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ABSTRACT BOOK



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HEAVY METALS IN SCHOOL ENVIRONMENT AND ATOPIC DERMATITIS

Author: Rokas Česynas¹

Scientific research supervisors: MD, PhD Agnė Jagelavičienė^{1,2}, PhD Nina Prokopčiuk^{2,3,4}

1 VU MF, 2 Clinic of children diseases, Institute of Clinical medicine, 3 Department of Pathology and Forensic Medicine, Institute of Biomedical Sciences, 4 Human Ecology Multidisciplinary Research Group, Department of Public Health, Institute of Health Sciences

Introduction: One of the most common skin diseases in childhood is atopic dermatitis (AD). AD is caused by multiple factors including air pollutants (like heavy metals), especially in house dust. Our hypothesis is that AD is associated with higher concentrations of heavy metals in environment.

Objectives: To compare the incidence of AD and eczema in children between schools with higher concentrations of vanadium and lead and schools with lower concentrations.

Methods: The results from a study of aerosol pollution and concentration of heavy metals in dust in Vilnius schools were extrapolated. Concentrations of microelements from 11 schools were collected in 2017-2018. Atopic dermatitis morbidity data of years 2017-2020 was provided by the National Institute of Hygiene. The pediatric population of 6 -11 years was analysed. Chi Square test of independence was used to calculate the statistical significance.

Results: The highest concentration of vanadium was found in Zaros gymnasium 52.09 ppm., the lowest was in Baltupiu school, 12.69 ppm. The highest concentration of lead was found in Nemunelio school, 504 ppm, the lowest was in Grigiskiu gymnasium, 14 ppm. In Zaros gymnasium (population 280) the relative AD morbidity in 2018 was 6,79, while in Baltupiu school (population 463) it was 3,67 ($p=0,35$; $\alpha=0,05$). In Nemunelio school (population 306) the relative AD morbidity in 2018 was 6,21 compared to Grigiskiu gymnasiums 4,62 (population 130), ($p=0,76$; $\alpha=0,05$).

Conclusions: Relative morbidity in Baltupiu school is lower than in Zaros gymnasium in 2018, as is it is lower in Nemunelio when compared to Grigiskiu school, however, it is not statistically significant. The results may have been impacted by locations, both Nemunelio and Zaros schools are within 1 kilometer from railways, and Zaros is nearby various industries, while Grigiskiu school is in outskirts of Vilnius, outside the city main. Other pollutants and heavy metals also may have affected the results. There is a need of a larger scope studies to assess the association between AD and heavy metals in environment.

Keywords: atopic dermatitis, air pollution, heavy metals, children.