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Blood eosinophil count in the general population: typical values and potential confounders

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The level of circulating blood eosinophils in healthy subjects is much lower than currently considered, is age dependent until 18 years, is higher in males and is influenced by several multimorbidity conditions and lifestyle factors <http://bit.ly/37W7EDd>

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ABSTRACT There is growing interest in blood eosinophil counts in the management of chronic respiratory conditions such as asthma and chronic obstructive pulmonary disease (COPD). Despite this, typical blood eosinophil levels in the general population, and the impact of potential confounders on these levels have not been clearly defined.

We measured blood eosinophil counts in a random sample of 11 042 subjects recruited from the general population in Austria. We then: 1) identified factors associated with high blood eosinophil counts (>75th percentile); and 2) excluded subjects with these factors to estimate median blood eosinophil counts in a “healthy” sub-population (n=3641).

We found that: 1) in the entire cohort, age ≤18 years (OR 2.41), asthma (OR 2.05), current smoking (OR 1.72), positive skin prick test (OR 1.64), COPD (OR 1.56), metabolic syndrome (OR 1.41), male sex (OR 1.36) and obesity (OR 1.16) were significantly ($p<0.05$) associated with high blood eosinophil counts (binary multivariable logistic regression analysis), and had an additive effect; and 2) after excluding these factors, in those older than 18 years, blood eosinophil counts were higher in males than in females (median 120 (5%–95% CI: 30–330) *versus* 100 (30–310) cells- μL^{-1} , respectively) and did not change with age.

Median blood eosinophil counts in adults are considerably lower than those currently regarded as normal, do not change with age beyond puberty, but are significantly influenced by a variety of factors which have an additive effect. These observations will contribute to the interpretation of blood eosinophil levels in clinical practice.