ABSTRACT

TNF-α Immunoreactivity and Bioactivity in Psoriasis

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Tumour Necrosis Factor-α (TNF-α) is a pleotropic cytokine which is thought to play an essential role as a mediator of inflammatory reactions. Involvement of TNF-α in the pathogenesis of psoriasis has been suggested previously, using immunological assays, but evidence for the presence of TNF-α bioactivity is lacking. We have therefore analysed aqueous extracts of stratum corneum (SC) from psoriatic lesions and uninvolved heels (from psoriatics and normals) using a TNF-α ELISA, a TNF cytotoxicity bioassay (WEHI.164 cl 13/2) and ELISAs for TNF receptors (p55 & p75). TNF-α ELISA measured higher immunoreactivity in lesional than in ininvolved SC. The immunoreactivity was found to be approximately twice as high as the bioactivity. This latter difference was expected to be due to the presence of TNF-soluble receptors (p55 & p75). ELISA for p55 showed higher immunoreactivity in lesional than uninvolved SC. p75 immunoreactivity was lower in lesional SC extracts and undetectable in uninvolved. TNF-α immunoreactivity was absent in psoriatic and normal sera, indicating a local effect. To determine whether the bioactivity, in lesional psoriatic SC, was due to the presence of TNF-α or TNF-β, lesional psoriatic SC extracts were incubated with an anti-TNF-α neutralising mAb prior to the bioassay. Results obtained, from all the six samples tested, showed complete neutralisation of the bioactivity. This confirmed that the bioactivity measured in the lesional SC extracts was due to the presence of TNF-α alone.

In conclusion, bioactive TNF-α is present in psoriatic lesions and may play a role in local cutaneous inflammatory events. It is probable that soluble TNF-α receptors are involved in the regulation of TNF-α activity in skin inflammation.

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