was considered as chronic urticaria [13,14].

The study protocol was approved by the Ethics Committee of Shiraz University of Medical Sciences (93-8302), and informed consent was obtained from patients and control individuals after the study was described in detail.

Demographic data including sex, age and type of atopy (allergic rhinitis, asthma, chronic urticaria, allergic conjunctivitis) were collected. Preparation of extract of saffron, sumac and barberry was done based on modified method of Kwaasi, et al., [15,16]. SPT were performed on the forearms using manufactured extracts of saffron, sumac and barberry and the results were measured 15 minutes after application. The tests were considered positive sensitization when wheal diameter was ≥ 3 mm greater in diameter than the negative control in response to the extract after 15 min application. Histamine (10 mg/mL) and saline were used as positive and negative controls, respectively. Antihistamine medications were stopped 7 days before the skin prick tests in all individuals.

Results and Discussion

Three hundred and ninety patients (233 females and 157 males) with atopy ranging in age from 10 to 50 years (mean age 30.63±10.72) were enrolled in the study. Three hundred individuals (205 female and 95 male) ranging in age between 15 and 52 years (mean age 31.27±10.22) were included as control group. There were no significant differences for sex and age between the two groups.

A positive skin test to saffron was seen in 61 (15.6%), to sumac in 29 (7.4%) and to barberry in 36 (9.2%) patients with atopy. None of individuals in control group showed sensitization to three studied extracts. There was no relationship between sensitization to extract of each saffron, sumac and barberry with age and sex in these patients.

Positive sensitization to saffron extract reported 12.5% (21/167) in saffron workers of Khorasan (Iran), this rate is near similar to our patients with atopy [5]. An earlier study showed sensitization to saffron in Spanish saffron workers 6% and in atopic patients 4.2% [17]. Saffron is commonly grown in Spain similar to Iran for commercial purposes; sensitization is higher in Iranian than Spanish patients. There is no sufficient data for comparison of sensitization rate to sumac and barberry in patients with atopy in the literature.

Table 1 shows type of atopy and the number of patients with positive sensitization to saffron, sumac and barberry.

Positive sensitization to three studied allergen was 27.3% (32/117) in patients with allergic rhinitis, 28.1% (43/153) in asthmatic patients and 55.8% (24/43) in individuals with asthma& allergic rhinitis. Having both asthma and allergic rhinitis show severity of atopy, therefore, it causes more chance for sensitization to allergens.

Table 1: The rate of positive sensitization to saffron, sumac and barberry in patients with atopy .

Atopic disease	number (%)	Positive to saffron	Positive to sumac	Positive to barberry
			number	
Allergic rhinitis	117(30.1)	15	8	9
Asthma	153(39.2)	22	8	13
Chronic urticaria	73(18.7)	12	6	6
Allergic conjunctivitis	4(1)	2	1	0
Asthma& Allergic rhinitis	43(11)	10	6	8
Total	390(100)	61	29	36

From 73 patients with chronic urticaria 32.8% (24/73) showed sensitization to studied food allergens. Contrast our result; Rajan JP, et al., study reported food additives are a rare cause for chronic urticaria by doing double-blind placebo-controlled food challenge. [18].

We had 4 patients with allergic conjunctivitis, 2 had positive reaction to saffron and one to sumac. It is better considering SPT to studied food allergens in those patients with allergic conjunctivitis, although the number of our patients was small.

Positive skin test is not enough to confirm the presence of allergic disease, however; it shows allergic sensitization which may predict the subsequent onset of allergic symptoms. It is noticeable that cross-reactivity with other allergens may elicit positive skin test in individuals with no clinical symptoms.

The results of the present study revealed sensitization to saffron, sumac and barberry in patients with atopy. Food challenges are considered the gold accurate standard method for diagnosing food allergy; however, this procedure requires cooperation of the patient and preparation of the office for the challenge. The major limitation of this study is need to food challenge for establishing allergy to saffron, sumac and barberry.

Authors' contributions

All authors contributed to this project and article equally. All authors read and approved the final manuscript.

