

Trends in prevalence of asthma and allergy in Finnish young men: nationwide study, 1966-2003

Jari Latvala, Leena von Hertzen, Harri Lindholm, Tari Haahtela

Recent reports on time trends in atopic disease suggest that the prevalence of asthma and allergic rhinitis has levelled off in some European countries after several decades of increasing.^{1,2} We reported earlier that the prevalence of asthma in young Finnish men remained stable from 1926 to 1961 but started to rise steeply during the 1960s; a sixfold, virtually linear increase in asthma prevalence was found between 1966 and 1989, in parallel with increases in indicators of disabling asthma (on the basis of the percentage of men exempted from military service at call-up owing to asthma and of men discharged during service as a result of asthma).³ We examined whether similar trends have continued during the subsequent 13 years (1990-2003). As data on current trends in prevalence of allergic conditions are scarce, we also examined the trends in prevalence of allergic rhinitis and eczema from 1966 to 2003 among these young men.

Methods and results

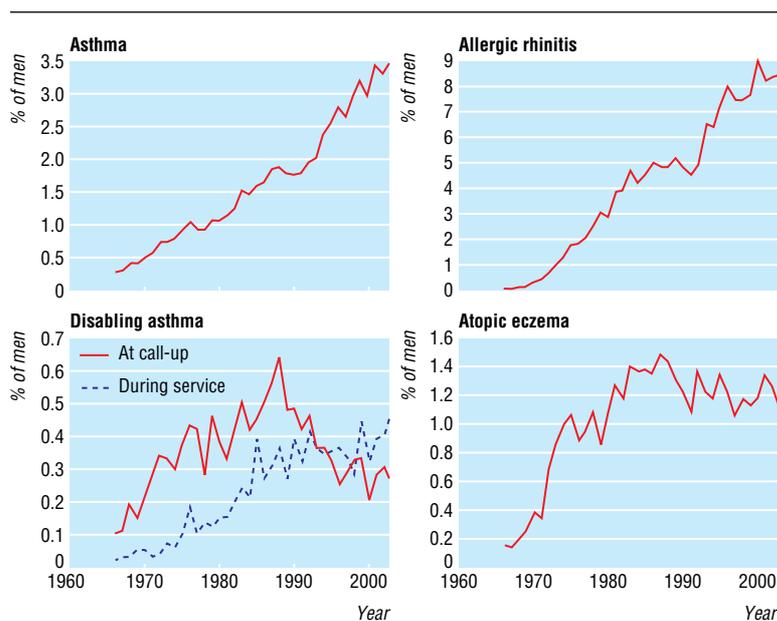
In Finland, about 98% of all men aged 18-19 are examined to establish their fitness for military service. Diagnostic codes (based on the international classification of diseases) are registered. During 1966-2003 almost 1.4 million men were examined. The examination procedure has been described earlier.³ Since 1972 the examination has been a two stage procedure:

a clinical examination (including medical history and a questionnaire) by a local general practitioner followed by a re-examination at call-up by an army physician. Specialists are consulted when needed.

The figure shows the prevalence trends for asthma, rhinitis, and eczema. We found that the prevalence of asthma increased 12-fold between 1966 (0.29%) and 2003 (3.45%), showing a continuous rising trend during this period. The average annual increment in prevalence during this period was 0.1%. By contrast, the trends for indicators of disabling asthma turned downwards in 1989. Since then, the percentage of men exempted at call-up owing to asthma has continued to decrease, whereas the percentage of men discharged during service as a result of asthma started to rise again in 1998. Prevalence of allergic rhinitis remained low (< 0.1%) till 1970 but increased steadily thereafter. The rise in prevalence of allergic rhinitis has been particularly striking since 1991, with the peak in 2000 (8.9%), and the trend is still upwards. Prevalence of atopic eczema, however, has remained fairly constant (about 1.2%) since the early 1980s.

