Prevalence, risk factors and comorbidity of rhinitis, asthma and aspirin-intolerance in West Sweden

Akademisk avhandling

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av

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Avhandlingen baseras på följande delarbeten:

I. Eriksson J, Ekerljung L, Lötvall J, Pullerits T, Wennergren G, Rönmark E, Torén K and Lundbäck B. **Growing up on a farm leads to lifelong protection against allergic rhinitis.** *Allergy.* 2010; 65: 1397-1403.

II. Eriksson J, Ekerljung L, Pullerits T, Holmberg K, Rönmark E, Lötvall J and Lundbäck B. **Prevalence of chronic nasal symptoms in West Sweden: risk factors and relation to self-reported allergic rhinitis and lower respiratory symptoms.** *Int Arch Allergy Immunol.* 2011; 154: 155-63.

III. Eriksson J, Ekerljung L, Sundblad BM, Lötvall J, Torén K, Rönmark E, Larsson K and Lundbäck B. **Cigarette smoking is associated with high prevalence of chronic rhinitis and low prevalence of allergic rhinitis in men.** *Allergy.* 2013; 68: 347-354.

IV. Eriksson J, Bjerg A, Lötvall J, Wennergren G, Rönmark E, Torén K and Lundbäck B. **Rhinitis phenotypes correlate with different symptom presentation and risk factor patterns of asthma.** *Respir Med.* 2011; 105: 1611-21.

V. Eriksson J, Ekerljung L, Bossios A, Bjerg A, Wennergren G, Rönmark E, Torén K, Lötvall J and Lundbäck B. **Aspirin-intolerant asthma in the population: prevalence and important determinants.** *In manuscript*

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Prevalence, risk factors and comorbidity of rhinitis, asthma and aspirin-intolerance in West Sweden

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Abstract

The prevalence of rhinitis and asthma has increased considerably over the past century. The cause of this increase remains unknown. Furthermore, rhinitis and asthma are now considered heterogeneous syndromes encompassing several clinical phenotypes. The overall aim of this thesis was to investigate the prevalence, risk factors and comorbidity of rhinitis and asthma phenotypes with a particular focus on aspirin-intolerant asthma.

This thesis is mainly based on a postal questionnaire with 18 087 responders (62%) living in West Sweden. The prevalence of allergic rhinitis (AR) was 20% in those raised on a farm compared to 28% in subjects raised elsewhere. A lower prevalence of AR in subjects raised on a farm was found in all age groups. The prevalence of chronic rhinitis (CR) was 20%. Both AR and CR were more common in urban than in rural areas. Cigarette smoking was associated with a high prevalence of CR and a low prevalence of AR. Both associations were dose-dependent and were found also in two large population surveys conducted in the city of Stockholm. Skin prick testing was performed on a randomly selected subsample of the West Sweden cohort. Prevalence of skin prick test positivity was significantly lower in smokers (34%) than in non-smokers (46%). Considerable overlap was found between asthma and nasal comorbidities and different nasal comorbidities were associated with different symptom expression of asthma. Prevalence of aspirin-intolerant asthma (AIA) was 0.5%. The risk of AIA increased linearly with increasing body mass index. CR was commonly found in AIA.

We conclude that AR and CR are common in the general population of West Sweden. The two rhinitis phenotypes share some, but not all, risk factors. Both conditions are associated with asthma and lower respiratory symptoms, indicating a strong relationship between the upper and lower airways. Aspirin-intolerant asthma was found in the general population as was associated with obesity and chronic rhinitis.

Keywords: epidemiology, rhinitis, asthma, aspirin-intolerance

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