



Systemic inflammation in asthmatic patients is related to age and airway obstruction

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Background

Bronchial asthma is an inflammatory disease of the airways however, contribution of systemic inflammation to the pathophysiology of asthma has not been well documented. Low grade systemic inflammation has been also associated with ageing, and related to several comorbidities. We aimed to assess systemic inflammation in elderly and non-elderly asthmatics in relation to clinical and functional parameters of asthma activity and control

Methods

The study involved 214 patients with mild to moderate bronchial asthma (107 aged 30-50 years, and 107 above 65 years old). In all patients spirometry, oscillometry, and FeNO measurements were performed and concentrations of hsCRP and proinflammatory cytokines (TNF α , IL6) were assayed in serum.

Results

Although the mean age of elderly asthmatics ($73,74 \pm 5,0$ years) was higher than of non-elderly patients ($42,6 \pm 5,98$ years), the mean duration of asthma was comparable in both groups ($19,08 \pm 12,1$ versus $17 \pm 9,07$;ns). Elderly and non-elderly asthmatics, on average, had similar control of the disease, were treated with comparable doses of inhaled corticosteroids and had similar mean FeNO values. Elderly patients had significantly higher serum levels of TNF α ($1550,2$ pg/ml vs. 1125.4 pg/ml, $p=0,01$) and IL6 (2.26 pg/ml vs. 1.21 pg/ml, $p=0,01$) as compared to younger asthmatics. The mean concentration of hsCRP in serum was also significantly higher in elderly patients ($3,24$ pg/ml vs. $2,02$ pg/ml, $p=0,000$). In all asthmatic patients TNF α , IL6 and hsCRP levels were correlated negatively with airway function measured either by spirometry or oscillometry. In addition, serum markers of systemic inflammation correlated with age: TNF α ($r=0.44$, $p<0.05$), IL6 ($r=0.24$, $p<0.05$) and hsCRP ($r=0.27$, $p<0.05$)

Conclusions

Our study documented that systemic inflammation is present in elderly and non-elderly patients with bronchial asthma and its magnitude is related to airway obstruction.