



ATOPIC ECZEMA/DERMATITIS

POLIDOCANOL INHIBITS THE RELEASE OF THYMIC STROMAL LYMPHOPOIETIN (TSLP) IN HUMAN KERATINOCYTES IN VITRO

A-c Worthmann⁽¹⁾ - G Sperling⁽²⁾ - U Holtzmann⁽²⁾ - F Rippke⁽²⁾ - E Groenniger⁽²⁾

Beiersdorf Ag, Medical Management, Hamburg, Germany⁽¹⁾ - Beiersdorf Ag, Research And Development, Hamburg, Germany⁽²⁾

Introduction: Pruritus is one cardinal symptom that comes along with atopic dermatitis (AD). Although the exact pathogenesis of pruritus associated with AD is still matter of debate, it turned out that the cytokine thymic stromal lymphopoietin (TSLP) plays a crucial role in triggering itching. TSLP overproduction can be provoked by stimulation of toll-like receptor 3 (TLR3) due to the recognition of pathogens or pathogen-derived products like double-stranded RNA. However, histamine as a prominent mediator of itch in AD can also induce TSLP expression in keratinocytes.

Objective: The mitigation of itch sensation by decreasing the histamine-induced release of TSLP might be a promising skin care approach for patients suffering from AD. In this in vitro study, we investigated the well-known and widely used anti-itch active polidocanol regarding its potential to inhibit TSLP secretion of provoked keratinocytes.

Material and Methods: Human keratinocytes were provoked to release TSLP by successively incubating the cells with histamine and the TLR3 agonist poly I:C. After a pre-incubation with polidocanol, TSLP protein was measured in the supernatants of cell populations using a commercially available enzyme-linked immunosorbent (ELISA). In parallel, cell's gene expression was detected by qRT-PCR.

Results: Incubation of keratinocytes for 24 h with histamine and subsequently for another 24 h with poly I:C led to a strong cellular release of TSLP. A significant decrease of TSLP release and gene expression was observed after preincubating the cells with polidocanol.

Conclusions: Polidocanol significantly inhibits the TSLP secretion of keratinocytes upon provocation with histamine and poly I:C. As the precise mode of action of polidocanol hitherto remained elusive, our results indicate a novel and unexpected pathway for its clinically well-established itch relieving efficacy in atopic dermatitis.

