Hay fever

Introduction

Hay fever, also known as allergic rhinitis, is one of the most common allergic diseases, both in children and adolescents and in adults (Schlaud et al. 2007; Schmitz et al. 2012; Langen et al. 2013). An allergic inflammation reaction of the nose (allergic cold, allergic rhinitis) and/or eyes (allergic eye inflammation, allergic conjunctivitis) causes itchiness, sneezing attacks, increased lacrimation and secretion of mucus, and difficulty breathing through the nose. The typical hay fever symptoms often go hand-in-hand with a general feeling of being unwell, with weakness, tiredness and fatigue, which can have an impact on academic performance (interdisciplinary working group "Allergic Rhinitis", HNO 2003; Pfaar et al. 2011; Pawankar et al. 2013). Main triggers of symptoms are tree, grass and plant pollen, as well as animal skin cells, but other triggers include mould spores and house dust mites. Along with bronchial asthma and neurodermatitis, hay fever is an atopic disease. The common feature of these diseases is the production of allergen-specific immunoglobulin E-antibodies. The diseases run in families and often occur together (Wahn et al. 2005).

Indicator

KiGGS Wave 1 recorded the lifetime and 12-month prevalence ("Ever" and "In the last 12 months") of hay fever. Parents of children taking part in KiGGS for the first time were asked whether the illness had ever been medically diagnosed in their child, whether the illness had appeared in the last 12 months, and whether their child had taken medication for the illness in the last 12 months. Parents of children taking part in the KiGGS follow-up were asked if their child had had the illness since the last KiGGS survey or had used medication for the illness since then, if the illness had been medically diagnosed for the first time during this period, if the illness had appeared in the last 12 months and if their child had taken medication for the illness in the last 12 months. This data was merged to calculate the lifetime and 12-month prevalence (Schmitz et al. 2014). The tables show the lifetime and 12-month prevalence of hay fever, differentiated according to sex, age and social status.

Key results

- The lifetime prevalence of hay fever in children and adolescents is 12.6%, while the 12-month prevalence is 9.1%.
- Boys are affected by hay fever significantly more often than girls. This applies both to lifetime (14.5% vs. 10.7%) and 12-month (10.2% vs. 7.8%) prevalence, whereby the differences between the sexes are most pronounced in 14 to 17 year olds.
- A continuous increase in the 12-month prevalence of hay fever can be observed with increasing age.
- There is no statistically significant relationship between social status and prevalence of hay fever in children and adolescents.

Conclusion

A comparison of the data from KiGGS Wave 1 with the data collected six years previously in the KiGGS baseline study shows that the 12-month prevalence of hay fever has remained largely unchanged with respect to the entire age group from 0 to 17. The slight increase from 8.3% to 9.1% is not statistically significant. A statistically significant increase in prevalence can only be observed in 0 to 6-year-old girls and in 0 to 2-year-old boys, but this is based on relatively low case numbers and should therefore be interpreted with caution (Schmitz et al. 2014). The finding that boys are affected by hay fever more often than girls overall corresponds to the results of the KiGGS baseline study and other study results (Schlaud et al. 2007; Hansen et al. 2013; Ministry of Environment, Health and Consumer Protection of the Federal State of Brandenburg 2014). During adulthood, in contrast, women report suffering from hay fever more often than men (Langen et al. 2013). In international comparisons, according to data from the International Study of Asthma and Allergy in Childhood (ISAAC), Germany lies in the mid-range of countries in terms of the symptom prevalence of hay fever (Asher et al. 2006).

Note: A detailed description of the study as well as explanations on the method are available on the KiGGS study website, www.kiggs-studie.de, and in Lange et al. (2014). Further results regarding hay fever can be found in Schmitz et al. (2014).

Literature

Asher MI, Montefort S, Bjorksten B et al. (2006) Worldwide time trends in the prevalence of symptoms of asthma, allergic rhinoconjunctivitis, and eczema in childhood: ISAAC Phases One and Three repeat multicountry cross-sectional surveys. Lancet 368 (9537): 733–743

Hansen TE, Evjenth B, Holt J (2013) Increasing prevalence of asthma, allergic rhinoconjunctivitis and eczema among schoolchildren: three surveys during the period 1985-2008. Acta Paediatr 102 (1): 47–52

Interdisziplinäre Arbeitsgruppe »Allergische Rhinitis« der Sektion HNO (2003) Allergische Rhinokonjunktivitis. Leitlinie der Deutschen Gesellschaft für Allergologie und klinische Immunologie (DGAI). Allergo J 12: 182–194

Landesamt für Umwelt, Gesundheit und Verbraucherschutz Brandenburg (2014) Zeitreihe zum Indikator: Allergische Atemwegserkrankungen www.gesundheitsplattform.brandenburg.de (Stand: 23.07.2014)

