



Recent trends in the incidence of diagnosed atopic diseases in German children and adolescents

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Abstract

Background

Atopic diseases are the most common chronic conditions in children and adolescents. This study aimed to describe recent trends in the incidence of atopic dermatitis, hay fever, and asthma in children and adolescents from the years 2013 to 2021 in Germany.

Methods

The database was formed by nationwide, pseudonymised outpatient claims data of the German Statutory Health Insurance according to § 295 SGB. The frequency of the new occurrence of atopic diseases was recorded annually in the period from 2013 to 2020 and quarterly from 1/2013 to 3/2021 in children and adolescents (0-17 years) with a minimum follow-up of four years. The new occurrence of atopic disease was assumed if a "confirmed" diagnosis was coded for the first time after a diagnosis-free pre-observation period of three years and repeatedly at least once in the following four quarters.

Results

During the eight years of study, the annual incidence of atopic dermatitis largely stagnated (2013: 13.6 cases, 2020: 14.3 per 1,000 persons). The incidence of hay fever fluctuated over time. The strongest decrease was observed between the years 2013 (8.4 cases per 1,000) and 2017 (6.4), while the strongest increase occurred between 2019 (6.7) and 2020 (7.8). For asthma a marked reduction of the incidence by 28% from 2013 (11.7) to 2019 (8.4) was observed, followed by a steep decrease from 2019 to 2020 (incidence in 2020: 5.9). Children from East Germany exhibited a higher risk for atopic dermatitis and hay fever compared to those from West Germany. On an annual average seasonal incidence of asthma varied by a factor of 1.7 between the quarter with the highest and the quarter with the lowest incidence (atopic dermatitis: 1.8, hay fever: 3.8). Changes in regular seasonal patterns in quarterly incidences during 2020 and 2021 were exclusively observed for asthma.

Conclusions

In contrast to observations during the first years after German reunification, the results for the first time indicate an increased hay fever risk among children from East compared to children from West Germany. Only for asthma, a substantial reduction of the annual incidence between 2013 and 2019 was observed, followed by a disproportionately strong decrease from 2019 to 2020, the first year of

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the COVID-19 pandemic. Further research is warranted to explore possible deterministic factors for this trend that simultaneously exhibited time-dependent changes at the population level. This may include a reduced exposure of children and expectant mothers to cigarette smoke, a marked and sustained decrease in antibiotic use in young children, and reduced circulation of respiratory syncytial and rhinoviruses during 2020, as a result of contact restrictions and other preventive measures during the COVID-19 pandemic.

Keywords

Adolescents, allergy, allergic rhinitis, asthma, atopy, atopic dermatitis, atopic disease, atopic eczema, children, claims data, COVID-19, diagnostic incidence, hay fever, incidence, pollinosis, regional variation, seasonality, time trends

Citation

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