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Abstract

Methacrylate and acrylate allergy in dental personnel

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Abstract

Background: Methacrylates are important allergens in dentistry.

Objective: The study aimed to analyse patch test reactivity to 36 acrylic monomers in dental personnel in relation to exposure.

Methods: We reviewed the test files at the Finnish Institute of Occupational Health from 1994 to 2006 for allergic reactions to acrylic monomers in dental personnel and analysed the clinical records of the sensitized patients.

Results: 32 patients had allergic reactions to acrylic monomers: 15 dental nurses, 9 dentists, and 8 dental technicians. The dentists and dental nurses were most commonly exposed to 2-hydroxyethyl methacrylate (2-HEMA), triethyleneglycol dimethacrylate (TREGDMA), and 2,2-bis[4-(2-hydroxy-3-methacryloxypropoxy) phenyl]propane (bis-GMA). 8 dentists and 12 dental nurses were allergic to 2-HEMA. The remaining dentist was positive to bis-GMA and other epoxy acrylates. The remaining 3 dental nurses reacted to diethyleneglycol diacrylate (DEGDA) or triethyleneglycol diacrylate (TREGDA), but not to monofunctional and multifunctional methacrylates. Our dental technicians were mainly exposed and sensitized to methyl methacrylate (MMA) and ethyleneglycol dimethacrylate (EGDMA). 1 technician reacted only to 2-HEMA, and another to ethyl methacrylate (EMA) and ethyl acrylate (EA).

Conclusions: 2-HEMA was the most important allergen in dentists and dental nurses, and MMA and EGDMA in dental technicians. Reactions to bis-GMA, DEGDA, TREGDA, EMA and EA were relevant in some patients.