Evaluation of Plasma Fibronectin Levels before and after PUVA and Cyclosporin A Treatments in Patients with Psoriasis

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Plasma fibronectin (PF) is a soluble α 2-glycoprotein that is mainly produced by endothelial cells. It appears to have an important role in several physiopathological events involving endothelia, such as in the neovascularisation process in vitro [1] or embryological development of cutaneous microvasculature in vivo [2]. It has been suggested that increased levels of PF could indicate the presence of microvessel damage in patients with diabetic microangiopathy [3, 4] and psoriasis [5,6]. We have demonstrated higher PF concentrations in psoriatic patients than in controls; these raised levels were not related to the severity of disease or to its complications [6]. We have now evaluated whether the PF concentration may be modified by clinical remission induced by PUVA or Cyclosporin A treatment in patients with plaque psoriasis.

PF was determined by an immunoturbidimetric technique (Boehringer, Mannheim, FRG) [7] in 16 otherwise healthy psoriatic patients before and after treatment and in 13 age- and sex-matched controls. The psoriasis area and severity index (PASI) was calculated before and after therapy. Six patients underwent photochemotherapy: 0.6 mg/kg body weight of oral 8-methoxypsoralen, given 2 h before irradiation, followed by UVA light source exposure in a PUVA cabinet (Waldmann 6001); they received a mean cumulative UVA dose of 140 J/cm² body surface area. Ten patients were treated with Cyclosporin A orally, with a starting dose of 3.5–4 mg/kg/day followed by a maintenance dose as low as possible for a 6-month period. Regular controls of blood pressure and renal function were performed throughout the treatment.

As shown in table 1, psoriatic patients showed, as expected, a higher mean concentration of PF than the controls did, without any significant relation to the severity of disease. PF levels after PUVA or Cyclosporin A therapy were not significantly different from the mean levels before treatment, and these concentrations were persistently higher than in the controls. These findings are consistent with those of our previous report where raised levels of PF were detected in patients with psoriasis, independently from the extension of disease [6].

We hypothesized that increased PF concentrations in psoriatic patients might be related to a higher synthetic rate by the endothelial cells of microvessels [6]. In fact, diffuse microvascular abnormalities have been reported in the skin of patients with psoriasis, both in the plaques and in uninvolved skin [8-10].

Table 1. Mean PF concentration in psoriatic patients before and after treatment and in healthy controls

Values are means $\pm$ SD.

NS vs. after treatment.

$p < 0.05$ vs. both treatment groups.

$p < 0.001$ vs. after treatment.

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References

- McAuslan BR, Hannan GN, Reilly W, Stewart FHC: Variant endothelial cells: Fibronectin as a transducer of signals for migration and neovascularisation. *J Cell Physiol* 1980; 104: 177-186.
- Tonnesen MG, Jenkins D Jr, Siegel SL, Lee LA, Huff JC, Clark RAF: Expression of fibronectin, laminin and factor VII-related antigen during development of the human cutaneous microvasculature. *J Invest Dermatol* 1985;85: 564-568.
- Haitas B, Barnes AJ, Cederholm-Williams SA, Moore JM, Shogry MEC, Turner RC: Abnormal endothelial release of fibrinolytic activity and fibronectin in diabetic microangio-pathy. *Diabetologia* 1984;27:493-496.
- Seghieri G, Bartolomei G, De Giorgio LA: Plasma fibronectin in diabetic retinopathy and microangiopathy. *Diabet Metab* 1986;12: 186-190.
- Nishimura M, Nakayama J, Asahi M, Morito F: The effect of etretinate on plasma fibronectin in patients with vulgar psoriasis. *J Dermatol (Tokyo)* 1988;15:191-193.
- Cecchi R, Brunetti L, Giomi A, Gironi A, De Giorgio LA, Seghieri G: Plasma fibronectin in patients affected by psoriasis: Relation with the extension of skin involvement and complications. *Clin Chim Acta* 1990;190:119-120.
- Brubaker DB, Bick KE, Romine M: Four immunoassay methods and standards compared for measuring fibronectin. *Clin Chem* 1987;33:126-129.
- Braverman IM, Sibley J: Role of microcirculation in the treatment and pathogenesis of psoriasis. *J Invest Dermatol* 1982;78:12-17.
- Barton SP, Abdullah MS, Marks R: Quantification of microvascular changes in the skin in patients with psoriasis. *Br J Dermatol* 1992; 126:569-574.
- 10 Bull RH, Bates DO, Mortimer PS: Intravital video-capillaroscopy for the study of the micro-circulation in psoriasis. *Br J Dermatol* 1992; 126:436-445.