Atopic dermatitis in children and adolescents seen at a general hospital in the City of Buenos Aires

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ABSTRACT

Atopic dermatitis (AD) is an inflammatory skin disease highly prevalent in pediatrics as per international studies. There is scarce information on the epidemiological characteristics of AD in the Argentine pediatric population.

The objective of this study was to describe the prevalence and clinical characteristics of AD in a population of Argentine children seen at the Department of Pediatrics of a general hospital.

Observational, cross-sectional study. Five hundred patients were randomly included; their mean age was 10 years (SD: 5); 50% (250) were female. A total of 24 had AD. The overall prevalence was 5% (95% confidence interval: 3–7) and 3/24 were severe forms. The most frequent atopic comorbidity was asthma.

The prevalence of AD in our population is similar to that of other countries. Our study provides new data on the epidemiological characteristics of AD in our region.

Key words: eczema; epidemiology; atopic dermatitis; comorbidity; child.

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INTRODUCTION

Atopic dermatitis (AD) is a chronic inflammatory skin disease,¹ highly frequent in children. It is considered a global public health problem due to its increasing prevalence, its impact on the quality of life of patients and their families, and the high financial costs for families and health systems.^{2,3}

In the 2009 and 2012 studies by the International Study of Asthma and Allergies in Childhood (ISAAC), South America emerged as a region of high prevalence, with a percentage of AD greater than 15% in children aged 6 and 7 years. There is scarce information on the prevalence of AD in our country,⁴ so our aim was to describe the prevalence of this disease in a population of children in a general hospital.

OBJECTIVES

To describe the overall prevalence of atopic dermatitis and the clinical characteristics of the study population.

POPULATION AND METHODS

An observational, cross-sectional study was conducted between January 1st, 2019 and January 1st, 2020 in pediatric patients who were members of the medical care program of Hospital Italiano de Buenos Aires, Argentina (PMHI). The pediatric population in this health care coverage system includes approximately 20 000 members who had a middle-income status and most of whom live in urban areas of the City of Buenos Aires and Greater Buenos Aires. All the medical care of members is recorded centrally in an information data repository, which includes an electronic medical record (EMR).

Patients younger than 19 years who were active members of the PMHI between 1/1/2019 and 1/1/2020 and who received follow-up for at least 6 months were included. AD case was defined as any patient with a diagnosis of AD according to the Hanifin and Rajka criteria.5 Severe AD was defined as the presence of at least 1 of the following: more than 1 consultation per month with the Department of Pediatrics and/or Pediatric and Adolescent Dermatology and/or Pediatric Allergy due to AD; and/or use of the following treatments: cyclosporine, methotrexate, psoralen, phototherapy, or oral meprednisone, in context and as treatment for AD, and/or hospitalization for the treatment of atopic dermatitis.

The medical records of randomly selected

patients were reviewed by specialists in allergy and dermatology. To describe the characteristics and prevalence of AD during the study period, for an expected frequency of 6%,⁶ a semiamplitude of 0–4%, and a 95% confidence, a total of 500 medical records were reviewed. The sample size was estimated using the Power and Precision software. A random sampling of patients who met the inclusion criteria was performed and the prevalence during the period described was estimated using the total number of medical records assessed as the denominator. Prevalence is described as proportion and its confidence intervals, respectively.

The study was approved by our hospital's Ethics Committee and conducted in full compliance with the Declaration of Helsinki and the local Good Clinical Practice guidelines (law no. 3301 CABA, resolution 1490).

RESULTS

A total of 500 patients with a median age of 10 years (SD: 5) were randomly included in the study; 50% (250) were female.

Of the 500 patients assessed, 24 were diagnosed with AD. The overall prevalence was 5% (95% confidence interval [CI]: 3–7). Of the total population with AD, 13% (3) had moderate-severe disease. *Table 1* describes the clinical characteristics of patients with AD.

It was observed that no patient with moderate-severe AD received systemic treatment (cyclosporine, methotrexate, psoralen, meprednisone) orally and/or phototherapy for at least 2 months, and that all had controlled disease for at least 8 weeks without exacerbations. None of the patients with AD had ichthyosis vulgaris, alopecia areata, or arterial hypertension. *Table 2* describes the associated comorbidities observed in patients with AD.

