Eosinophilia, Biomarkers, and Atopic Dermatitis: A Retrospective Review

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Background/ Aims: Atopic dermatitis is a chronic inflammatory skin disease hypothesized to be due to skin barrier dysfunction and immune dysregulation. The goal of this study is to examine the relationship between factors such as atopic conditions, environmental allergies, and response to treatment and atopic dermatitis. We aim to investigate the utility of detectable surrogate markers for clinical response and disease course.
Methods: This was a retrospective chart review of pediatric and adult allergy & immunology and dermatology clinic patients at large tertiary care centers between 2020 and 2024. Data including allergen sensitization, presence of other atopic conditions, use of topical treatments and/ or immunosuppressive therapies, eosinophil level and percentage, IgE level, and response to treatment was collected.
Results: Of the 120 subjects analyzed, the average age was 16 years old with 93% of subjects diagnosed in childhood or infancy. Only 37% had documented dust mite allergy and 32% with grass allergy. 61% had another documented atopic condition. 58% had a recent eosinophil count (mean= $557x10^3$ uL), and 30% had an IgE level (mean= 2,338 kU/L). Many subjects did not have follow up regarding treatments.
Conclusions: No relationship could be found between the above factors and control of atopic dermatitis. This finding fits with previous studies, although limited by lack of regular laboratory testing. Potential biomarkers including total IgE and specific allergen testing were not found in most subjects. This could be noted as an area that could be improved upon along with overall better characterization of our patient population.