

## Prevalence of Severe Atopic Dermatitis in Adults and Children in a Health Area of Madrid, Spain

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Atopic dermatitis (AD) is one of the most common skin diseases, with a prevalence of up to 25% in children and 2%-5% in adolescents [1]. The worldwide prevalence of AD in adults, in whom the disease is often severe, has been estimated at 1%-3% [2]. To date, however, the prevalence of moderate-severe AD remains unclear in both the pediatric and the adult population. Although a recent study estimated the prevalence of severe AD in adults to be 0.08% in 3 areas of Spain [3], accurate information on children is lacking.

We present a descriptive study on the prevalence of moderate and severe AD in patients aged <18 and ≥18 years in a health area of Madrid, Spain. Carried out in 2016 and 2017, the primary objective of the study was to provide real-world data from daily clinical practice.

A cross-sectional study was conducted by reviewing electronic medical records from our health area for the years 2016 and 2017. This search included all clinical histories containing the words “atopic dermatitis/atopic eczema” and 1 or more of the following treatments: immunosuppressants (cyclosporine, methotrexate [off-label], azathioprine [off-label], mycophenolate mofetil [off-label]), biologics (omalizumab [off-label], ustekinumab [off-label], dupilumab), systemic corticosteroids, and/or other drugs (immunoglobulins [off-label], apremilast [off-label], UVB phototherapy). We performed retrospective estimations of disease severity using the Investigator’s Global Assessment (IGA) scale [4], which classifies the severity of the disease on a scale ranging from 0 to 4 points; only those patients with an IGA score of 3 (moderate AD) or 4 (severe AD) were included. We also examined the following variables: age, sex, atopic comorbidities, and age at disease onset. Study data were validated to ensure the quality of the results. A descriptive univariate statistical analysis was performed to determine the prevalence and the 95% confidence interval (CI).

Our health area includes 393 418 individuals ≥18 years of age, of whom 160 fulfilled the study criteria. A total of 107 patients were included in 2016 and 117 in 2017 (64 were included in both years). The prevalence of moderate-severe

AD requiring immunosuppressants in adults was 0.028% for 2016 and 2017 (95%CI, 0.022%-0.032% and 0.024%-0.035%, respectively). The prevalence of moderate AD (IGA 3) was 0.008%, and that of severe AD (IGA 4) was 0.02% for 2016 and 2017. With regard to the pediatric population, our health area includes 54 182 children, 8 of whom met the study criteria, ie, 5 in 2016 and 7 in 2017 (4 [50%] were included in both years). The prevalence of moderate-severe AD was 0.01% for 2016 and 2017 (95%CI, 0.005%-0.02% for both). Other results are summarized in the Table.

Our data illustrate the low prevalence of severe AD in adults and children in our health area. The prevalence of patients with moderate-severe AD requiring systemic medication was 0.028% in those aged ≥18 years and 0.015% among those aged <18 years. Although the prevalence of AD is more common in children, severe cases clearly occur more frequently in adulthood, thus increasing the need for systemic medication, including immunosuppressants. A recent study carried out in other areas of Spain found that the prevalence of severe AD was 0.08% in adults (95%CI, 0.07%-0.09%) [3], although the authors did not report data for children. The difference in prevalence found in the abovementioned study is difficult to explain, since the inclusion criteria were similar. Selection bias, however, may explain this discrepancy. In our study, all patients were carefully selected and had been seen by a specialist in allergology or dermatology, while in the other study, electronic data were obtained from primary care, and patients were not reviewed by specialists.

Of note, only 64 of the 160 patients aged ≥18 years with moderate or severe disease in 2016 (40%) had the same disease severity the following year. Of the children studied, 4 (50%) had consistent degrees of severity over this time. This means that the severity of the disease is not stable in around 50% of patients with severe AD and that the need for systemic medication fluctuates. Nevertheless, the prevalence of the disease seems to be constant in both children and adults.

In the study population, onset of AD was in childhood in 57.02% of patients and in adulthood (≥18 years) in 22.95%. This finding is consistent with a recent systematic review that found that 1 in 4 adults with AD report adult-onset disease [4]. In the US, 10%-30% of childhood AD patients continue to have the disease in adulthood [5], and of these, 20% have moderate to severe symptoms. In Denmark, a cohort study [6] including approximately 1300 individuals aged 28-30 years who had undergone a 15-year follow-up reported persistent AD in 50% of those diagnosed in school age. The study also revealed that the significant risk factors for persistent disease compared with outgrowing AD were early onset (before 2 years), childhood allergic rhinitis, and hand eczema.

Most patients had historically associated atopy-related diseases such as asthma, allergic rhinitis, and food allergy (Table). Of these, asthma and rhinitis were the most prevalent.

Systemic immunosuppressive therapies have been a mainstay in the management of moderate and severe AD cases [7], with dupilumab [8], a human monoclonal antibody that blocks the signalling of IL-4 and IL-13, being the most recent addition. In our series, systemic corticosteroids were the most common drug used in adults, followed by UVB

Table. General Characteristics, Comorbidities, and Medication Administered

Groups	Adults (≥18 y)		Children (<18 y)	
	393 418		54 182	
Total population				
Year of study	2016	2017	2016	2017
# of patients meeting inclusion criteria	107 <sup>a</sup>	117 <sup>a</sup>	5 <sup>b</sup>	7 <sup>b</sup>
# of patients with				
IGA-3	32	35	2	3
IGA-4	75	82	3	4
Estimated prevalence, %	0.028	0.028	0.01	0.01
95% confidence interval	0.022-0.032	0.024-0.035	0.005-0.02	0.005-0.02
Sociodemographic characteristics of patients with moderate-severe AD in 2016 and 2017	160 patients		8 Patients	
Mean age, y	35	35	12.5	12.5
Range: 18-44 y	23	17	–	–
45-64 y	6	5	–	–
≥65 y	2	3	–	–
Sex (women)				
Atopic comorbidities	40	58	2	2
Asthma	33	39	0	0
Allergic rhinitis	36	46	2	2
Nasal polyposis	0	0	0	0
Food allergy	16	21	1	3
Medication administered				
Systemic corticosteroids	72	75	0	3
UVB phototherapy	26	42	0	0
Cyclosporine <sup>c</sup>	20	21	4	4
Methotrexate <sup>c</sup>	17	21	0	0
Azathioprine <sup>c</sup>	11	7	0	0
Mycophenolate mofetil <sup>c</sup>	1	0	0	0
Omalizumab <sup>c</sup>	3	2	0	0
Dupilumab	0	6	0	0
Patients hospitalized, %	0	0	0	0

Abbreviation: IGA, Investigator's Global Assessment.

<sup>a</sup>64 (40%) patients in both years.

<sup>b</sup>4 (50%) patients in both years.

<sup>c</sup>Off-label.

phototherapy, cyclosporine, methotrexate, and azathioprine. Dupilumab was used in 6 patients during 2017 (Table). However, children were treated with systemic corticosteroids and/or cyclosporine only.

In conclusion, moderate to severe AD requiring treatment with systemic immunosuppressants has a low prevalence in adults and children. Of the 160 patients studied, only 64 adults (40%) and 4 children (50%) had persistent severity for 2 consecutive years. Our findings may be subject to bias resulting from underreporting of the disease.

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#### Conflicts of Interest

The authors declare that they have no conflicts of interest.

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