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P62 - Impact of inflammation on tissues stores of iron

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Psoriasis is a severe inflammatory and hyper proliferative condition of human skin whose aetiology remains poorly understood. Accumulating evidence supports a role for cellular iron in cell proliferation, inflammation, and disease tolerance. Herein, we utilized nuclear microscopy techniques to quantify with cellular resolution and high sensitivity the concentration of iron in involved (psoriatic plaques) and non-involved skin of psoriatic patients.

In non-involved skin of psoriatic patients the iron distribution across skin depth showed a peak at the basal layer of epidermis. The iron concentrations at the basal layer were of the order of several hundreds of $\mu\text{g/g}$ contrasting with upper epidermal regions where concentrations did not exceed a few tenths of $\mu\text{g/g}$. At the inflammatory sites (plaques) the epidermal profile of iron distribution was profoundly changed. An even distribution of iron across the epidermal depth was observed, from basal layer to the outer most layers, possibly reflecting the hyper proliferative state of psoriatic epidermis. Also, the concentrations of iron found in the epidermis of non-involved skin areas of psoriatic patients were significantly increased when compared to those in the epidermis of healthy individuals [1].

In conclusion, we found significantly increased iron deposits in the epidermis of psoriatic patients, particularly in areas of inflammation (and epidermal hyper proliferation). These findings suggest an important role for iron in the pathogenesis of psoriasis. They also raise the possibility that manipulation of iron levels in the skin may become relevant for the clinical management of psoriasis.

[1] T. Pinheiro, R. Silva, R. Fleming, A. Gonçalves, M.A. Barreiros, J.N. Silva, P. Morlière, R. Santus, P. Filipe, *Acta Dermatovenereologica* 94 (2014) 14.

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