

## Limited role of eosinophils in pre-school atopic disease: a prospective mother-child cohort study

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Abstract (250 words)

**Background:** Blood eosinophil count is a well-known biomarker in atopic diseases in older children and adults. However, the role in preschool atopic diseases is less well established.

**Objective:** To investigate the association between early life blood eosinophil count and development and persistence of atopic diseases during preschool age.

**Methods:** We measured blood eosinophil count at age 18 months ( $n=687$ ) and 6 years ( $n=769$ ) in children participating in the two Copenhagen Prospective Studies on Asthma in Childhood (COPSAC) mother-child cohorts. Clinical data on development of atopic disease were collected prospectively, including wheeze, asthma, atopic dermatitis, and allergic rhinitis.

**Results:** At 18 months of age, there was no association between blood eosinophil count and concurrent wheeze or atopic dermatitis, and the blood eosinophil count among children with wheeze or atopic dermatitis did not predict persistence of symptoms to age 6 years. The blood eosinophil count at 18 months showed borderline association with later atopic dermatitis by age 6 years (odds ratio (OR)=1.28; 95% confidence interval 1.0-1.64), but not with asthma or allergic rhinitis. At age 6 years, the blood eosinophil count was associated with increased risk of both concurrent asthma (OR=1.33; 1.04-1.71), atopic dermatitis (OR=1.45; 1.15-1.83) and allergic rhinitis (OR=2.12; 1.52-3.01).

**Conclusion:** Elevated blood eosinophil counts at 18 months was not associated with concurrent wheeze or atopic dermatitis or persistence of disease. This implies a limited role of eosinophil-

associated mechanisms in early life atopic disease and questions the usefulness of blood eosinophil counts as a clinical predictive biomarker in early childhood.