DISCUSSION

The main finding of this study was that the overall prevalence of AD in children in our population was 5% (95% CI: 3–7). According to Silverberg et al.,⁷ the overall prevalence observed through surveys in Argentina in the adolescent population was 9.7%. Unlike that study, which was based on the use of surveys completed by parents and adolescents, our study was based on the review of medical records by experts, in compliance with the Hanifin and Rajka criteria to establish the diagnosis. This may account for such discrepancy. Szot Mesa et al.,⁸ found

Characteristics			N	%
Related to the patient	Female Age (years)*		8 9	33 6
Congenital	GA	≥ 38 weeks < 38 weeks Not recorded	16 2 6	67 8 25
	Delivery	Vaginal C-section Not recorded	7 10 7	29 42 29
	Season	Summer Fall Winter Spring	5 10 5 4	21 42 21 17
Hospitalization in Neonatal Care Unit		Yes Not recorded	13 11	54 46
Antibiotics during first month of life		No Not recorded	14 10	58 42
Breastfeeding during the first 3 months of life		Yes No Not recorded	7 10 7	29 42 29
Used emollients in the first 3 months of life		Yes No Not recorded	2 12 10	8 50 42
Used syndets in the first 6 months of life		Yes No Not recorded	2 11 11	8 46 46

Table 1.	Clinical	characteristics	of	patients with	atop	ic	dermatitis	(N: 2	24)
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*Mean (standard deviation)

a 3% prevalence (95% CI: 0.3–5.5) in Chilean children under 5 years of age based on the Hanifin and Rajka criteria, which could explain such prevalence, as it was based on compliance with specific criteria to reach the diagnosis of AD.

The most frequent atopic comorbidity in our study was asthma in one third of the patients (29%), which is consistent with the age group studied and in contrast to adult patients with AD, in whom rhinitis was the most frequent comorbidity, according to Angles et al.^{8,9} This result may be associated with the atopic march phenomenon.^{10,11}

As observed by Calov M et al.,^{11–13} in the northern hemisphere, and as reported by Yokomich H et al. in Japan,^{11–14} patients born in the fall had a higher prevalence of AD. It has been proposed that exposure to aeroallergens and seasonal viruses during this time of year favors the development of dry skin and itching. In addition, exposure to UV rays during the spring and summer may improve the skin barrier function,¹⁵ and thus reduce the risk of developing AD.¹⁵ Although 71% of our patients had pets at home, as reported by Zirngibl et al., there was a negative relationship between pet ownership during the first year of life, particularly dogs, and the development of AD in the first and second years of life. However, Pohlabeln et al. concluded that, in families with a history of allergy, early exposure to dogs reduced the prevalence of asthma and eczema in the first years of life.

In relation to disease severity, our study showed a low percentage of patients with moderate and severe AD. According to data published on the severity of dermatitis in children in the United States and in the United Kingdom, the percentage of moderate and severe dermatitis was 26% and 7%, and 12% and 6%, respectively. Such differences are probably related to demographic differences, among others, and the modality of data collection.

An interesting finding from our study is that no child with severe atopic dermatitis had received systemic treatment or phototherapy. We believe that this could be due to the underestimation of the clinical features by the physician and the family, the lack of periodic controls and/or the caregivers' fear of the adverse effects caused by systemic treatments.

A weakness of this study is that it was carried out in a population attending a general hospital corresponding to a middle socioeconomic status, so its results may not be representative of other populations with other socioeconomic contexts. We believe that the most relevant strengths of our study are that the patients' medical records were reviewed by physicians with experience in AD and that data were collected from electronic medical records, which are a reliable and secure source, unlike the studies that used selfadministered surveys, where the subjectivity of the information provided by the patient could be considered a weakness.

Table 2. Comorbidities in patients with atopic dermatitis

		N	%
History of asthma and/or rhinitis and/or rhinoconjunctivitis and/or ichthyosis vulgaris and/or alopecia areata and/or psychiatric condition and/or Down syndrome and/or contact dermatitis and/or hand eczema and/or food allergy	Yes	9	37
	No	15	63
History of asthma and/or bronchospasm	Yes	7	29
	No	17	71
History of rhinitis and/or rhinoconjunctivitis	Yes	3	12
	No	21	88
Diagnosis of Down syndrome	Yes	1	4
	No	23	96
History of contact dermatitis and/or hand eczema	Yes	2	8
	No	22	88
History of food allergy	Yes	1	4
	No	23	96
History of body mass index > 25	Yes	2	8
	No	22	92
History of molluscum and/or impetigo and/or warts	Yes	4	17
	No	20	83
History of high HDL and/or LDL and/or total cholesterol levels	Yes	1	4
	No	22	92
	Not recorded	1	4
Patient in follow-up by psychologist or psychiatrist in the context of AD	Yes	1	4
	No	23	96
Pets at home	Yes	17	71
	No	3	13
	Not recorded	4	17
History of household members who smoke tobacco	Yes	2	8
	No	5	25
	Not recorded	16	67
Living in an urban area	Yes	11	46
	Not recorded	13	54
History of family member with AD and/or rhinitis and/or rhinoconjunctivitis and/or food allergy and/or asthma and/or latex allergy	Yes	5	21
	No	3	13
	Not recorded	20	83
High total IgE in any lab	Yes	1	4
	No	3	13
	Not recorded	20	83
Age at onset of AD symptoms	< 2 years	10	42
	2–12 years	9	38
	> 12 years	5	20

N: number.

IgE: immunoglobulin E.

AD: atopic dermatitis.

The availability of epidemiological data on AD in the pediatric population makes it possible to make this disease and its impact on the population more visible, as well as to identify associations with other conditions. ■

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