Latex allergy in a high risk group

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Recent reports have demonstrated that latex may serve as a potent allergic sensitizer to both patients and healthcare workers. The aim of our study is to investigate type-I latex hypersensitivity in healthcare workers in our hospital. One-hundred health care workers participated in the study (32 surgeons, 12 anesthesiologs, 44 nurses and 12 surgical technicians) and 50 healthy blood donors constituted the control group. Latex allergy history, skin prick test (SPT) and latex specific IgE levels were measured. Eighteen subjects (18 %) had latex allergy history as contact urticaria in 14, rhinoconjunctivitis in 4 subjects. Serologic testing confirmed the suspected diagnosis in 2 % (2 surgeons with allergy history). The SPT reactions were greater than 5 mm in 5 % of subjects (surgeons and 2 nurses with allergy history). Neither SPT nor specific IgE was positive in the subjects without allergy history. In control group, both SPT and specific IgE were positive in 2 of 50 subjects without any allergy history. It is concluded that, in health care workers, history, SPT and specific IgE determination must be evaluated together for the diagnosis of latex allergy. [Turk J Med Res 1996; 14(3): 114-116]

Keywords: Latex o Allergy, Skin prick test, IgE

Latex-containing products pose a hazard to individuals who are allergic to residual rubber tree latex proteins. Allergic reactions range from contact urticaria to anaphylaxis causing death (1-5). Studies have established a high prevalence of latex allergy among certain risk groups (6-9). Children with spina bifida demonstrate a 28 % to 67 % prevalence of latex sensitization (10). The other major group at risk of latex allergy are regularly exposed health care workers (6-9). Recent studies indicate that up to 14 % in health care workers are affected. Latex sensitization of nearly 10% has been reported in atopic individuals undergoing routine aerollargen skin testing (11). The aim of our study is to investigate Type-1 Latex hypersensitivity in a group of high risk health care workers in our hospital.

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MATERIALS AND METHODS

Onehundred subjects paticipated in the study (32 surgeons, 12 anesthesiologists, 44 nurses and 12 surgical technicians). Fifty healthy blood donors constituted the control group. Study participants were screened by questionnaire. This questionnaire identified cutaneous, ocular and upper or lower respiratory symptoms that could possibly represent latex allergy. It also identified a positive family history of atopy. Skin tests were done to every subject by the prick through drop method. On the forearm using a 25-gauge needle and read at 15 minutes. Positive skin test were greater than 3-mm. wheal and flare reactions. Skin test reagents included latex antigen, 1/1000 histamine as positive control and negative control (Stallergens lab.). Specific latex IgE levels were measured by ELISA and calculated following the manufacturer's recommendations (DPC, diagnostic kits, USA.). A result of > Class II out of IV was considered as positive.

RESULTS

The results of subjects and control groups are shown in Table 1. Eighteen subjects (18%) had latex allergy

Table **1.** Results of subjects and control group

	Subjects	(%)	Control	(%)
Total number	100		50	
History of latex allergy	18	(18)	-	
Positive skin test	5	(5)	2	(4)
Specific IgE	2	(2)	2	(4)

history as contact urticaria in 14, rhinoconjunctivitis in 4 subjects. The skin prick test reactions were greater than 3 mm in 5 % of the subjects (3 surgeons and nurses with allergy history. One of the surgeons has rhinitis symptoms in operation room, and the other two surgeons and nurses have contact urticaria history). Latex specific IgE was positive in 2% (2 surgeons with contact urticaria history, whose latex specific IgE results were also positive). Latex specific IgE positivity rate in history positivite subjects was 11.1% (2 of 18). Neither skin prick test nor specific IgE was positive in the subjects without allergy history. In control group, both skin prick test and latex specific IgE were positive in 2 of 50 subjects without any allergy history.

DISCUSSION

The incidence of latex allergy is expected to rise with the increasing worlwide use of latex gloves and other latex containing items (12). More than 1000 reactions to medical devices containing natural rubber latex gloves, characterized as at least "serious" have been reported to the United States Food and Drug administration (FDA) as of April 1992. The FDA is also aware of at least 15 deaths that have resulted from severe reactions to natural rubber latex (13). Several studies conducted on hospital personnel have shown a 5 to 10 % of latex sensitization (14).

In our study group although 18% of subjects have some subjective allergy history to latex gloves, only 2% of them were confirmed with serum specific IgE and skin prick test. Three subjects with positive skin prick test but negative spesific IgE have also allergy history. For health care workers with a history of latex allergy, immunoassay results have ranged from 0% to 57% positive in earlier studies (15,16). Our observation showed a lower rate of seropositive in latex allergy history positive subjects as 11.1%, which is similar to previous studies. According to Birnbaum et al (17), to identify latex allergic subjects, skin test to latex has to be performed because symptoms have a low positive predictive value for true latex sensitization.

