Impaired FEF25-75 may predict high exhaled nitric oxide values in children with allergic rhinitis and/or asthma

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Abstract
Allergic rhinitis and asthma are closely associated. Inflammation is a common pathological characteristic shared by both disorders. The measure of the fractional concentration of exhaled nitric oxide (FeNO) may be considered a surrogate marker for airway inflammation. Forced expiratory flow between 25% and 75% of vital capacity (FEF25-75) has been previously demonstrated to be able to predict BHR and bronchial reversibility.

The aim of this study was to evaluate whether impaired FEF25-75 values may be related to FeNO values in a pediatric cohort of allergic subjects. 850 children with allergic rhinitis, allergic asthma, or both, were evaluated. Bronchial function (FEV₁, FVC, and FEF25-75), FeNO, and sensitizations were assessed. Bronchial function and FeNO were significantly different in the 3 groups (p<0.001).

A strong inverse correlation between FeNO and FEV₁ was found in patients with rhinitis, asthma and asthmatic rhinitis (r= -0.72, r= -0.70 and r= -0.70, respectively. Impaired FEF25-75 values (such as <65% of predicted) were significantly associated with high FeNO levels (such as > 34 ppb).

In conclusion, this study provided evidence that FEF25-75 is strongly and inversely related with FeNO and FEF25-75 may predict high FeNO levels in children with allergic rhinitis, asthma or both.