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JEP > Vol. 3 No. 10, October 2012

OPEN ACCESS

Prevalence of the Respiratory Allergies among Adult Population in the City of Skopje in Relation to Climatic Change and Change in Pollen Micro Flora

PDF (Size: 756KB) PP. 1364-1372 DOI: 10.4236/jep.2012.310155

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ABSTRACT

Introduction: Climate change may have an impact of prevalence and severity of respiratory allergies causing changes in the concentrations, distribution, dispersion patterns, and allergenic potential of aeroallergens in the environment. **Objective:** To assess the prevalence of atopy, sensitization to common pollen allergens, and respiratory allergies (allergic rhinitis and asthma) among adult population in the city of Skopje in relation to changes in pollen distributions caused by climate change and particularly maximum temperature, in the period 1996-2010. **Methods:** Aeropalinological measurements in the city of Skopje were performed by volumetric method in the period 1996-2009. Serial cross-sectional studies on the prevalence of atopy, sensitization to common pollen allergens, allergic rhinitis and asthma in adults by standardized methodology were conducted in defined critical periods (1996, 2003, 2007/2008 and 2009/2010). Evaluation of examined subjects included completion of a questionnaire, skin prick tests (SPT) to common inhalant allergens, and lung function tests. **Results:** Data from aeropalinological measurements showed differences in the pollen concentrations, as well as in the duration of pollen season for some pollen types. The prevalence of atopics was similar in all critical periods, and the prevalence of sensitization to common pollen allergens was slightly higher in the last study than in the study performed in 1996. We registered increase in the prevalence of allergic rhinitis in the examined period (11.5% in 1996 to 17.4% in 2009/2010) followed by increase in the prevalence of rhinitics sensitized to common pollen allergens. The prevalence of allergic asthma was significantly higher in the study conducted in 2009/2010 than in the study conducted in 1996 (5.1% vs. 2.1%, $P = 0.037$) followed by slightly higher prevalence of asthmatics sensitized to common pollen allergens in the same period. **Conclusions:** Registered changes in the prevalence of sensitization to common pollen allergens, as well as in the prevalence of subjects with respiratory allergies sensitized to these allergens, even statistically non-significant, indicate the need of further monitoring and investigation in order to assess the association between climate change with change in pollen micro flora and related allergic disorders.

KEYWORDS

Aeropalinological Measurements; Allergic Rhinitis; Allergic Sensitization; Asthma; Atopy

Cite this paper

J. Karadzinska-Bislimovska, J. Minov, V. Kendrovski, S. Milkovska, S. Stoleski and D. Mijakoski, "Prevalence of the Respiratory Allergies among Adult Population in the City of Skopje in Relation to Climatic Change and Change in Pollen Micro Flora," *Journal of Environmental Protection*, Vol. 3 No. 10, 2012, pp. 1364-1372. doi: 10.4236/jep.2012.310155.

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