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LETTER

Comment on "The Association of Inflammatory Indexes Derived from Peripheral Blood Cell Count and Clinical Signs With Response to Treatment With Dupilumab in Pediatric Patients With Moderate-to-Severe Atopic Dermatitis" [Letter]

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Dear editor

While the study by Zhang et al[1] offers valuable insights into the use of inflammatory indexes, particularly ELR, as biomarkers for predicting treatment response in pediatric AD patients, several critical limitations warrant further discussion.

Firstly, the study's retrospective design inherently limits the ability to control for confounding variables. Retrospective studies rely on existing medical records, which may lack comprehensive data on potential confounders such as environmental exposures, comorbidities, and concurrent medications. These factors could significantly influence both the inflammatory indexes and the clinical response to dupilumab, potentially biasing the results.

Secondly, the study's focus on a single treatment center may introduce selection bias. Patients treated at a specialized children's hospital may not be representative of the broader pediatric AD population. For instance, they might have more severe or refractory disease, which could affect the generalizability of the findings. Multi-center studies involving diverse patient populations would provide more robust and generalizable results.

Thirdly, the study's reliance on peripheral blood cell counts as the sole source of inflammatory markers is another limitation. While these markers are convenient and cost-effective, they may not fully capture the complex inflammatory milieu in AD. Other biomarkers, such as cytokines, chemokines, and skin-specific markers, could provide additional insights into the disease's pathophysiology and treatment response. Incorporating a broader range of biomarkers would enhance the study's comprehensiveness and potentially improve the predictive accuracy of treatment outcomes.

Moreover, the study's short follow-up duration of 16 weeks is insufficient to assess the long-term efficacy and safety of dupilumab in pediatric patients. AD is a chronic condition, and understanding the long-term dynamics of inflammatory markers and their relationship with clinical outcomes is crucial. Extended follow-up periods would allow for a more comprehensive evaluation of treatment durability and the potential for late-onset adverse effects.

Another notable limitation is the lack of subgroup analysis based on disease severity and phenotype. AD is a heterogeneous condition with varying clinical presentations and underlying mechanisms. Different phenotypes may respond differently to dupilumab, and inflammatory markers might have varying predictive values across these subgroups. Stratifying the analysis based on disease severity and phenotype could provide more nuanced insights and help tailor treatment strategies to individual patient profiles.

Finally, the study does not address the potential impact of genetic factors on treatment response. Genetic variations in immune-related genes could influence both the baseline inflammatory state and the response to biologic therapies like

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dupilumab. Incorporating genetic analysis into future studies could uncover important predictors of treatment efficacy and further personalize AD management.

In conclusion, while the study by Zhang et al provides promising findings regarding the use of ELR as a predictive biomarker for dupilumab treatment in pediatric AD, several limitations need to be addressed. Future research should aim for a prospective, multi-center design with a broader range of biomarkers, longer follow-up periods, and subgroup and genetic analyses to enhance the robustness and applicability of the findings. Addressing these limitations will be crucial for advancing personalized medicine in pediatric AD and improving patient outcomes.

Disclosure

The authors report no conflicts of interest in this communication.

Reference

1. Zhang L, Pi J, Wang J, et al. The association of inflammatory indexes derived from peripheral blood cell count and clinical signs with response to treatment with dupilumab in pediatric patients with moderate-to-severe atopic dermatitis. *J Inflamm Res*. 2025;18:271–282. doi:10.2147/JIR.S501883

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