

Letters to the editor

Atopy and the month of birth

In its May number this year, *Allergy, European Journal of Allergy and Clinical Immunology* published an article by Schäfer et al. in which the authors conclude already in the title that "Manifestation of atopy is not related to patient's month of birth" (2). In my opinion, this conclusion is misleading, as the population of atopics examined by Schäfer et al. was too small to permit such an inference to be made. The writers had examined 1066 unselected preschool children, and found that 285 had a positive prick test reaction, 237 had eczema, 48 had asthma, and 125 had allergic rhinitis.

To prove my point, I will examine one part of the study in detail. The authors did skin tests with grass pollen and compared the month-of-birth distributions of those found to be negative and positive (Fig. 1B). (Surveying the data is complicated by an error in the figure; the symbols used for the two groups obviously become interchanged for the period October–December.) There were 164 children positive to grasses. According to the authors, "the chi-square test was used to test for significant differences between these groups for each single month. Differences were regarded as significant if $P < 0.05$."

We made a similar study 12 years ago, in which we examined the month-of-birth distribution of 1339 grass-sensitive children under 10 years of age (1). As a reference group, we used all those born in the surrounding province in the same years (the total population of the province was about 1 million). The risk of grass-pollen sensitivity was highest for those born in April (relative risk 1.3) and lowest for those born in August (relative risk 0.8). The risk in the total grass-positive group was defined as 1.0. The differences in risk were highly significant.

From the data of Schäfer et al., it can be seen that

they observed a highest relative risk of 1.4 for those born in March and a lowest risk of 0.6 for those born in May. However, their population was much too small for such deviations to become significant. The study population should have been three times larger to permit a risk of 1.3 to be regarded as significantly increased ($P < 0.05$) (1.3 was the highest risk observed in Finland), and the population should have been six or seven times larger to permit 0.8 to be regarded as a decreased risk. Even larger populations are required if the chi-square tests are made two-tailed; i.e., if nothing is assumed about the direction in which the differences should go.

Using Schäfer et al.'s data, I calculated that those born in October to March had a relative risk of 1.17, and that this represents a significant increase ($P = 0.015$, single-tailed test) over the average risk of 1.00. To obtain this result, however, I divided the year into two in an optimal manner, knowing the data, and the result is not statistically valid.

In summary, efforts to relate atopy and the month of birth cannot be expected to yield useful results when there are only 200–300 atopics in the study population.

References

1. BJÖRKSTÉN F, SUONIEMI I. Time and intensity of first pollen contacts and subsequent pollen allergies. *Acta Med Scand* 1981; 209: 299–303.
2. SCHÄFER T, PRZYBILLA B, RING J, KUNZ B, GREIF A, ÜBERL A K. Manifestation of atopy is not related to patient's month of birth. *Allergy* 1993; 48: 291–4.

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