Interleukin 12 and Psoriasis

M.A. de Rie

Department of Dermatology, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands

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

- 1 Bos JD, De Rie MA: Pathogenesis of psoriasis: Immunological facts and speculations. *Immunol Today* 1999;20:40–46.
- 2 Economidou J, Barkis J, Demetriou Z, Avgerinou G, Psarra K, Degiannis D, Vareltzidis A, Katsambas A: Effects of cyclosporin A on immune activation markers in patients with active psoriasis. *Dermatology* 1999;199:144–148.
- 3 De Rie MA, Hamerlinck F, Bos JD: Neopterin, immune activation, and psoriasis (letter). *Lancet* 1991;iii:1208.
- 4 Schlaak JF, Buslau M, Jochum W, Hermann E, Girndt M, Gallati H, Meyer zum Buschenfelde KH, Fleischer B: T cells involved in psoriasis vulgaris belong to the Th1 subset. *J Invest Dermatol* 1994;102:145–149.
- 5 Barna M, Snijdwint FGM, Van der Heyden FL, Bos JD, Kapsenberg ML: Characterization of lesional psoriasis skin T lymphocyte clones. *Acta Derm Venereol (Stockh)* 1994;suppl 186: 9–11.
- 6 Vollmer S, Menssen A, Trommler P, Schendel D, Prinz JC: T lymphocytes derived from skin lesions of patients with psoriasis vulgaris express a novel cytokine pattern that is distinct from that of T helper type 1 and T helper type 2 cells. *Eur J Immunol* 1994;24:2377–2382.
- 7 Turka LA, Goodman RE, Rutkowski JL, Sima AA, Merry A, Mitra RS, Wrona-Smith T, Toews G, Strieter RM, Nickoloff BJ: Interleukin 12: A potential link between nerve cells and the immune response in inflammatory disorders. *Mol Med* 1995;1:690–699.

KARGER

Fax +41 61 306 12 34
E-Mail karger@karger.ch
www.karger.com

© 1999 S. Karger AG, Basel
1018–8665/99/1992–0101\$17.50/0

Accessible online at:
<http://BioMedNet.com/karger>

Menno A. de Rie, MD
Department of Dermatology, Academic Medical Center
University of Amsterdam, PO Box 22700
NL–1100 DE Amsterdam (The Netherlands)
Tel. +31 20 566 2587, Fax +31 20 696 0076, E-Mail m.a.derie@amc.uva.nl