A Multicenter Study on the Prevalence of Clinical Patterns and Clinical Phenotypes in Adult Atopic Dermatitis

Nettis E[1], Ortoncelli M[2], Pellacani G[3], Foti C[4], Di Leo E[5], Patruno C[6], Rongioletti F[7], Argenziano G[8], Ferrucci SM[9], Macchia L[1], Napolitano M[10], Ribero S[2], Bonzano L[11], Romita P[4], Di Bona D[1], Bennardo L[6], Piras V[7], Calabrese G[8], Tavecchio S[9], Detoraki C[12], Carbonara M[13], Fabbrocini G[14]

[1]Department of Emergency and Organ Transplantation, School and Chair of Allergology and Clinical Immunology, University of Bari - Aldo Moro, Bari, Italy
[2]Medical Sciences Department, Dermatologic Clinic, University of Turin, Turin, Italy
[3]Dermatology, University of Modena and Reggio Emilia, Modena, Italy
[4]Department of Biomedical Science and Human Oncology, Dermatological Clinic, University of Bari, Italy
[5]Section of Allergy and Clinical Immunology, Unit of Internal Medicine—"F. Miulli" Hospital, Acquaviva delle Fonti, (BA), Italy
[6]Unit of Dermatology, Department of Health Sciences, University Magna Graecia of Catanzaro, Catanzaro, Italy
[7]Unit of Dermatology, Department of Medical Sciences and Public Health, University of Cagliari, Italy
[8]Dermatology Unit, University of Campania, Naples, Italy
[9]UOC Dermatologia, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy Dipartimento di Fisiopatologia Medico-Chirurgica e dei Trapianti, Università degli Studi di Milano, Milan, Italy
[10]Department of Health Sciences "Vincenzo Tiberio", University of Molise, Campobasso, Italy
[11]Allergology Service, AUSL Modena, Italy
[12]Department of Internal Medicine and Clinical Pathology, Azienda Ospedaliera Universitaria Federico II, Naples, Italy
[13]National Institute of Statistics (ISTAT), Bari, Italy
[14]Section of Dermatology, Department of Clinical Medicine and Surgery, University of Naples Federico II, Naples, Italy

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Atopic dermatitis (AD), also known as atopic eczema, is one of the most common inflammatory skin diseases, affecting 15%-30% of children and up to 14.3% of adults, of whom approximately 20% have moderate-to-severe disease [1].

The clinical presentation of AD in adults varies depending on age, ethnicity, and the underlying biologic mechanisms [2]. Typically, the disease progresses in 3 different ways: the persistent form, in which AD appears in childhood and persists, with its chronic-recurrent course, until adulthood; the relapsing form, with childhood onset of the disease and a relapse of symptoms after some symptom-free years; and adult-onset AD, in which the disease first appears in adulthood [1]. Moreover, clinical data and literature suggest the existence of various clinical forms of presentation of AD in adults that can sometimes coexist in the same patient [1].

Therefore, we conducted a study whose primary objective was to determine the frequency and clinical characteristics of adult AD.

We evaluated data from an Italian multicenter retrospective cohort. The study population comprised consecutive adult patients evaluated by highly experienced dermatologists belonging to 10 Italian university dermatological centers between October 2018 and February 2020 and diagnosed with AD according to the recommendations of the European Task Force Atopic Dermatitis/European Academy of Dermatology and Venereology [3]. The investigators performed a dermatological examination to characterize the skin manifestations and thus distinguish between the different cutaneous phenotypes, as previously described [1].

We assessed patients aged ≥18 years with AD lasting at least 6 months based on their clinical history, demographic data, and data on allergic comorbidities and concomitant medications or procedures. Disease severity was assessed using the Eczema Area and Severity Index (EASI) (range, 0-72). Additionally, we collected patient-reported outcomes, including peak score on the Numerical Rating Scale (NRS) for pruritus (range, 0-10), peak score on the NRS for sleep (range, 0-10), and the Dermatology Life Quality Index (range, 0-30). Total serum IgE levels and a peripheral blood eosinophil count were also collected.

The study protocol was approved by the main ethics committee, and informed consent was obtained from all patients.

Comparisons between clinical indicators were made using the Fisher exact test. All statistical analyses were performed with IBM SPSS Statistics for Windows, Version 20 (IBM Corp). The threshold for statistical significance was set at $P<.05$.

The cohort included 550 patients with AD (Supplementary Table 1). In brief, 242 (44.0%) were female, and the median (IQR) age was 38.0 (27.0) years. The median duration of AD was 21.0 (21.8) years, and the median EASI score was 27.0 (9.3).

