

The association between eczema, asthma and rhinitis –population studies of prevalence and risk factors among adults

Akademisk avhandling

som för avläggande av medicine doktorsexamen vid Sahlgrenska akademien vid
Göteborgs universitet kommer att offentligens försvaras i Hörsal Europa,
Konferenscentrum Wallenberg, Medicinargatan 20A, Göteborg

Fredagen den 20 maj 2016, kl 13:00

av

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Avhandlingen baseras på följande delarbeten:

- I. Erik Rönmark, Linda Ekerljung, Jan Lötvall, Kjell Torén, Eva Rönmark and Bo Lundbäck.
Large scale questionnaire survey on respiratory health in Sweden: Effects of late- and non-response. *Respiratory Medicine* 2009; 103; 1807-1815.
- II. Erik Rönmark, Linda Ekerljung, Jan Lötvall, Göran Wennergren, Eva Rönmark, Kjell Torén and Bo Lundbäck.
Eczema among adults: prevalence, risk factors and relation to airway diseases. Results from a large-scale population survey in Sweden. *British Journal of Dermatology* 2012; 166; 1301-1308.
- III. Erik Rönmark, Linda Ekerljung, Roxana Mincheva, Sigrid Sjölander, Stig Hagstad, Göran Wennergren, Eva Rönmark, Jan Lötvall and Bo Lundbäck.
Different risk factor patterns for adult asthma, rhinitis and eczema -results from West Sweden Asthma Study. *In manuscript.*
- IV. Erik Rönmark, Linda Ekerljung, Jan Lötvall, Shintaro Suzuki, Anders Bjerg, Sigrid Sjölander, Magnus P. Borres, Göran Wennergren, Bo Lundbäck and Eva Rönmark.
Different impact of allergic sensitization on asthma, eczema and rhinitis among adults. *In manuscript.*



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ABSTRACT

Background: Allergic diseases such as asthma, rhinitis and eczema have increased significantly since the middle of the past century and are now common conditions among both children and adults. The increase was observed earlier and is more evident in Westernized countries but is now also apparent in urbanized areas in developing countries. The exact cause of this increase is still not fully explored, although several partly contradicting hypotheses exist, including the hygiene hypothesis. Asthma, rhinitis and eczema are common comorbidities and allergic sensitization is commonly seen as a unifying link.

Research questions: The overall aim of this thesis was to investigate the prevalence of eczema; risk factors for eczema; overlapping risk factors for asthma, rhinitis and eczema; the prevalence of allergic sensitization and the impact of allergic sensitization on these diseases in an adult population.

Additional objectives included a validation of the representativeness of the recruited population.

Methodology: This thesis is based on a postal survey in Västra Götaland with 18 087 responders (62%) out of a real study sample of 29 218 individuals aged 16 to 75 years. Clinical examinations including structured interviews, lung function tests, anthropometric measures, skin prick tests and assessments of specific serum Immunoglobulin E were performed in 1172 randomly selected responders. A study of non-response was carried out among non-responders to the postal survey and 211 out of the 400 randomly selected subjects were successfully contacted by phone and agreed to participate.

Results: Non-responders compared to responders to the postal survey tended to be younger, smoke, have male sex and live in the metropolitan area of Gothenburg but they did not differ in prevalence of asthma, airway symptoms, eczema and rhinitis. Ever having had eczema was reported by 40.7% in the postal survey and the prevalence of current eczema was 11.5%. Eczema was more common among women and associated with respiratory symptoms, asthma and rhinitis. Allergic sensitization, obesity, female sex and occupational exposure to gas, dust or fumes were significantly and independently associated with asthma. A risk factors for rhinitis but not for eczema was obesity and allergic sensitization was strongly associated with rhinitis but less so for eczema. Risk factors for eczema but not for rhinitis were female sex and occupational exposure to gas, dust or fumes. Farm childhood was negatively associated with rhinitis and eczema but not asthma. The prevalence of sensitization to at least one common airborne allergen was 29.7%. Sensitization to birch and dog was associated with asthma while rhinitis was associated with sensitization to birch and timothy. No significant association was found between allergic sensitization and current eczema.

Conclusions: We conclude that non-response had minimal effect on the outcome in our study. Eczema was more common than anticipated and associated with asthma and rhinitis. There are different risk factor patterns for asthma, rhinitis and eczema in adults. Allergic sensitization is an important risk factor for asthma and rhinitis but less so for eczema among adults. Rhinitis is mainly associated with sensitization to outdoor allergens while asthma is related to both outdoor and indoor allergens.

Keywords: epidemiology, asthma, eczema, rhinitis, risk factors, allergic sensitization.

ISBN: 978-91-628-9746-8