

# Head and neck severity index is associated to a significant worsening of quality of life in atopic dermatitis patients

Atopic dermatitis (AD) is a chronic inflammatory disease that affects approximately 5–10% of the child population and 3–10% of the adult population worldwide.<sup>1</sup>

It can affect any part of the body indifferently, having a different distribution of eczematous lesions depending on the patient's period of life; in adults, it is common to see lesions on the neck, limbs and trunk; in particular, some patients report involvement of specific sites such as the head and neck region. Based on our clinical experience and the reported data on AD, we have analysed the impact on quality of life according to the Dermatology Life Quality Index (DLQI) to look at the repercussions of the disease on personal and social life.<sup>2</sup>

Our study analysed the global Eczema Area and Severity Index (EASI) and the partial EASIs related to the different body areas in order to understand which of them is the more predictive of DLQI and if, consequently, the involvement of a single body site could be able to predict the severity of the disease by itself. The involvement of the head and neck site has been previously studied in a Delphi, as indicator of a higher burden of disease,<sup>3</sup> and its involvement has been associated with a worsening of the quality of life.<sup>4</sup>

Patients were prospectively enrolled in the moderate-severe atopic dermatitis service between April 2019 and May 2020 accordingly to the previously described criteria.<sup>5</sup> Setting the DLQI > 10 as a cut-off, the different partial EASI was analysed by relating them to the total EASI score with logistic regression analysis. The model was adjusted for the global EASI.

The sample examined was composed of 192 patients  $\geq 18$  years with AD symptoms for at least 6 months. There were 104 males and 88 females mostly affected by the disease from early childhood (67%). 97% had a history of immunosuppressive systemic drug; 173 (90% of the total) were treated with cyclosporine. Mean eosinophils count was 0.43 ( $\pm 0.37 \cdot 10^9/L$ ).

The mean global EASI score was 23.6 ( $\pm 11.88$ ), the EASI of the specific head-neck site (H&N) was 3.2 ( $\pm 1.9$ ), the trunk EASI was 6.3 ( $\pm 4.6$ ), the upper limbs EASI was 5 ( $\pm 3.2$ ) and the lower limbs EASI was 8.8 ( $\pm 6.5$ ). The average DLQI in the sample was 15.3 ( $\pm 6.9$ ).

Concerning the trunk, upper and lower limbs, there was no statistically significant association between partial EASI and the perceived quality of life, assessed with DLQI (Table 1). On the other hand, there was a statistically significant association with the DLQI and the H&N EASI (OR = 1.27,  $p = 0.027$ ; IC 1.02–1.57) (Table 1).

**TABLE 1** Logistic regression looking at the association between EASI in different body sites and DLQI > 10<sup>a</sup>

	OR	ES	<i>p</i>	IC
EASI head & neck	1.27	0.14	0.027	1.02–1.57
EASI trunk	0.91	0.06	0.24	0.79–1.05
EASI upper limbs	0.98	0.08	0.82	0.82–1.16
EASI lower limbs	1.00	0.05	0.96	0.9–1.11

<sup>a</sup>All the logistic regression at the different body sites were adjusted for the global EASI score.

In clinical practice, many authors have assisted to a low DLQI even in EASI score lower than 24.<sup>3</sup> Since in some countries a EASI score lower than 24 will block the access to biologic new drug for AD, QoL can be strongly impacted.

EASI of the H&N has a larger impact on the measured quality of life in these subjects than the trunk and limbs. In daily practice, patients with no H&N involvement should still be assessed using the global EASI score to best quantify the severity of the disease from a clinical point of view. However, when evaluating AD specifically involving the H&N site, we have to consider the DLQI impact and the risk of decreasing the perceived quality of life due to the specific involvement of this site. Therefore, in assessing AD, it could be suggested to consider patients with H&N involvement as suffering from more severe atopic dermatitis than their global EASI score suggests; therefore, the considered treatment options should account for this when pondering about indication to biologic drugs.

## KEYWORDS

atopic dermatitis, body sites, dupilumab, EASI, head & neck

## ACKNOWLEDGEMENT

This study was partially supported by an unconditioned grant from Leo Pharma.

## CONFLICT OF INTEREST


The authors have no conflict of interest.

## AUTHOR CONTRIBUTION

SR, BP, MTG, RV, NS and MO performed the research. SR and PQ designed the research study. SR analysed the data. SR, NS, MO and BP wrote the paper.

**DATA AVAILABILITY STATEMENT**

The data that support the findings of this study are available from the corresponding author.

Simone Ribero   
Bruna Puglisi  
Maria Teresa Giura  
Riccardo Viola  
Niccolo Siliquini  
Pietro Quaglino  
Michela Ortoncelli

*Dermatology Clinic, Medical Sciences Department, University of Turin, Turin, Italy*

**Correspondence**

Simone Ribero, Dermatology Clinic, Department of Medical Sciences, University of Turin, Turin, Italy.  
Email: [simone.ribero@unito.it](mailto:simone.ribero@unito.it)

Pietro Quaglino and Michela Ortoncelli contribute equally.

**ORCID**

Simone Ribero  <https://orcid.org/0000-0002-0098-1406>

**REFERENCES**

1. Moyle M, Cevikbas F, Harden JL, Guttman-Yassky E. Understanding the immune landscape in atopic dermatitis: the era of biologics and emerging therapeutic approaches. *Exp Dermatol*. 2019;28(7):756-768. <https://doi.org/10.1111/exd.13911>
2. Thomas KS, Apfelbacher CA, Chalmers JR, et al. Recommended core outcome instruments for health-related quality of life, long-term control and itch intensity in atopic eczema trials: results of the HOME VII consensus meeting. *Br J Dermatol*. 2020. <https://doi.org/10.1111/bjd.19673>. [Epub ahead of print].
3. Calzavara Pinton P, Cristaudo A, Foti C, et al. Diagnosis and management of moderate to severe adult atopic dermatitis: a Consensus by the Italian Society of Dermatology and Venereology (SIDEMaST), the Italian Association of Hospital Dermatologists (ADOI), the Italian Society of Allergy, Asthma and Clinical Immunology (SIAAIC), and the Italian Society of Allergological, Environmental and Occupational Dermatology (SIDAPA). *G Ital Dermatol Venereol*. 2018;153(2):133-145.
4. Lio PA, Wollenberg A, Thyssen JP, et al. Impact of atopic dermatitis lesion location on quality of life in adult patients in a real-world study. *J Drugs Dermatol*. 2020;19(10):943-948.
5. Ribero S, Giura MT, Viola R, et al. Effectiveness and safety of dupilumab for the treatment of atopic dermatitis in adult cohort: a real-life Italian tertiary centre experience. *J Eur Acad Dermatol Venereol*. 2020;34(8):e380-e383.