

THE PREVALENCE OF LATEX GLOVES-RELATED COMPLAINTS AMONG DENTAL STUDENTS

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ABSTRACT:

Latex gloves are a frequent cause of complaints in dental staff, which complaints may start during the student education.

The aim of the present study was to evaluate the prevalence of latex gloves-related complaints among dental students and to establish the etiology of these problems.

Material and Methods: 122 dental students completed a questionnaire. Those with latex glove-related complaints were evaluated for latex sensitivity by assessment of skin prick test and for cell-mediated sensitivity to rubber additives and occupational hazards by assessment of patch test.

Results: 8.2 % of dental students had skin hand complaints wearing latex gloves. 3 of them (30 %) showed a positive skin prick to latex and 1 of them (10 %) showed a positive patch test to rubber additives.

Conclusions: Dental students are at risk to develop occupational hypersensitivity although the limited exposure to latex gloves during education.

Key words: allergy, dermatitis, latex gloves

Dental practitioners who regularly use latex gloves are at increased risk for latex sensitivity (6, 10). They are also at risk for irritant or allergic contact dermatitis (8). There are three types of reactions to latex products: irritant contact dermatitis, allergic contact dermatitis, and immediate type I reaction (1, 3).

Hand contact dermatitis in dental staff is a common occupational disorder (2, 5). It develops shortly after beginning the dental practice even during the education in dental schools (2, 10).

The aim of the present study was to evaluate the prevalence of latex gloves-related complaints among dental students in four year of their education and to establish the etiology of these problems.

MATERIALS AND METHODS:

The study was performed in Faculty of Dental Medicine, Medical University, Plovdiv in Mars-April 2011. All dental students (n=122) were in the fourth-year of education. The students' average age was 24 (range 22 – 34 years). 64 (52,46 %) were female.

The study was based on a self-administrated questionnaire. The questionnaire included questions on gloves use (first use, frequency of use, type of glove), glove-related skin or respiratory symptoms. We also included questions about atopy, allergy to food (especially to avocado, banana, chestnut, kiwi, pineapple) and previous exposure to natural rubber latex (NRL).

Students with adverse reactions to latex gloves were patch tested with Swedish dental stuff series (Chemotechnique Diagnostics, Sweden) and rubber additive components – Thiuram mix, Mercaptomix, N-isopropyl-N-phenyl-4-phenylenediamine (Chemotechnique Diagnostics, Sweden). Patch tests were evaluated according to the recommendations of the International Contact Dermatitis Research Group. The tests were applied for 2 days and read at day 2, 3 and 4. To estimate the prevalence of NRL allergy, those students were skin prick tested (SPT) with latex allergen (Stallergenes, France).

RESULTS

122 dental students complete the questionnaire. During the time of studying all students were in the fourth year of education (semester 8).

Dental students have regular contact with latex gloves from semester 7 onwards, with the beginning of the clinical practice. They were in contact with latex gloves for 2-3 h a day.

All the students used latex protective gloves, the only available in the Faculty.

None of dental students had occupation-related latex contact before the studying in the Faculty of Dental Medicine.

History of atopy (allergic rhinoconjunctivitis, allergic asthma, childhood dermatitis) was documented in 24 (19.67 %) dental students. Food allergy to avocado, banana, chestnut, kiwi, pineapple was documented in 3 (2.46 %) dental students.

10 of 122 students (8.2 %) had complaints wearing latex gloves. All students affected had complaints of their hands and fingers. None of them had rhinitis, conjunctivitis or asthma associated with latex gloves use.

SPT reactions to latex were seen in 3 dental students (30 %) with glove associated symptoms. Patch test with

rubber-related antigens was positive in 1 of the 10 tested dental students (10%) (Thiuram mix ++, Mercaptomix ++). None of the dental students with glove-related complaints showed a positive patch test to allergens in Swedish dental stuff series.

2 of the students with positive SPT to latex had an atopic disease and 1 student had a food allergy.

6 of 10 students (60 %) with skin hand complaints had no positive SPT or patch test.

DISCUSSION

In the present study, we have combined a self-administrated questionnaire with patch testing for contact allergy to latex gloves or other occupational hazards and with testing for NRL allergy.

In our study, 8.2% of dental students in the fourth year of education described skin hand symptoms associated with latex gloves use. Only three of them showed positive SPT to latex. Cell-mediated allergy to other rubber chemicals was documented in 1 (10 %) of them. The allergic contact dermatitis is a delayed type IV reaction caused by accelerators and antioxidants used in the latex manufacturing. Immediate type I reaction is attributed to the proteins present in natural latex (1, 3).

None of questioned students describes respiratory symptoms associated with the use of latex gloves although such symptoms are frequently observed.

At the time of this study, the Faculty of Dental Medicine purchases only powdered latex gloves, which expose students to high quantity of latex allergen and increases the probability of latex sensitization (9).

Dental practice includes contact with different materials or disinfectants. They penetrate through latex gloves within minutes of exposure and can cause sensitivity (7). We did not find positive patch tests to substances relevant to work-place exposure (disinfectants or acrylates), although they are important contact allergens in dental work (4).

The absence of positive tests leads to diagnosis of irritant contact dermatitis.

Latex allergy was observed in 3 of 122 dental students (2.46 %).

CONCLUSION

Dental students are at risk to develop latex allergy, irritant or allergic contact dermatitis, although the limited exposure to gloves in the fourth year of education.

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