

Prevalence of Allergy to Latex Gloves among Dental Practitioners and its Association with Other Materials

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ABSTRACT

Statement of the problem: Dental gloves are worn to protect dental care providers from contamination during contact with mucus membranes, blood and saliva. The prevalence of latex allergy has progressively increased due to the widespread use of protective disposable wears, especially latex gloves, among health care workers (HCW) in the past decade. The prevalence of latex allergy among HCW of Iran is not clear. On the other hand, the rate of sensitivity of sensitive dentists to other allergens is unknown.

Purpose: The aim of this study was to evaluate prevalence of latex allergy among a selected population of Iranian dentists and its association with allergy to other dental materials.

Materials and methods: A total of 140 dentists who worked in the clinics and offices were evaluated in this cross-sectional/descriptive study. The dentists were asked to fill out a questionnaire concerning the allergy history. Fisher's exact test was used for testing the relation of variables. The Microsoft Excel and SPSS for Windows 16.0 were used for data analysis.

Results: Based on questionnaires, 45 dentists (33.8%) had hypersensitivity to latex gloves. Hypersensitive dentists to latex gloves were also hypersensitive to non-powdered gloves, temporary crowns and impression materials. Regarding other materials, there was no significant difference between the two groups.

Conclusion: It is recommended that the subjects who are susceptible to latex allergy based on the questionnaire be referred for skin tests.

Keywords: Hypersensitivity, dentists, Latex Hypersensitivity, Surgical Gloves.

INTRODUCTION

Latex hypersensitivity in dental patients

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and practitioners has significantly increased since the introduction of universal precautions for infection control over the past 20 years.⁽¹⁾ The frequent exposure to rubber products and latex-containing devices seems to be a major risk factor for

the development of latex allergy. According to several reports, the prevalence of latex allergy in the general population is less than 1%, whereas in HCW it ranges from 2.8% to 10.7 %.⁽²⁾ The number of people with allergy to natural rubber latex has increased significantly in recent years. The ubiquitous use of latex gloves and other latex products in healthcare has resulted in a parallel increase in latex-associated adverse reactions.⁽³⁾

Studies indicate that over 50% of individuals who are sensitive to latex have a history of some type of atopic illness. It has been shown that among atopic health care workers, one in four has a positive skin prick test to latex. Since only 50% of these individuals are clinically symptomatic, the clinical implications for the other 50% remain uncertain. The risk factors include previous history of atopy, eczema and longer exposure to latex gloves.⁽⁴⁾ It is strange that fruits such as banana, chestnuts, kiwi fruit, avocado and tomato have exhibited cross-reactivity, perhaps because of resemblance to the latex protein components. These have been responsible for anaphylactic reactions in latex sensitive individuals.⁽⁵⁾

Persons with the history of reactions to these foods are at an increased risk of developing latex allergy, and those who are sensitive to latex should avoid these foods, to which they have had previous reaction.

In Iran, latex gloves are predominantly used among dentists. The prevalence of latex

allergy among HCW is not clear; on the other hand, the rate of sensitivity of sensitive dentists to other allergens is not clear. Therefore, the present study was undertaken to identify prevalence of latex allergy and its relationship with other allergens in a selected population of dentists in Iran. The findings of this study were compared with those of other studies performed in different countries.

MATERIALS AND METHODS

A total of 140 healthy dentists without any systemic disease and history of drug use who worked in clinics and offices were evaluated in this cross-sectional/descriptive study. Dentists used both sterile and non-sterile disposable latex examination gloves and had at least 3 months of dental practice and frequent and routine use of latex gloves were examined.

A questionnaire concerning demographic details such as age, sex, duration of clinical practice, personal atopy history (respiratory allergy, atopic dermatitis), allergy to vegetables (such as potatoes, tomatoes, chestnuts, banana and kiwi fruit), latex product allergy and symptoms like dermatitis, angioedema of lips or tongue, urticaria, respiratory problems and seasonal allergy, allergy, geographic tongue, allergy to different dental material and systemic drugs were recorded. Fisher's exact test was used for testing the relation of variables. The Microsoft Excel and SPSS for Windows 16.0 (Statistical Package for

the Social Sciences, Chicago, and IL) was used for data analysis.

RESULTS

One hundred and forty dentists were asked to fill out the questionnaires; 133 questionnaires were returned. There were

92 males and 41 females. Based on the questionnaires, 45 dentists (33.8%) had hypersensitivity to latex gloves. Table 1 presents the demographic data of hypersensitive dentists and dentist without hypersensitivity.

Table 1: Comparison of demographic data between the two groups

Demographic data	Hypersensitive	Others
Age	35	38
Sex	28 males, 17 females	64 males, 24 females
Years in clinical practice	9.28	8.83

The clinical manifestations of the two groups are compared in Figure 1.

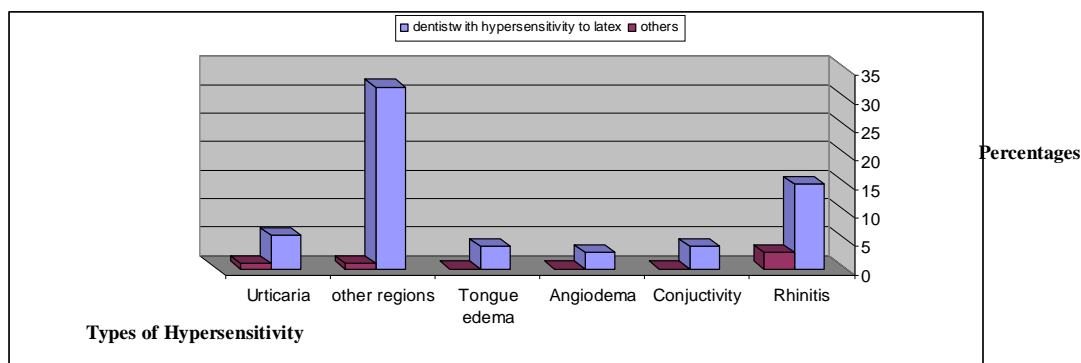


Figure 1. Comparison of clinical symptoms between the two groups.

