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SHORT COMMUNICATION

Prevalence of Latex Sensitization in Healthy Blood Donors in Izmir, Turkey

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SUMMARY **Although latex is a common allergen, the prevalence of natural rubber latex allergy in the general population in Turkey is unknown. The aim of this study was to assess the prevalence of sensitization to natural rubber latex in a population of healthy blood donors. As skin prick testing of a sample of the general population was not feasible, the subgroup of adult healthy blood donors was chosen instead. Skin testing with commercially available reagents (Stallergenes) was performed on 952 volunteers attending the Blood Centre of the Social Security Hospital in Izmir, Turkey in 2001. The study population completed a questionnaire involving history of personal allergy and symptoms. In 20 blood donors (2.1%) the latex skin prick test (SPT) was positive. No relationship by age or gender was found. There was no relationship between previous allergic symptoms and SPT positivitiy to latex except for the systemic reaction related to any allergen (deep wheezing or any difficulty breathing, nausea, vomiting, palpitations, faintness or edema). The prevalence of SPT positivity to natural rubber latex was 2.1% in a Turkish blood donor group, which can be related to the latex sensitivity within the general Turkish population.**

Latex is a natural substance used in the manufacture of thousands of products. Natural latex, a form of rubber, is a polymer of 1,3-*cis*-polyisoprene derived from plants. Protein antigens combined with the polymer can sensitize humans, leading to immediate hypersensitivity. Although the *Hevea brasiliensis* tree is the main source of latex rubber, other trees, shrubs and vines may yield a similar product, and if used together, may add additional antigens.[1] Natural rubber latex allergy is characterized by a specific set of symptoms, including all classic IgE-mediated manifestations of allergic disease.

The study of Saxon and colleagues[2] on the prevalence of IgE to natural rubber latex proteins in the general population remains unsettled due to the difficulty and the cost of obtaining an unbiased cohort representative of the general population. There is inconsistency across studies about the prevalence of latex sensitization in general population groups, including methodological problems, different evaluations performed (serological *vs* skin tests), lack of standardized skin tests, and the possibility of work exposure in some studies. Moreover, the clinical significance of a positive SPT or serology (symptoms or diseases attributable to the sensitization) has not been assessed.[3]

Although latex is a common allergen, prevalence of natural rubber latex allergy in the general population is unknown in Turkey. Data from the relevant literature indicate that the prevalence of latex allergy in Turkish health care workers was 9.3-9.8%.[4,5] This study aims at assessing the prevalence of sensitization to natural rubber latex in a population of healthy blood donors.

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SUBJECTS AND METHODS

Latex skin test is a cheap and simple method that can be carried out easily, and can evaluate latex allergy accurately. As skin prick testing (SPT) of a sample of the general population was not feasible. The subgroup of adult healthy blood donors was chosen instead. The study population consisted of 952 volunteer blood donors attending the Blood Centre of the Social Security Hospital in Izmir, Turkey in 2001. he study population was interviewed by three doctors. The interview comprised questions related to the demography and history of personal allergic and atopic symptoms, such as eczema and allergic rhinoconjunctivitis.

Skin testing was performed on 952 volunteers using a commercially available latex skin test reagent (Stallergens Laboratories, Paris). Histamine (10 mg/ml) and physiological saline were used as positive and negative control, respectively. Skin prick tests were performed on the volar aspect of the forearm, using disposable 27-gauge needles, and the results were evaluated 15 minutes later. None of the subjects who had a skin prick tests took any antihistamine therapy during the week preceding the test. All skin tests were performed by the same doctor. Skin prick test responses were considered positive when the reaction was greater than 50% of that induced by the histamine control.

Data analysis was performed using the SPSS 10.0 computer program. Groups were compared on latex skin prick tests positivity using chi-square test.

RESULTS

The study group consisted of 97% men and 3% women, with a mean age of 34.1 years (range 18-65). Latex skin prick tests were positive in 20 blood donors (prevalence in females 6.9% and in males 2.0%). The distribution of the subjects' characteristics by latex allergy can be seen in Table 1. The percentage of the people 25-44 years of age with a positive SPT were higher than other age groups. However, no statistically relevant relationship by age or gender was found ($p > 0.05$). There was no relevant relationship between the history of allergic symptoms and SPT positivity to latex, except for the systemic reaction to any allergen ($p > 0.05$).

Table 1 Demographic data of the latex allergic individuals (N = 952)

Characteristics	% Positive (N = 20)	% Negative (N = 932)
Gender		
Male	2.0	98.2
Female	6.9	93.1
Age (years)		
15-24	1.6	98.4
25-34	2.0	98.0
35-44	2.7	97.3
45-54	1.6	98.4
> 55	100.0	0.0
History of latex exposure	100.0	91.3
Current smoker	50.0	43.3
History of allergic symptoms		
Asthma	-	-
Night cough	-	-
Rhinoconjunctivitis	88.9	11.1
Dermatitis	95.5	4.5
Urticaria	-	0.3
Systemic reaction*	5.0	0.4

*$p < 0.05$

DISCUSSION

The prevalence of skin prick tests positivity to natural rubber latex was 2.1% in a Turkish blood donor group. This result was only from a particular group which may not be a representative of the general population. In Turkey, however, blood donors are generally male because of culturally behavior and medical reasons. Abortion and high fertility and consequently anemia among females are common in Turkey.

Merret *et al.*[6] tested 1,436 adult blood donors in the United Kingdom and found that between 4.1 and 7.9% had latex-specific IgE. Ownby *et al.*[7] measured anti-latex IgE antibodies in residual serum

samples from 1,000 volunteer Red Cross blood donors in Michigan using the AlaSTAT assay. They found that 6.4% of the samples were confirmed as repeatedly positive for anti-latex IgE. The prevalence of positive samples was not related to age, race or gender. Porri *et al.*[8] found that some 6.6% of his study group had either a positive skin test or a positive RAST to latex in France. In 1997, the prevalence of IgE to natural rubber latex in consecutive blood samples obtained from 3 laboratories in Oklahoma varied from 5.4% to 7.6%.[2]

Senna *et al.* found that, out of the 1,025 blood donors, only 3.5% had latex specific Ig E.[9] Some people are more at risk of having latex allergy than the others. If the diagnosis has been established, they should wear a medical alert bracelet to avoid inadvertent exposure during medical emergencies. They should be informed about latex allergy for their care and prevention from sensitization.

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