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What's in a name? Atopic dermatitis or atopic eczema, but not eczema alone

J. I. Silverberg[1] | J. P. Thyssen[2] | A. S. Paller[3] | A. M. Drucker[4] | A. Wollenberg[5] | K. H. Lee[6] | K. Kabashima[7] | G. Todd[8] | P. Schmid-Grendelmeier[9,10] | T. Bieber[11]

[1]Departments of Dermatology, Preventive Medicine and Medical Social Sciences, Northwestern University Feinberg School of Medicine, Chicago, IL, USA

[2]Department of Dermatology and Allergy, Herlev-Gentofte Hospital, University of Copenhagen, Hellerup, Denmark

[3]Departments of Dermatology and Pediatrics, Northwestern University Feinberg School of Medicine and the Ann and Robert H. Lurie Children's Hospital of Chicago, Chicago, IL, USA

[4]Department of Dermatology, Alpert Medical School of Brown University, Providence, RI, USA

[5]Department of Dermatology and Allergy, Ludwig-Maximilian-University Munich, Munich, Germany

[6]Department of Dermatology and Cutaneous Biology Research Institute, Yonsei University College of Medicine, Seoul, South Korea

[7]Department of Dermatology, Kyoto University Graduate School of Medicine, Kyoto, Japan

[8]Department of Medicine, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa

[9]Christine Kühne-Center for Allergy Research and Education (CK-CARE) Davos-Augsburg-Bonn-St Gallen-Zürich, St Gallen, Switzerland

[10]Allergy Unit, Department of Dermatology, University Hospital, Zurich, Switzerland

[11]Department of Dermatology and Allergy, University of Bonn, Germany, and Christine Kühne-Center for Allergy Research and Education, Davos, Switzerland

Correspondence
Jonathan I. Silverberg, Departments of Dermatology, Preventive Medicine and Medical Social Sciences, Northwestern University Feinberg School of Medicine, Chicago, IL, USA.
Email: JonathanISilverberg@Gmail.com

Edited by: Thomas Bieber

Abstract

Background: The ideal nomenclature of atopic dermatitis (AD) / atopic eczema (AE) has long been contested. However, it is becoming increasingly clear that the disparate nomenclature of this disease may have important deleterious ramifications for clinical care and research.

Materials and Methods: An electronic questionnaire regarding the preferred nomenclature for AD was sent to councilors of the International Eczema Council (IEC) (n=77), an international group of clinicians and researchers with expertise in AD/AE. The survey consisted of 2 questions for consensus regarding the preference for an atopic prefix, and preference for the term AD or AE, and an exploratory question about the acceptability of the terms AD, AE or eczema. Consensus was defined a priori as at least 90% agreement for each question with a response rate of at least 90%.

Results: Seventy-one of 77 (92.2%) IEC councilors and associates responded to the survey, with all respondents completing the entire survey. Consensus was reached for question 1, with 69 of 71 respondents (97.2%) preferring the atopic prefix. However, consensus was not reached for question 2, with 40 respondents (58.0%) preferring the term AD and 30 (43,5%) preferring AE. Sixty-three respondents (88.7%) and 55 (77.5%) felt that the terms AD and AE were acceptable, whereas only 11 (15.5%) felt that eczema was acceptable.

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Conclusions: The IEC noted that the term eczema is imprecise, and its use is confusing. The consensus of the IEC was to recommend use of the prefix "atopic" (i.e., AD or AE) in all publications, presentations and discussions about the disorder.

KEYWORDS
atopic dermatitis, atopic eczema, nomenclature, terminology, consensus

1 | INTRODUCTION

Atopic dermatitis and atopic eczema (AD and AE) are terms that describe a common, clinically defined, pruritic, inflammatory skin condition, characterized by a chronic and relapsing dermatitis in typical anatomical sites. The ideal nomenclature of AD/AE has long been contested. However, it is becoming increasingly clear that the disparate nomenclature of this disease may have important deleterious ramifications for clinical care and research.