The persistent form of adult AD was recorded in 262 (47.6%) patients, the relapsing form in 86 (15.6%), and the adult-onset form in 202 (36.8%) (Supplementary Table 2).

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The most frequent AD phenotype was the classic adult type, with lichenified/exudative flexural dermatitis in 267 patients (48.5%); this is often associated with head/neck eczema or hand eczema, which was observed in 45 (8.2%) and 41 (7.5%) patients, respectively, followed by the prurigo nodularis (PN)–like pattern in 47 (8.5%) (Supplementary Table 2).

In our cohort, AD had first appeared in childhood in 348 patients (63.3%) (persistent form plus relapsing form: childhood-onset AD subgroup), whereas in 202 (36.7%), it first appeared directly in adulthood (adult-onset AD subgroup). A subanalysis of the differences between the 2 subgroups in terms of prevalence of AD phenotypes revealed that lichenified/exudative flexural dermatitis alone and associated with portrait dermatitis was more common in childhood-onset AD than in adult-onset AD (191/348 [54.9%] vs 76/202 [37.6%], $P<.01$; and 14/348 [4.0%] vs 0/202 [0%], $P<.01$, respectively). The nummular eczema (NE)–like phenotype and PN-like pattern appeared to be more associated with adult-onset than childhood-onset AD (15/202 [7.4%] vs 6/348 [1.7%], $P<.01$ and 42/202 [20.8%] vs 5/348 [1.4%], $P<.01$, respectively). No statistically significant differences were found regarding the other phenotypes between childhood-onset AD and adult-onset AD.

The present study highlighted the heterogeneity of the signs and symptoms of adult AD.

Adult-onset AD was recorded in 36.7% of the cohort. Recent studies reported onset after age 18 years in various percentages of AD patients (range, 9.0%-88.0%) [4].

The 2 predominant adult AD phenotypes in our study were lichenified/exudative flexural dermatitis alone or associated with portrait dermatitis and PN-like AD. These findings are consistent with those of previous studies, which reveal more flexural involvement in adult AD [4-7]. We found that lichenified/exudative flexural dermatitis was more common in the childhood-onset subgroup. This contrasts with data from previous studies that had found lower rates of flexural lesions in childhood-onset AD than in adult-onset AD (119/232 [51.3%] vs 14/48 [29.7%]; $P<.01$) [5] or no statistically significant differences between the 2 subgroups [4,7].

PN-like AD is characterized by distinct, intensely itching papules and nodules, mainly affecting the limbs and the upper part of the back. In our study, this clinical phenotype was more common in the adult-onset group. In 2 studies that stratified phenotype by age of onset of AD, prurigo was found in 6.3% (4/63) and in 30.5% (11/36) of adult-onset participants, respectively [6,8].

The NE-like phenotype presents with eczematous, sometime "weeping" lesions and is often associated with cutaneous xerosis. NE can also be the clinical expression of other clinical conditions such as allergic contact dermatitis due to fragrances or preservatives [9,10]. In the present cohort, this clinical phenotype was more common in the adult-onset group, thus supporting the results of a previous study in which adult-onset AD was more frequently associated with significantly higher rates of NE lesions than childhood-onset AD (21/149 [15%] vs 12/207 [6.4%]; $P<.01$) [5]. This finding did not confirm those of Son et al [6], who found no statistically significant differences between the 2 groups.

Our study is limited by its relatively small sample size. Its strength is that all the phenotypes were collected in a tertiary teaching hospital.

In conclusion, to our knowledge, this is the first study to highlight the prevalence of the different clinical forms of adult AD according to a recently proposed classification [1]. Moreover, despite many common features, significant differences can be identified between childhood-onset AD and adult-onset AD subgroups. A clear definition of the different clinical phenotypes of AD plays a key role in recognition of the disease, appropriate treatment, and prognosis.

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Conflicts of Interest

Dr Ferrucci has received speaker's fees from Novartis and Sanofi Genzyme. She has also acted as Principal Investigator for Eli Lilly, AbbVie, and Sanofi Genzyme and as an advisory board member for Sanofi Genzyme.

During the past 5 years, Dr Macchia has received fees for organizing training.

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Elisabetta Di Leo
Section of Allergy and Clinical Immunology, Unit of Internal Medicine
"F. Miulli" Hospital
Strada Provinciale per Santeramo Km 4.100
Acquaviva delle Fonti, (BA), Italy
E-mail: elisabettadileo71@libero.it

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