References

1. Kelso JM (2014) Potential food allergens in medications. J Allergy Clin Immunol 133: 1509-1518. Link: http://bit.ly/2qbGkjw

2. Moghtaderi M, Hejrati Z, Dehghani Z, Dehghani F, Kolahi N (2016) Sensitization to Food Additives in Patients with Allergy: A Study Based on Skin Test and Open Oral Challenge. Iran J Allergy Asthma Immunol 15: 198-203. Link: http://bit.ly/2WBvEXJ

3. Gonzales-González VA, Díaz AM, Fernández K, Rivera MF (2018) Prevalence of food allergens sensitization and food allergies in a group of allergic Honduran children. Allergy Asthma Clin Immunol 14: 23. Link: http://bit.ly/2Nc3zTL

Citation: Nabavizadeh SH, Moghtaderi M, Aleyasin S, Esmaeilzadeh H, Araghi M (2019) The skin prick test results to saffron, sumac and barberry in patients with atopy. Glob J Allergy 5(1): 001-003. DOI: https://dx.doi.org/10.17352/2455-8141.000022

4. Moshiri M, Vahabzadeh M, Hosseinzadeh H (2015) Clinical Applications of Saffron (Crocus sativus) and its Constituents: A Review. Drug Res 65: 287-295. Link: http://bit.ly/2N87ZuD

5. Fereydouni M, Sankian M, Varasteh AR (2002) The prevalence of saffron pollen allergy in saffron workers of Khorasan (Iran) 12: 7-13. Link: http://bit.ly/2N6ONxu

6. Wang S, Zhu F (2018) Quality attributes of bread fortified with staghorn sumac extract. J Texture Stud 49: 129-134. Link: http://bit.ly/32agOIA

7. Rayne S, Mazza G (2007) Biological activities of extracts from sumac (Rhus spp): A review. Plant Foods Hum Nutr 62: 165-175. Link: http://bit.ly/36B1usa

8. Kukula-Koch W, Aligiannis N, Halabalaki M, Skaltsounis AL, Glowniak K, et al. (2013) Influence of extraction procedures on phenolic content and antioxidant activity of Cretan barberry herb. Food Chem 138: 406-413. Link: http://bit.ly/2NaMdGJ

9. Carr TF, Saltoun CA (2012) Chapter 2: Skin testing in allergy. Allergy Asthma Proc 33: S6-S8. Link: Link: http://bit.ly/33bCGoy

10. National Asthma Education and Prevention Program (2007) Expert panel report 3 (EPR-3): Guidelines for the diagnosis and management of asthma-summary report 2007. J Allergy Clin Immunol 120: S94-S138. Link: http://bit.ly/2PFEDFy

11. Bousquet J, Schunemann H, Fonseca J, Samolinski B, Bachert C, et al. (2015) MACVIA-ARIA Sentinel NetworK for allergic rhinitis (MASK-rhinitis): The new generation guideline implementation. Allergy 70: 1372-1392. Link: http://bit.ly/2oDRRaR

12. Hanifin JM, Rajka G (1980) Diagnostic features of atopic dermatitis. Acta Derm Venereol 92: 44-47. Link: http://bit.ly/36B2sEO

13. Baab S, Kinzer EE (2018) Allergic Conjunctivitis. StatPearls [Internet]. Treasure Island (FL): Stat Pearls Publishing.

14. Godse KV, Zawar V, Krupashankar D, Girdhar M, Kandhari S, et al. (2011) Consensus statement on the management of urticaria. Indian J Dermatol 56: 485-489. Link: http://bit.ly/2r3PzTf

15. Kwaasi AA, Parhar RS, Harfi H, Tipirneni P, al-Sedairy ST (1992) Characterization of antigens and allergens of date palm (Pheonix dactylifera) pollen. Immunologic assessment of atopic patients by whole extract and its fractions [corrected]. Allergy 47: 535-544. Link: http://bit.ly/2pyCj8Q

16. Varasteh AR, Vahedi F, Sankian M, Kaghazian H, Tavallaie S, et al. (2007) Specific IgG antibodies (total and subclasses) against Saffron pollen: a study of their correlation with specific IgE and immediate skin reactions. Iran J Allergy Asthma Immunol 6: 189-195. Link: Link: http://bit.ly/2PLHH2W

17. Feo F, Martinez J, Martinez A, Galindo PA, Cruz A, et al. (1997) Occupational allergy in saffron workers. Allergy 52: 633-641. Link: http://bit.ly/2WAbA7N

18. Rajan JP, Simon RA, Bosso JV (2014) Prevalence of sensitivity to food and drug additives in patients with chronic idiopathic urticaria. J Allergy Clin Immunol Pract 2: 168-171. Link: http://bit.ly/32aiFgw

Citation: Nabavizadeh SH, Moghtaderi M, Aleyasin S, Esmaeilzadeh H, Araghi M (2019) The skin prick test results to saffron, sumac and barberry in patients with atopy. Glob J Allergy 5(1): 001-003. DOI: https://dx.doi.org/10.17352/2455-8141.000022