

Evaluating calprotectin as novel biomarker in dermatitis herpetiformis

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Dermatitis herpetiformis (DH) is a chronic autoimmune blistering skin disease considered the cutaneous manifestation of celiac disease (CeD). Neutrophils and dermal IgA deposits are key features in DH pathogenesis, and granulocyte infiltration is also observed in CeD-related enteropathy. Calprotectin, a neutrophil-derived inflammatory marker, is widely studied in inflammatory disorders, including CeD, but its utility in DH remains unexplored.

This study investigates the potential of serum calprotectin as a biomarker for DH using two cohorts: a prospective cohort of untreated patients followed over one year on a gluten-free diet (GFD), and a gluten challenge cohort in which patients were monitored longitudinally until clinical relapse. Control groups included CeD patients without skin involvement, healthy subjects, and individuals with other skin diseases. Calprotectin, TG2 and TG3 were quantified by ELISA in all available timepoints.

In the prospective cohort, calprotectin levels in DH patients showed a decreasing trend over one year on a gluten-free diet (GFD), suggesting treatment responsiveness. Additionally, calprotectin levels positively correlated with TG3 antibodies across timepoints, supporting their association with disease activity. Baseline calprotectin levels did not differ significantly among DH, CeD, skin controls, and healthy subjects. In the gluten challenge group, calprotectin levels increased significantly at relapse, further indicating responsiveness to gluten. Survival analysis in the prospective cohort showed that higher baseline calprotectin was associated with slower recovery. In contrast, among patients undergoing the gluten challenge, baseline calprotectin did not predict the timing of relapse.

These findings suggest that calprotectin reflects disease activity in DH and may be useful for monitoring, though it does not provide significant diagnostic value beyond TG3 antibodies.