1.1 | Historical aspects of AD/AE nomenclature

The criteria and terms used to denote AD/AE were recently reviewed.[1] The term "eczema" (Greek for boiling) was introduced to the medical literature by Robert Wilan (1757-1812) as a subgroup of the vesicular (or bullous) disorders and represents a description of primary lesions instead of a disease or etiology. Recurrent and often passionate discussions about the exact definition of eczema have occurred for centuries.[2]

The "Oxford History of English" postulates that the term "dermatitis" was first included in the Oxford English Dictionary only in 1876.[3] Other names used for AD at that time included "porrigo larvalis," "lichen agrius," and "prurigo Besnier". Atopic eczema (AE) was first used by Abraham Walzer (1883-1965) in 1928.[2] In 1933, Sulzberger and Wise first coined "atopic dermatitis" as a footnote in the "1933 Year Book of Dermatology and Syphilology".

The term "atopic" was included in the terminology as it emerged that some individuals with AD/AE reacted on the skin to allergens. Further, the term "atopy" (Greek for "out of place") was introduced by Coca and Cooke in 1923 as part of a new definition on hypersensitivities, categorized with abnormal immunological patterns. However, the definition of the term atopy is controversial. Some decades ago, atopy was defined by the associated diseases, as an "inheritable tendency to develop the atopic diseases, namely hay fever, bronchial asthma, and atopic dermatitis." Presently, the World Allergy Organization defines atopy as "a personal and/or familial tendency, usually in childhood or adolescence, to become sensitized and produce Immunoglobulin E antibodies in response to ordinary exposure to allergens, usually proteins." Given the lack of a clear definition, some prefer to exclude the term "atopy" and use "eczema" as the standalone disease nomenclature.

A major question has been whether dermatitis, eczema, and other terminology represent the same entity. A pioneering description of AD/AE or "constitutional prurigo" was provided by Hebra as a chronic, recurrent skin disorder, characterized by intensely pruritic papules and nodules on the trunk and limbs.[4] Later, it was accepted that infantile eczema and neurodermatitis/diathetic prurigo in children and adults represented the same disease. During the second half of the twentieth century, the term "constitutional eczema" was preferred by French dermatologists, "neurodermatitis" by German-speaking dermatologists, and "atopic eczema" by British dermatologists.[4] Presently, many use the terms *dermatitis*, *AD*, and eczema synonymously, whereas others use the term eczema as a clinical description of the morphology of AD/AE lesions, which encompasses the acute, subacute, and chronic ill-defined lesions present in AD/AE.

A recent consensus statement by the International League of Dermatological Societies, however, did not recognize eczema as an official morphological term.[5] The disparate nomenclature used for AD/AE might introduce confusion and bias in reporting, as reviewed below. Hence, there is a need for a common nomenclature when discussing disease entities such as AD/AE.

1.2 | Recent trends in the use of terminology

Some interesting trends of terminology have emerged for AD over the past few decades as shown in a recent review article.[6] Publications using any of the different terms for AD/AE increased over the past 60 years,[6] reflecting a combination of the increasing AD/AE prevalence worldwide,[7–9] the growing interest in the clinical features and scientific basis of AD/AE, and increases in resources, technologies, and the ability for scientific communication internationally. The use of the terms "atopic dermatitis" and "atopic eczema" particularly increased in the late 1970s, coinciding with discussion of the seminal classification for AD/AE at the International Symposium of Atopic Dermatitis in Oslo in 1979, followed by the publication of the Hanifin and Rajka criteria for AD/AE.[10] Publications using the term AD continue to increase annually, while publications using AE have slightly decreased annually between 2008 and 2015.