Lange M, Butschalowsky HG, Jentsch F et al. (2014) Die erste KiGGS-Folgebefragung (KiGGS Welle 1). Studiendurchführung, Stichprobendesign und Response. Bundesgesundheitsbl – Gesundheitsforsch – Gesundheitsschutz 57 (7): 747–761

Langen U, Schmitz R, Steppuhn H (2013) Häufigkeit allergischer Erkrankungen in Deutschland. Ergebnisse der Studie zur Gesundheit Erwachsener in Deutschland (DEGS1). Bundesgesundheitsbl – Gesundheitsforsch – Gesundheitsschutz 56 (5/6): 698–706

Pawankar RS, Sanchez-Borges M, Bonini S et al. (2013) Allergic rhinitis, allergic conjunctivitis, and rhinosinusitis. In: Pawankar RS, Canonica GW, Holgate ST et al. (Hrsg) World Allergy Organization (WAO) White Book on Allergy: Update 2013. WAO, Milwaukee, S 27-33 www.worldallergy.org/definingthespecialty/white_book.php (Stand: 23.07.2014)

Pfaar O, Hörmann K, Umbreit C et al. (2011) Rhinitis Allergica im Kindesalter. Pädiatrische Allergologie in Klinik und Praxis 14 (1): 6–13

Schlaud M, Atzpodien K, Thierfelder W (2007) Allergische Erkrankungen. Ergebnisse aus dem Kinder- und Jugendgesundheitssurvey (KiGGS). Bundesgesundheitsbl – Gesundheitsforsch – Gesundheitsschutz 50 (5/6): 701–710

Schmitz R, Atzpodien K, Schlaud M (2012) Prevalence and risk factors of atopic diseases in German children and adolescents. Pediatr Allergy Immunol 23 (8): 716–723

Schmitz R, Thamm M, Ellert U et al. (2014) Verbreitung häufiger Allergien bei Kindern und Jugendlichen in Deutschland. Ergebnisse der KiGGS-Studie – Erste Folgebefragung (KiGGS Welle 1). Bundesgesundheitsbl – Gesundheitsforsch – Gesundheitsschutz 57 (7): 771–778

Wahn U, Seger R, Wahn V et al. (Hrsg) (2005) Pädiatrische Allergologie und Immunologie, 4. Auflage. Elsevier, Urban & Fischer Verlag, München

Table 1
Prevalence of hay fever in 0 to 17-year-old girls according to age and social status

	Lifetime prevalence		12-month prevalence	
	%	(95% CI)	%	(95% CI)
Girls	**10.7**	**(9.6–11.9)**	**7.8**	**(6.8–8.9)**
Age				
0 to 2 years	3.8	(2.0–6.9)	3.4	(1.7–6.7)
3 to 6 years	7.9	(6.1–10.1)	4.7	(3.3–6.6)
7 to 10 years	9.0	(6.7–12.0)	6.9	(4.9–9.7)
11 to 13 years	13.5	(10.8–16.7)	10.6	(8.3–13.5)
14 to 17 years	16.6	(14.1–19.4)	11.8	(9.8–14.2)
Social status				
low	8.1	(5.8–11.4)	5.9	(3.9–8.9)
medium	11.8	(10.2–13.5)	8.6	(7.3–10.0)
high	10.0	(8.4–11.8)	7.3	(5.9–9.0)
Total (girls and boys)	**12.6**	**(11.8–13.5)**	**9.1**	**(8.4–9.8)**

Table 2
Prevalence of hay fever in 0 to 17-year-old boys according to age and social status

	Lifetime prevalence		12-month prevalence	
	%	(95% CI)	%	(95% CI)
Boys	**14.5**	**(13.4–15.7)**	**10.2**	**(9.3–11.3)**
Age				
0 to 2 years	4.1	(2.9–5.8)	3.3	(2.2–4.7)
3 to 6 years	10.8	(8.3–13.9)	6.7	(5.0–8.9)
7 to 10 years	13.1	(10.6–16.1)	9.4	(7.5–11.7)
11 to 13 years	16.6	(13.9–19.8)	12.7	(10.3–15.6)
14 to 17 years	23.7	(21.1–26.5)	16.4	(14.1–19.0)
Social status				
low	17.7	(14.3–21.8)	10.2	(7.5–13.6)
medium	13.9	(12.6–15.3)	10.6	(9.4–11.9)
high	13.1	(11.0–15.4)	9.6	(7.8–11.7)
Total (girls and boys)	**12.6**	**(11.8–13.5)**	**9.1**	**(8.4–9.8)**

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