

CORRESPONDENCE

The puzzled low prevalence of atopic dermatitis in kindergarten children in Romania

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To the Editor,

Here, we report the results of our study on the point prevalence of atopic dermatitis (AD) in Iasi, one of the largest cities in Romania.

Worldwide AD is one of the most common skin diseases, and its prevalence has been increasing over the last decades, although a plateau seems to be reached (1). Epidemiologic studies of atopic disorders, using the International Study of Asthma and Allergies in Childhood (ISAAC) questionnaire and direct clinical examinations, have been performed in a large number of countries worldwide. Results show a great variation from 1% up to 25% (2). The highest prevalence as assessed by a questionnaire has been reported in industrialized countries such as Switzerland and Japan reporting respective prevalence of 15.2 and 12.1% (2–4). Considerably lower prevalence has been found in former communistic East European countries such as Poland, Estonia, Lithuania (6–8.5%) and Russia, Georgia, and Uzbekistan (2.6–5.9%) (5).

There are very few data on prevalence of AD in Romania, and this is the first major study carried out in the northeastern part of Romania. As a consequence of a rapid changes in the lifestyle and socioeconomic wealth in Romania, the incidence of AD will likely change. Therefore, trends of prevalence are needed to enable adequate health service planning, prevention, and information to the families involved.

In this study, we included 912 Caucasian children (474 boys and 438 girls), age 3 to 7 yr from six kindergartens. As Iasi is a large city, differing in socioeconomic status, the kindergartens were selected from the same city area ensuring that the children belonged to comparable social classes (working families). There are two types of kindergartens in Romania: with prolonged program, which includes two meals and with short program (eight until 12 o'clock) which involves learning activities related to the age and no meals. We have chosen for the prolonged stay day care as they had more children and due to a longer stay a similar nutritional regimen. This would reduce a bias due to food-associated allergies. The medical staff provided the records containing the medical history of the child, including immunization history, hospitalizations, any injury or medical event, as well as allergies. Every child was examined by the same dermatologist during the month of December 2011, and the medical documents were carefully analyzed for signs of atopy such as pruritus, asthma, food allergy, sleeping disturbances noted by the medical staff or described by parents. Atopic dermatitis was diagnosed according to the UK criteria.

From 912 children, 95.94% were evaluated with normal skin on the date of the medical examination and with no history of allergies. The clinical parameters related to atopic diseases are given in Table 1. The point prevalence of AD was very low and

amounted to 0.22%, and there was no significant difference between girls (0.23%) and boys (0.21%). The prevalence estimated in this study is lower than previously reported prevalence figures in Romania. In 2011, Porr (6) found prevalence of 6.4% in 813 schoolchildren in Sibiu; however, this study was based on the ISAAC questionnaires using 6-month period prevalence of AD while in our study the presence of disease was established after physical examination by a dermatologist. When one measures a point prevalence, there is always a chance of underestimation due to the relapsing nature of the disease, and the prevalence by direct skin examination is lower than that reported by questionnaire study (7).

In 1998, Popescu et al. (8) investigated the prevalence of AD in children aged 6–12 yr reporting a point prevalence of 2.4%. This study has been performed in more urbanized Bucharest, so the differences in lifestyle and socioeconomic status can at least partly explain lower prevalence rate found in Iasi children. Heinrich et al. (9) concluded that the prevalence of AD was highly dependent on the social class. This study, based only on physical examination, reported the prevalence of AD of 2% in children belonging to social class III (more than 10 yr of parent's education), 3% in social class II (10 yr of parent's education), and no child with signs of atopy was observed in social class I (< 10 yr of parent's education).

In addition to environmental factors, genetic factors play an important role in susceptibility for AD. The strongest genetic factor for AD is filaggrin gene mutations (Rodriguez) (10). At present, there are no data on the prevalence of FLG mutations in Romania. Although tremendous increase in the prevalence of AD in industrialized countries implies a strong effect of environmental exposure, it is still not clear which environmental triggers are decisive for the development of AD. Likely, the low incidence of AD reported in this study can at least partly be caused by different nutrition habits and lifestyle in Romania. In this geographical area, cow's milk and eggs are the main alimentary principles to the preschool children. Also, other lifestyle factors known to affect AD likely play a role such as type of water, skin care practices, tobacco smoke use. Furthermore, specific for Eastern Europe countries such as increased use of antibiotics and vaccination programs during Communism period might be of relevance for the immune system. This holds on also for the exposure to contact and inhalant allergens such as house-dust mite (*Dermatophagoides pteronyssinus*, *D. farinae*), animal dander, tree and grass pollens, and molds associated with high incidence of asthma.

A limitation of this study was the age of the included children. The onset of AD typically occurs by the age of 1 yr in approximately 60% of cases, and the prevalence is the highest in children up to 1 yr. However, in Romania, majority of children younger than 3 yr are not enrolled in kindergartens. In

Table 1 Prevalence of clinical parameters related to atopic dermatitis

	Xerosis	Pityriasis alba faciei	Keratosis elbows	Keratosis pilaris	Xerosis palmaris	Atopic Dermatitis	Total
Age	Number of cases						
3–4 yr	8	0	0	3	0	1	174
4–5 yr	4	1	1	1	0	0	285
5–6 yr	3	0	0	3	0	0	229
6–7 yr	8	0	1	1	1	1	224
Total	23	1	2	8	1	2	
3–4 yr	4.60%	0.00%	0.00%	1.72%	0.00%	0.57%	
4–5 yr	1.40%	0.35%	0.35%	0.35%	0.00%	0.00%	
5–6 yr	1.31%	0.00%	0.00%	1.31%	0.00%	0.00%	
6–7 yr	3.57%	0.00%	0.45%	0.45%	0.45%	0.45%	

case of skin problems, they are examined by pediatricians, and only in severe cases, they are hospitalized in pediatric hospitals. Thus, young children are examined by a dermatologist only in very few cases, and therefore, there are no statistic data on the prevalence of AD in this age-group. Furthermore, the differences in socioeconomic status, ethnicity, and lifestyle differ largely across Romania. To allow comparison with literature data and epidemiological studies, use of ISAAC questionnaires in combination with clinical examination in larger, well-defined groups would be advised.

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