1.3 | Current use of terminology

1.3.1 | Scientific literature

Of the many terms used for AD/AE in the scientific literature (Table 1), a recent systematic review and meta-analysis found that

TABLE 1 Different terms used for AD in the scientific literature

Atopic dermatitis
Atopic eczema
Atopic neurodermatitis
Atopiform dermatitis
Besnier's prurigo
Childhood eczema
Dermatitis
Eczema
Flexural eczema
Infantile eczema
Lichen agrius
Neurodermatitis
Porrigo larvalis

"atopic dermatitis" and "eczema" were the most common.[6] In MEDLINE (PubMed), 64.4% of publications addressing AD/AE used the term "atopic dermatitis," 46.9% "eczema" and only 7.5% "atopic eczema." Few publications used the terminology "childhood eczema," "flexural eczema," "infantile eczema," "atopic neurodermatitis," or "Besnier's prurigo." AD was also the most frequently used term in studies of adults and children, humans and animals, males and females, followed by "eczema" alone. AD was the most commonly used term in the highest impact-factor dermatology and allergy/immunology journals, whereas "eczema" was the most commonly used term in the pediatric and internal medicine literature. "Atopic eczema" was the least commonly used of the three terms in all of these subgroups. It is imperative that harmonization of the nomenclature for AD includes the many different specialties that manage AD and the broader healthcare provider community.

There appear to be regional differences with respect to the preferred terminology. AD was the most commonly used term in publications written in English, Japanese, Spanish,[6] and Korean (unpublished data), whereas "eczema" was most often used in publications written in French, German, Italian, and Russian. "Atopic eczema" was the least commonly used of the three terms in all of these languages. These regional differences underscore the imperative for international consensus on AD nomenclature.

1.3.2 | Lay population

"Eczema" is the dominant terminology used by the lay population.[11] A recent study found that "eczema" and its common misspellings accounted for 84% of combined monthly searches on the Google, Bing, Yahoo, and Baidu Internet search engines.[11] AD and AE accounted for only 14% and 2% of searches, respectively. Again, there appeared to be considerable regional differences in the popularity of terminology. "Eczema" was the most popular terminology searched for in English, Russian, Turkish, and Japanese, and "atopic eczema" was the least popular of the three terms by far. Consistent with this trend, the patient organizations for AD/AE in the USA and UK are titled the National Eczema Association and National Eczema Society, respectively, and even the International Eczema Council was so named to be understood by the lay public.

1.3.3 | Clinical terminology

Disparate terms are also used for AD/AE in the clinical setting, which has a number of important and potentially problematic ramifications. Many clinicians treat the term "eczema" as a morphological descriptor for characteristic cutaneous lesions and histologic alterations in biopsy sections; this is the approach of the American Academy of Dermatology.[12] Others would use the term "spongiotic dermatitis" to describe the same histologic pattern. In fact, this use of "eczema" includes multiple morphologies, ranging from the acute, subacute, and chronic ill-defined lesions present in AD/AE. Moreover, this use of "eczema" is far broader than the initial intent of the term in its original use for acute vesicular or bullous lesions. The term "atopic dermatitis" may be more appropriate, as it frames the multiple disease morphologies with a specific attribution to an atopic phenotype or etiology. On the other hand, many clinicians may use the term "eczema" as a synonym for AD/AE as per the lay public and/or the consensus of the World Allergy Organization.[13] The World Allergy Organizations proposed that the term eczema should replace the use of terms AD and AE and that AE should refer to eczema in a person of the atopic constitution.[13] These recommendations have not been widely followed. The disparate use of terminology may be confusing for both clinicians and patients alike.

1.3.4 | International classification of disease codes

Importantly, the terms "atopic dermatitis" and "eczema" are associated with different International Classification of Disease (ICD) codes (ICD-9: 691.8 vs 692.9; ICD-10: L20.x vs L30.9, respectively). However, the ICD-9 code 692.9 is meant to be used for unspecified contact dermatitis; the ICD-10 code L30.9 is meant to be used even more broadly for unspecified dermatitis. Thus, when providers type the term "eczema" into an electronic health record, the software may apply incorrect ICD codes. The incorrect use of ICD billing codes might result in lack of reimbursement for certain medications and/or services by payers.