Comment

By the year 2003, no signs of a reduction in the prevalence of asthma and allergic rhinitis in young Finnish men were found in



Prevalence of asthma, allergic rhinitis, and atopic eczema in young Finnish men during 1966-2003 at examination at call-up for military service, and prevalence of disabling asthma as percentage of men exempted at call-up owing to asthma or as percentage of men (of all those who started their service in each year) discharged during service as a result of asthma

this study, which included a very large dataset of homogeneous populations with a participation rate of about 98% throughout and a high number of repeated surveys. For asthma and allergic rhinitis, the results are similar to those reported recently from Sweden⁴ but discordant with findings from several other European countries.^{1,2} Some environmental factors may still continue to induce disease in susceptible individuals in Sweden and Finland, whereas in several European countries the process may have come to an end.

Asthma has become milder or better controlled, or both, during the past 15 years, as the percentage of men exempted from military service at call-up owing to asthma has shown a downward trend. Implementation of the national and global asthma prevention programmes that have led to improved asthma management are thought to be involved in this change⁵; the impact of other (environmental) factors is more difficult to evaluate. A similar steadily decreasing trend was not found, however, in the percentage of men discharged during service as a result of asthma, which points to a need to re-examine selection and classification criteria for asthmatic men at call-up, as well as to better treatment during service.

Contributors: JL contributed to conception of the study and helped to acquire, analyse, and interpret the data and write the article. LvH helped to interpret data and drafted the article. HL helped to acquire the data and write the article. TH contributed to conception and design of the study and helped to interpret the data. JL is the guarantor(s) for the paper.

Funding: This research was funded partly by the Academy of Finland (project No 201346).

Competing interests: None declared.

Ethical approval: Not required. Access to armed forces databases was granted after a decision of the chief of the army staff (No 34/8/D/1/30.6.2003).

1 Braun-Fahrlander C, Gassner M, Grize L, Takken-Sahli K, Neu U, Stricker T, et al. No further increase in asthma, hay fever and atopic sensitisation in adolescence living in Switzerland. *Eur Respir J* 2004;23:407-13.

What is already known on this topic

The prevalence of asthma and allergic rhinitis has levelled off in some European countries after several decades of increasing

The increase in the prevalence of asthma in Finland has been nearly linear since the 1960s

What this study adds

No signs of a reduction in the prevalence of asthma and allergic rhinitis in young Finnish men by 2003 were found, although asthma seems to have become milder and better controlled during the past 13 years

2 Verlato G, Corsico A, Villani S, Cerveri I, Migliore E, Accordini S, et al. Is the prevalence of adult asthma and allergic rhinitis still increasing? Results of an Italian study. *J Allergy Clin Immunol* 2003;111:1232-8.

3 Haahtela T, Lindholm H, Björkstén F, Koskenvuo K, Laitinen LA. Prevalence of asthma in Finnish young men. *BMJ* 1990;301:266-8.

4 Bråbäck L, Hjern A, Rasmussen F. Trends in asthma, allergic rhinitis and eczema among Swedish conscripts from farming and non-farming environments. A nationwide study over three decades. *Clin Exp Allergy* 2004;34:38-43.

5 Haahtela T, Klaukka T, Koskela K, Erhola M, Laitinen LA. Asthma programme in Finland: a community problem needs community solutions. *Thorax* 2001;56:806-14. (Accepted 31 March 2005)

doi 10.1136/bmj.38448.603924.AE

Research Institute of Military Medicine, Finnish Institute of Occupational Health, Aapistie 1, 90220 Oulu, Finland
Jari Latvala *researcher*

Skin and Allergy Hospital, Helsinki University of Central Hospital, PO Box 160, 00029 HUCH, Helsinki, Finland

Leena von Hertzen *researcher*
Tari Haahtela *professor*

Finnish Institute of Occupational Health, Topeliuksenkatu 41 a A, 00250 Helsinki, Finland

Harri Lindholm *medical specialist*

Correspondence to: J Latvala jari.latvala@ttl.fi