In our control group, although none of the subjects have latex containing material allergy history, in 4 % of them both skin prick test and latex specific IgE were positive. The prevalence of latex allergy in the general population is believed to be less than 1% (6), but in our study the prevalence was 4% in control group, without any allergy history.

The only present treatment in symptomatic latex allergic patients is avoidance. Hospital staff who regularly use latex gloves should be screened for latex allergy. Individuals with positive skin tests or specific IgE to latex should use only nonlatex gloves in their work (5).

We conclude that, in health care workers; history, skin prick test and specific IgE determination must be evaluated together for diagnosis of latex allergy. Only allergy history or only laboratory investigation is inadequate for the diagnosis of tree latex allergy.

Yüksek risk grubunda lateks allerjisi

Son zamanlardaki raporlar, hem hastalarda hem de sağlık personelinde lateksin potansiyel bir allerjik duyarlaştıncı gibi görev yapabileceğini göstermiştir. Çalışmamızın amacı, hastanemizdeki sağlık personelinde tip-1 lateks hipersensivitesini araştırmaktır. Çalışmaya 50 sağlıklı kan vericisi, 100 sağlık personeli (32 cerrah, 12 anestezist, 44 hemşire ve 12 cerrahi teknisyeni) alındı. Lateks allerji hikayesi alındı. Deri prik testi yapıldı ve lateks spesifik IgE ölçüldü. Onsekiz bireyde (%18) lateks allerji öyküsü vardı (44 kişide ürtiker, 4 kişide de rinokonjoktivit). Yüzde 2 (allerji hikayesi alan iki cerrah) birey de de serolojik test yapma şüpheli tanıyı doğruladı. Deri prik testi bireylerin %5'inde 5 mm'den büyüktü (cerrahlar ve allerji hikayesi olan 2 hemşire). Allerji hikayesi olmayan bireylerde ne deri prik testi ne de spesifik IgE pozitifti. Allerji hikayesi olmayan kontrol grubundaki 50 bireyin 2 tanesinde deri prik testi ve spesifik IgE pozitifti. Sonuç olarak, sağlık personelinde lateks allerji teşhisini koymak için hikaye, deri prik testi ve spesifik IgE birlikte değerlendirilmelidir. [Türk J Med Res 1996, 14(3): 114-116]

REFERENCES

1. Wrangsjo K, Mellstrom G, Axelsson JGK. Discomfort from rubber gloves indicating contact urticaria. Contact Dermatitis 1986; 15:79-84.
2. Sussman GL, Tarlo SM, Dolovich J. The spectrum of IgE-mediated responses to latex. JAMA 1991; 265:2644-7.

3. Spanner D, Sussman GL, Tarlo SM et al. Latex allergy two case reports (abstract) J Allergy Clin Immunol 1988;U1:179.

4. Slater JE. Ruber anaphylaxis. N Engl J Med. 1989; 320: 1126-30.

5. Sussman GL, Lem D, Liss G, et al. Latex allergy in housekeeping personnel. Annal Allergy, Asthma Immunol 1995; 74: 415-8.

6. Turjanmaa K. Incidence of immediate allergy to latex gloves in hospital personnel. Contact Dermatol 1987; 17: 270-5.

7. Charpin D, Lagier F, Lhermet I, et al. Prevalence of latex allergy in nurses working in operating rooms (abstract) J Allergy Clin Immunol 1991; 87: 269.

8. Arellano R, Bradley J, Sussman GL. Prevalance of latex sensitization among hospital physicians occupational^ exposed to latex gloves. Anesthesiology 1992; 77:905-8.

9. Kellu KJ, Kurup VP, Reijula KF, et al. The diagnosis of natural rubber latex allergy. J Allergy Clin Immunol 1193; 93: 813-6.

10. Yassin MS, Sanyurah S, Lierl MB, et al. Evaluation of latex allergy in patients with meningomyeloce. Ann Allergy 1992; 69: 207-24.

11. Williams PB, Buhr MP, ,'eber RW, et al. Latex allergen in respirable particular air pollution. J Allergy Clin Immunol 1995; 95:88-95.

12. Alenius H, Kiljunen SM, Turjanmaa K, et al. Allergen and protein content of latex gloves. Annal Allergy 1994; 73: 315-20.

13. Charous BL, Hamilton RG, Yunginger JW. Occupational latex exposure: Characteristics of contact and systemic reactions in 47 workers. J Allergy Clin Immunl 1994; 94: 12-8.

14. Slater JE. Latex allergy. (Continuing medical education). J Allergy Clin Immunol 1994; 94 (2): 139-49.

15. Lagier F, Vervloet D, Lhermet I, et al. Latex allergy in nurses. J Allergy Clin Immunol 1992; 90 (30:1): 319-22.

16. Fuchs T, Wahl R. Immediate reactions to rubber products. Allergy Proc 1992; 13(2): 61-6.

17. Birnbaum J, Porti F, Pradal M, et al. Allergy during anaesthesia (Review). Clin Exp Allergy 1994; 24: 915-21.