The incorrect use of ICD codes also has major ramifications for epidemiology and health services research of AD/AE. A recent study examined the validity of the ICD-9 codes 691.8 (AD) and 692.9 (eczema).[14] Both codes were commonly used in AD/AE patients, with similar proportions of patients meeting Hanifin and Rajka criteria[10] and United Kingdom Working Party Criteria[15] for AD/AE. Ironically, multiple occurrences of the eczema codes were associated with higher specificity (44.9% vs 23.8%, respectively) and positive predictive value (33.7% vs 29.9%) than multiple occurrences of the AD/AE codes. However, the eczema code also included higher rates of contact dermatitis, hand, asteatotic and dyshidrotic eczema, and unspecified rash. This imprecision in coding of AD/AE introduces bias and misclassification error. It is imperative that clinicians be

more precise in their AD/AE coding. Proper education about correct use of terminology and ICD coding is warranted during medical education and residency training in dermatology and other specialties. This situation might be improved with the new ICD-11 classification system now being elaborated.[16]

1.4 | Rationale for consensus

Given the disparate use of different terms for AD/AE and the adverse consequences of this practice, there is an urgent and rational need for harmonized nomenclature for this condition. A single, universally applied name for AD/AE would enable better comparison of the pathophysiology, epidemiology, comorbidities, and socioeconomic burden worldwide. It would also avoid further confusion related to a dichotomous view of AD/AE and eczema in some countries, such as China.

As drug development is increasingly planned and implemented on a global level, a harmonized denomination would avoid a confusion in the assessment of medicines, medical devices, and diagnostic tests. The recruitment of patients for clinical trials requires a clear and consensual nomenclature in order to assure a consistent phenotype across sites and regions. Consistent nomenclature of AD/AE is necessary prior to possible stratifications based on clinical phenotypes and/or biomarkers. The wording is of paramount importance when defining the indications of emerging therapies and formulating a summary of product characteristics.

Moreover, harmonization of nomenclature would improve the study of AD/AE epidemiology and health services research, as well as the interpretation of research by physicians, consumers, and patients, alike. The advantages of the harmonization are obvious in the context of communicating knowledge between the global stakeholders of AD/AE. Last, and possibly most importantly, patients today independently collect information from many resources and need an exact diagnosis to avoid confusion as well as inappropriate guidance and therapy.

2 | METHODS

The IEC (http://www.eczemacouncil.org/), founded in 2014, is a global nonprofit organization whose membership consists of 77 AD experts from 21 countries on six continents. All councilors and associates are vetted for expertise in the field of AD, including research track record. IEC councilors gathered at the American Academy of Dermatology annual meeting in Washington, D.C. in 2016 to review the disparate nomenclature of AD and related challenges. Each topic was discussed by the group, and a team of councilors subsequently reviewed the recent literature to write about the use of terminology for AD in the: i) scientific literature, ii) lay public, and iii) clinical setting. In March 2017, an electronic questionnaire was sent to the IEC membership regarding their preferred nomenclature for AD. Study data were collected and managed using Microsoft Excel.

The survey consisted of three questions: (1) Do you prefer the use of the atopic prefix (i.e., atopic eczema or atopic dermatitis) or the broader terms eczema or dermatitis? (2) If you answered yes to question 1, do you prefer the term atopic dermatitis or atopic eczema? Our a priori definition of consensus for questions 1 and 2 was at least 90% agreement for each question with a response rate of at least 90%. An additional exploratory question was asked, but was not considered for consensus: (3) Regardless of the outcome of this survey, which of the following terms would be acceptable to you (atopic dermatitis/atopic eczema/eczema)?

