THE PATTERN OF SENSITIZATION INFLUENCES EXHALED AND NASAL NITRIC OXIDE LEVELS IN STUDENTS

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Nitric oxide (NO) from upper (nNO) or lower airways (FeNO) are considered as surrogate markers for Th2-type inflammation and were reported to be influenced by atopy. The aim of this study was to analyze FeNO and nNO with regard to qualitative and quantitative aspects of sensitization. We evaluated 244 non-smoking first-year students recruited for a longitudinal study (AllergoVet). Besides atopic status, specific IgEs to three inhalant perennial allergens, house dust mite (HDM, d1), cat (e1) and dog (e5), were determined outside the pollen season and also used for atopy definition. A sensitization to one, two or all perennial allergens could be demonstrated in 46, 10 and 16 students, respectively. The subjects sensitized to other allergens only had FeNO levels outside season similar to those of non-atopic subjects (13.5 vs. 13.0 ppb, p=0.485). FeNO levels were significantly lower compared with atopic subjects being sensitized to any perennial allergen (19.0 ppb, p=0.0003). After grouping for sensitization patterns, significantly higher FeNO could be detected in subjects with poly-sensitization (n=26; 26.0 ppb) compared with the ones mono-sensitized (n=46; 18.0 ppb, p= 0.023). Regarding nNO, no differences could be observed. Applying a two-way ANOVA, we could reveal a significant correlation of specific HDM-IgE CAP-class with FeNO ($p < 0.0001$) as well as nNO level (p=0.007). Finally, a significant relationship was found between NO of the upper and lower airways for the whole cohort ($p<0.0001$). In summary, our findings support the argument that atopy and perineal sensitization should be considered for the interpretation of NO.