PSORIASIS

GRANULYSIN-POSITIVE NK CELLS FORM THE PART OF CYTOTOXICITY PATHWAY IN THE PATHOGENESIS OF PSORIASIS

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Background: Psoriasis is an erythematosquamous dermatosis whose pathogenesis consists of the complex inflammatory cell network. Although T-lymphocytes primarily mediate psoriasis pathogenesis, other cells, like natural killer (NK)-cells, also make its important part. NK-cells are large cells of the innate immune system that express a CD56 surface marker, which makes them recognizable. NK-cells are the type of cytotoxic lymphocytes that contain granules in their cytoplasm. When NK-cells are activated, they release granule´s content, amongst others, granulysin (GNLY), a potent cytolytic molecule which has the possibility of cells apoptosis induction.

Objectives: Our objective was to investigate the amount of CD56-positive cells which are GNLY-positive as well, respectively double-positive cells, and specify their exact percentage in affected and non-lesional skin of psoriatic patients, compared to their amount in the healthy skin.

Materials & Methods: We took biopsy specimens from the lesional and non-lesional skin of psoriasis patients and healthy skin of the control group (10 patients per group). The expression of CD56+GNLY+ NK-cells was determined by performing double immunohistochemistry in tissue samples.

Results: We found a significant accumulation of double-positive CD56+GNLY+ NK-cells in psoriasis skin lesions compared to uninvolved skin of psoriasis patients ($p<0,05$) and healthy skin ($p<0,01$). In dermis, double-positive cells were mainly found in dermal infiltrates where 54% of all NK-cells express GNLY molecule compared to 23% in non-lesional and 20% in healthy skin ($p<0,05$). In the epidermal compartment of lesional skin, 70% of NK-cells express GNLY molecule compared to 1% in non-lesional skin ($p<0,01$), while there were no double positive NK-cells in healthy skin ($p<0,001$). CD56+GNLY+ NK-cells were mainly found in basal cell layer of epidermis and dermal infiltrates of lesional psoriatic skin

compared to non-lesional skin and healthy skin. These results speak in favor of a profound and important role of NK-cell GNLY-mediated cytotoxicity in psoriasis pathogenesis.