3 | RESULTS

Seventy-one of 77 (92.2%) IEC councilors and associates responded to the survey, with all respondents completing the entire survey. Respondents were from institutions in Australia,[1] Austria,[1] Brazil,[1] Canada,[4] China,[1] Denmark,[3] France,[6] Germany,[12] India,[1] Ireland,[2] Israel,[2] Italy,[2] Japan,[4] Korea,[2] the Netherlands,[3] Spain,[1] Taiwan,[1] Tanzania,[2] UK,[5] and USA.[17] Consensus was reached on for question 1, with 69 of 71 respondents (97.2%) preferring the atopic prefix (Table 2). Consensus was not reached for question 2, with 40 respondents (58.0%) preferring the term atopic dermatitis, 30 (43,5%) preferring atopic eczema, and 1 (1.4%) invalid response. Sixty-three respondents (88.7%) and 55 (77.5%) felt that the terms AD and AE were acceptable, whereas only 11 (15.5%) felt that eczema was acceptable.

4 | DISCUSSION

Among a large international group of clinicians and researchers with expertise in AD, we reached consensus on the requirement of an

TABLE 2 Survey responses

	Responses		
Question	**Yes**	**No**	
(1) Do you prefer the use of the atopic prefix (i.e., atopic eczema or atopic dermatitis) or the broader terms eczema or dermatitis?	69 (97.2%)	2 (2.8%)	
	Atopic dermatitis	**Atopic eczema**	
(2) If you answered yes to question 1, do you prefer the term atopic dermatitis or atopic eczema?	40 (58.0%)	30 (43.5%)	
	Atopic dermatitis	**Atopic eczema**	**Eczema**
(3) Regardless of the outcome of this survey, which of the following terms would be acceptable to you (atopic dermatitis/atopic eczema/eczema)?	63 (88.7%)	55 (77.5%)	11 (15.5%)

atopic disease prefix, that is, AD or AE. Thus, the consensus of the IEC is to recommend against the use of the term "eczema" owing to its imprecision, and disparate and confusing real-world use. We were unable to reach consensus for preferred use of the term "atopic dermatitis" vs "atopic eczema," although AD was more commonly preferred and had the highest rate of acceptability. Our recommendation is to standardize the disease nomenclature with use of the terms "atopic dermatitis" or "atopic eczema" in clinical trials, scientific literature, presentations, and patient education.

The consensus to not use the term "eczema" has important ramifications for patient education. "Eczema" is the most common lay term for AD/AE. Currently, clinical history taking and survey-based research studies for AD/AE require use of the term "eczema." Indeed, a recent multicenter validation study found that self- or caregiver-reported "eczema or skin allergy" had good sensitivity and positive predictive value.[17] On the other hand, there are several etiologies of eczematous reactions, and patients may mistakenly assume that they have AD/AE when, in fact, they may have another form of eczema, such as stasis or nummular eczema or contact eczema. Thus, patient counseling for AD/AE must strike a balance between use of familiar lay terminology "eczema" and educating patients about their specific etiology of disease. We therefore recommend that the term "atopic" should be introduced to patients with AD/AE, rather than just sharing the diagnostic terms "eczema" or "dermatitis."

The transformation to consistency will not be an easy one. The term "eczema" is shorter and easier to use in conversation with patients (although more difficult to spell), and a shift to AD or AE would require patient discussions to clarify the imprecision of the term "eczema." It may also be difficult for an organization focused on AD that includes "eczema" in its title to change its name to support this unification, especially until a widespread movement is underway to shift to public utilization of the terms "atopic dermatitis" or "atopic eczema." Nevertheless, there is a solid rationale and partial consensus for a more precise name for this disorder by at least using the atopic prefix prior to the terms eczema or dermatitis. We encourage physicians in all specialties and in every country to shift their own use of terminology away from eczema alone to AD or AE in writing, presentations, and discussions with patients and other healthcare personnel as a first step.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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