AUTOIMMUNE BULLOUS DISEASES

THE ROLE OF BETA-ADRENOCEPTORS IN PEMPHIGUS FOLIACEUS

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Background: Pemphigus foliaceus (PF) is characterized by intraepidermal detachment evoked by IgG against desmoglein 1. Disease severity correlates with the levels of circulating autoantibodies, and is aggravated by a dysregulated healing process with the overexpression of vascular endothelial growth factor (VEGF).

Objective: To characterize the expression of beta-adrenoceptor (ADRB) types 1, 2 and 3 as potential targets to regulate VEGF expression in PF.

Materials and Methods: Formalin-fixed paraffin embedded skin fragments obtained from patients with erythrodermic PF (n=5), non-erythrodermic PF (n=5) and healthy individuals (n=5) were utilized. Immunohistochemical studies were performed in an automated platform (Ventana Benchmark, US) according to the manufacturer's protocol using anti-ADRB1, anti-ADRB2 and anti-ADRB3 (Abbiotec, US). Staining within the epidermis and of inflammatory cells and vessels was classified as negative=0, mild=1+ and intense=2+; sum of values was used to calculate the score of positivity.

Results: ADRB1 expression occurred in 4 out of 5 samples of erythrodermic PF and non-erythrodermic PF and 1 out of 5 samples from healthy individuals. All fragments were stained with anti-ADRB2 in the erythrodermic PF group and healthy individuals, and 4 out of 5 samples in the non-erythrodermic PF group. ADRB3 positivity was obtained in all samples from erythrodermic PF patients, and in 4 out of 5 samples collected from non-erythrodermic PF patients and healthy subjects. ADRB are G-coupled receptors; once activated by catecholamines, they may inhibit keratinocyte migration and proliferation, increase inflammation and VEGF synthesis following skin barrier disruption. As PF samples expressed all types of ADRB, the use of β-blockers may restore these wound healing processes thus enabling re-epithelization.

Conclusions: Our results demonstrated that patients with PF expressed in situ all types of ADRB. Further studies may confirm the efficacy of β-blockers as an adjuvant therapy to promote adequate healing in patients with PF and dysregulated expression of VEGF.