In addition, the history of other allergies, including food allergies, dental material allergy, seasonal allergy and allergy to drugs were taken. Figure 2 compares the

history of other allergies between hypersensitive and non-hypersensitive dentists.

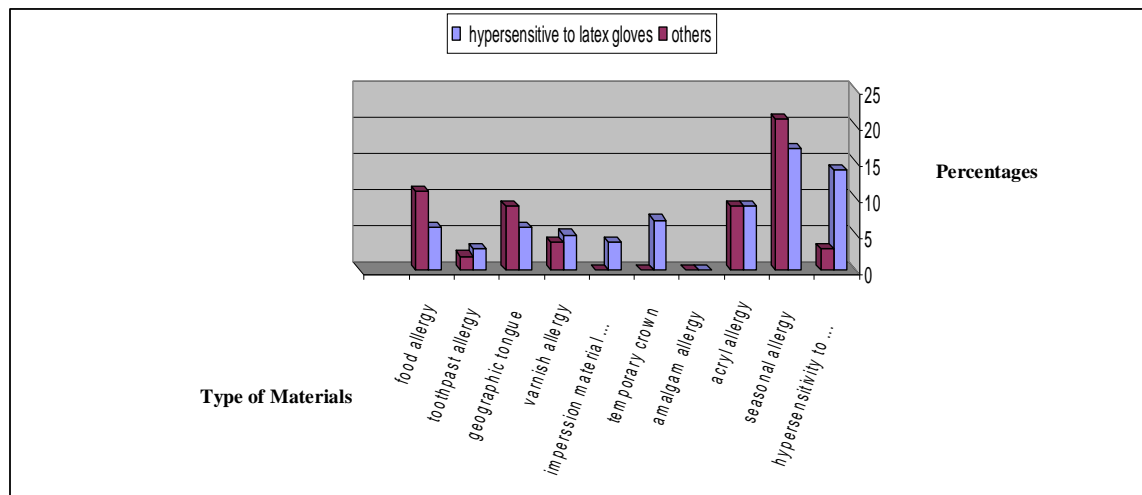


Figure 2: The history of allergy between the two groups.

Dentists hypersensitive to latex gloves were also hypersensitive to non-powdered gloves, temporary crowns and impression

DISCUSSION

Allergy to latex gloves is a major occupational problem among health care workers, especially dentists because of the frequent use of latex gloves. ⁽⁶⁾ In the present study, a total of 45 subjects (33.8%) reported latex glove allergic symptoms.

The prevalence of latex hypersensitivity was 8–30% among health care workers in a study by Stents et al. ⁽⁷⁾ The rate was 28–10.7% in health care workers screened with SPT. ⁽⁸⁾ The higher rate of hypersensitivity in this study might be due to the use of a questionnaire. In the present study the questionnaire was used for evaluation of latex allergy. The results of a study by Katelaris ⁽⁹⁾ demonstrated that questionnaires can be used as a screening tool for evaluation of latex allergy. Kibby et

materials. In relation to other materials, there were no significant differences between the two groups.

al ⁽¹⁰⁾ reported that 16.3% of the studied population had systemic symptoms associated with hypersensitivity to latex gloves.

There was no correlation between sex and rate of latex allergy, which is not consistent with the results of a study by Evongleston et al, ⁽¹¹⁾ in which the females were more hypersensitive to latex. In that study 75% of subjects with hypersensitivity to latex gloves were female. The difference might be attributed to fewer numbers of females participating in this study. The relationship between latex allergy and allergy to other materials was evaluated. There was a relationship between latex allergy and allergy to temporary crown materials and impression materials, especially alginate. There is no study available, evaluating this

relationship. The symptoms of allergy to latex ranged from skin manifestations to systemic reactions. In a study carried out by Turjanms et al,⁽¹²⁾ hand eczema was found in 67% of hospital employees with latex allergy.

In another study the combination of skin symptoms and rhinitis and conjunctivitis was the most common symptom of latex allergy, which is consistent with the results of the present study.⁽⁹⁾

The mean duration of latex glove wear of subjects with allergy to latex was not different from other subjects. Some studies have found that individuals with a history of reactions to some foods are at increased risk of developing latex allergy, and those who are hypersensitive to latex should avoid foods to which they have had reactions in the past. This relation was not established in this study.

This study had its limitations. In the present study, the questionnaire was used for evaluation. It is recommended that the subjects susceptible to latex allergy based on the questionnaire be referred for skin tests. New herbal medicines such as lauric acid has been studied in the presence of antimicrobial that it is recommended that further studies should be considered in the presence of allergies.⁽¹³⁾

Based on the findings of this study and the results previous studies, it is recommended that gloves with better quality be used.⁽⁹⁾ In addition, the emergency kits for management of dentists with probable

hypersensitivity to latex gloves should be available in all dental offices.

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