Interleukin 12 and Psoriasis

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Although the exact pathogenesis of psoriasis is not crystal clear, the interaction between T lymphocytes and stem cell keratinocytes seems to be pivotal. Bidirectional stimulation of these two cell types leads to the hallmarks of psoriasis: epidermal hyperproliferation and inflammation [1]. In this respect it is interesting to know whether interleukins produced by keratinocytes are affected. One of these molecules, namely interleukin 12 (IL-12), has recently been studied by Economidou et al. [2]. However, it should be borne in mind that keratinocytes are not the only producers of IL-12: it is predominantly produced by activated monocytes. This is the other interesting thing about IL-12: this cytokine has recently been shown to promote cellular responses characterized by production of the Th1 lymphokine γ-interferon.

Economidou et al. [2] found that IL-12 serum levels were not significantly higher than in controls. After treatment with cyclosporin A (n = 27; mean PASI 61), during a period of 12 months, again no substantial change was found, although there was a slight decrease in serum IL-12 after the first 15 days of treatment recorded. The same is true for the macrophage product neopterin. Serum levels of neopterin in psoriasis patients may be above normal, but treatment with the T-cell-selective drug cyclosporin A did not affect the neopterin serum levels [2, 3].

Now, how do these findings fit in our understanding of psoriasis? Although most investigators claim that psoriasis is a Th1 disease, the literature is not consistent in this respect [4–6]. Indeed, the IL-12 data presented by Economidou et al. in this issue of Dermatology underline the fact that psoriasis is not simply a Th1 disease.

In addition, the unaffected serum levels of IL-12 and neopterin during treatment with cyclosporin A indicate once again that T cells and not monocytes or macrophages are pivotal in the pathogenesis and treatment of psoriasis. Moreover, the decrease in serum IL-2 receptor levels presented in this paper by Economidou et al. confirms previous publications that demonstrated that T cells are essential in this respect.

As mentioned above, IL-12 can be produced by various cell types. Turka et al. [7] have recently demonstrated IL-12 p35 and p40 mRNAs using reverse transcriptase-polymerase chain reactions in lesional psoriatic skin. Interestingly, IL-12 was detected in free nerve endings in the epidermis and in dermal nerve fibers. The presence of IL-12 in neural tissue supports the notion that the nervous system can affect cutaneous immune responses. A possible role of IL-12 derived from keratinocytes, thus linking keratinocytes and T cells, is not clear yet and needs further research.

References


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