

Estimating Allergenicity of Latex Gloves Using Hev b1 and Hevamine

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Abstract

BACKGROUND: Latex allergy continues to be an increasingly serious occupational health problem in Taiwan, where it affects approximately 6.8% to 12% of health care workers. Contrasting with reports from western countries, Hev b1 and hevamine, and not Hev b3, 5 or 6.02, are the major latex allergens among health care workers in Taiwan. This study aimed at evaluating the allergenicity of 30 brands of commercially available medical latex gloves in Taiwan in 2007.

METHODS: Residual Hev b1 and hevamine from the gloves were measured by inhibition enzyme-linked immunosorbent assay using polyclonal antibodies against purified recombinant Hev b1 and hevamine. The results were compared to those achieved with quantification of residual total extractable proteins and skin prick testing.

RESULTS: The residual extractable protein levels in 30 medical gloves all conformed to United States Food and Drug Administration regulations. All the gloves except one yielded strong skin prick reactions in latex-allergic individuals. The only brand of gloves that consistently produced no skin prick reactions in latex-allergic individuals contained the lowest residual levels of Hev b1 (0.60 microg/g) and hevamine (0.07 microg/g).

CONCLUSIONS: Our results suggest that the measurement of residual extractable total proteins is not sufficient to assess the allergenicity of latex gloves and that Hev b1 and hevamine may be used as indicator allergens in areas where they are major latex allergens, such as Taiwan.