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Title: Nasal symptoms, lung function changes, and sensitization to work-related allergens in hairdressers

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Body: Objective. To assess the occurrence of nasal symptoms in hairdressers and their relation to respiratory symptoms, bronchial hyperresponsiveness (BHR), and positive patch testing. Methods. Cross-sectional study was conducted at the Institute for Occupational Health of RM, Skopje, including 50 female hairdressers (mean age 32.1 ± 7.3 years, mean job duration 12.6 ± 8.4 years) and 50 office workers, matched by gender, age, job duration and smoking status. Evaluation of examined subjects included completion of questionnaire on nasal and respiratory symptoms in last 12 months, spirometry, histamine challenge ($PC_{20} \leq 8$ mg/mL), and patch testing to work-related allergens. Results. Prevalence of overall nasal symptoms in last 12 months among examined hairdressers was 36% (varying from 40% for rhinorrhoea to 32% for nasal itching) and it was significantly higher than its prevalence in office workers (36% vs. 14%, $P < 0.05$). Nasal symptoms were significantly related to respiratory symptoms in both hairdressers and office workers. Spirometry showed lower parameters in hairdressers with significant difference for MEF25 and MEF50. Significant association was registered between nasal symptoms and BHR in hairdressers ($P < 0.05$). Prevalence of BHR was higher in hairdressers with significantly higher severity ($P < 0.05$). Patch testing to ammonium persulfate, ammonium thioglycolate, paraphenylenediamine, and pyrogallol was positive in 72%, 22%, 18%, and 4% of all hairdressers reporting nasal symptoms, respectively. Conclusion. Our data indicate high prevalence of nasal symptoms in hairdressers and their significant relation to respiratory symptoms, BHR and sensitization to work-related allergens.