

# Natural course of pollen-induced allergic rhinitis from childhood to adulthood: a 20-year follow-up

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## Abstract

**Background** Allergic rhinitis (AR) is one of the most common chronic diseases worldwide. There are limited prospective long-term data regarding persistency and remission of AR. The objective of this study was to investigate the natural course of pollen-induced AR (pollen-AR) over 20 years, from childhood into early adulthood. **Methods** Data from 1137 subjects in the Barn/Children Allergi/Allergy Milieu Stockholm Epidemiologic birth cohort (BAMSE) with a completed questionnaire regarding symptoms, asthma, treatment with allergen immunotherapy (AIT) and results of allergen-specific IgE for inhalant allergens at 4, 8, 16 and 24 years were analysed. Pollen-AR was defined as sneezing, runny, itchy, or blocked nose; and itchy or watery eyes when exposed to birch and/or grass pollen in combination with allergen-specific IgE  $\geq 0.35 \text{ kU}_A/\text{l}$  to birch and/or grass. **Results** Approximately 75% of children with pollen-AR at 4 or 8 years had persistent disease up to 24 years, and 30% developed asthma. The probability of persistency was high already at low levels of pollen-specific IgE. The highest rate of remission from pollen-AR was seen between 16 and 24 years (21.5%), however the majority remained sensitized. This period was also when pollen-specific IgE-levels stopped increasing and the average estimated annual incidence of pollen-AR decreased from 1.5% to 0.8% per year. **Conclusion** Children with pollen-AR are at high risk of persistent disease for at least 20 years. Childhood up to adolescence seems to be the most dynamic period of AR progression. Our findings underline the close cross-sectional and longitudinal relationship between sensitization, AR, and asthma.

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