Cell-Mediated Immune Reaction in the Mechanism of Blister Formation in Bullous Pemphigoid

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Key Words

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Gamma-interferon

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It has been proposed that autoantibody against the basement membrane zone (BMZ-Ab) is playing an important role in the blister formation of bullous pemphigoid (BP). The reaction of the BMZ-Ab to the BMZ is supposed to induce chemotaxis in association with complement activation. The protease released from the infiltrate has been considered to cause blister at the dermal-epidermal junction [1]. Recently, however, it has been reported by Nestor et al. [2] that the infiltrate in the bullous lesions of BP is composed mainly of helper/inducer T (TH) cells and macrophages. Previously, Hunyadi et al. [3] reported that autologous skin antigen stimulated lymphocytes in patients with BP. These reports suggest that the cell-mediated immune (CMI) reaction is also related to the mechanism of blister formation in BP.

In order to elucidate the CMI response in BP, we have attempted to find whether the lymphocytes infiltrating around the vesicle are stimulated immunologically. We have endeavored to determine the constitution of inflammatory infiltrates in the bullous lesion immunohistologically and we have also attempted to find whether the infiltrated T cells are producing gamma-interferon (IFN-gamma) in the lesions. The bullous lesions of BP revealed that the inflammatory infiltrate was composed mainly of mononuclear cells around the vesicle. Langerhans' cells were increased in number in the lesional epidermis of patients with BP. The inflammatory infiltrates include predominantly Leu3a+ cells showing TH cells. These cells were also HLA-DR+, which suggested activated TH cells, and a number of the epidermal keratinocytes were also stained by HLA-DR MoAb. On the other hand, Leu 2a+ cells, which

show suppressor/cytotoxic T cells, and Leu 12+ cells showing pan B cells were sparse. It was of interest that some of the infiltrates were stained by anti-INF-gamma MoAb in the lesions. It has been suggested that they are

producing IFN-gamma in the lesions. The TH cells are considered to be stimulated immunologically in the lesion.

In order to ascertain the presence of INF-gamma in the lesion, we have attempted to estimate INF-gamma in the bullous fluids of patients with BP by the method of radioimmunoassay using anti-human INF-gamma MoAb [4]. High levels of INF-gamma were contained in the bullous fluids of BP in comparison with those obtained from pemphigus vulgaris, second grade dermal burn and friction bulla. The levels of INF-gamma were higher than those in the sera obtained from patients with BP.

These results convincingly suggest that T cells among the inflammatory infiltrate may be playing an important role in the mechanism of the blister formation in BP as well as the BMZ-Ab.

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