Asthma, respiratory allergy and cough

Detection nasal nitric oxide in Slovak healthy adult - reference values and affecting factors

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Introduction:Nitric oxide (NO) is an important endogenous mediator with significant position in the respiratory system. It is synthetized from L-arginine by the family of NO-synthases differently in the upper (nasal cavity, sinuses) and the lower (respiratory epithelium and endothelium in lung vessel) airways. Synthesis of NO is influenced by endogenous and exogenous factors with different effects. The level of NO is changed mainly during the inflammatory process. This attribute of gas phase stability was exploited in diagnostic process of respiratory diseases. Currently, analysis of NO in the exhaled air (FeNO - fraction of exhaled nitric oxide) is recommended as a modern non-invasive method of diagnosis and monitoring of the airway inflammation. Analysis of nasal nitric oxide (nNO) however, is not validated so far as a method useful in the diagnostic process.

Aim:To the best of our knowledge, there is a lack of reference values with possible identification of factors modulating the nNO levels. We studied a homogeneous control group of healthy adult volunteers, n=55. FeNO and nNO values were obtained by NIOX MINO® according to the recommendations of the ERS &ATS. Gender, age, height, body weight, waist-to-hip ratio, FEV1/FVC, PEF and numbers of leukocytes, eosinophils, basophiles and monocytes were studied as potential variables influencing the levels of FeNO and nNO. The data were processed in Microsoft Excel and SYSTAT. For the correlation of FeNO and nNO with selected parameters Spearman analysis was used. Correlation analysis was calculated for all obtained data.

Results and Conclusions: The complexity of the results allowed us to create a homogeneous control group for nNO and FeNO and these data can be used further as the reference data for given variables. Reference data for nNO, and pointing the individual parameters of tested subjects even for the FeNO testing make our study an interesting pilot project in the noninvasive monitoring of the upper airways inflammation.