Classification of Immunoglobulins in the Dermal-Epidermal Junction in Lupus Erythematosus

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In foregoing papers [1, 2] the occurrence of (gamma)-globulins and complement concomitantly bound to the region of the basal membrane of skin lesions in discoid and in skin lesions and uninvolved skin in systemic lupus erythematosus was reported by us. This might be expected to lead up to a study on the classes of immuno-globulins involved with the aid of the fluorescence antibody technique.

As now is commonly accepted, three major classes of immuno-globulins can be distinguished: (a) gamma-globulin sensu stricto, γ G or IgG; (b) gamma-globulin with a higher electrophoretic mobility, γ A or IgA; and (c) gamma-macroglobulin, γ M or IgM. These three classes are produced by cells of the lymphoid system; the first class specially by plasma cells. Recently a new class of immuno-globulin has been detected [3], which is, however, not considered in this paper.

The differences between these classes are determined by the different physico-chemical properties of the heavy chains. Furthermore, it has now been found that each class of immuno-globulins have similar L (light) chains in common. Antigenically, however, L chains and the individual immunoglobulin molecules which carry them may be divided into two distinct types (κ and λ respectively).

When human immuno-globulins or L chain proteins are used to immunize animals, antibodies against them are produced. If subsequently these specific antibodies have been isolated by currently used procedures and labelled with fluorescein isothiocyanate, they can be used to detect human immuno-globulins with the aid of the fluorescence antibody technique ("single layer" method). For these investigations unlabelled antibodies** were also used. Their presence in the sections could be demonstrated with the "double layer" method.

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Part of these antibodies may react exclusively with IgG, IgA or IgM globulin, whereas some cross-react with all three classes of protein.

For this study biopsy samples were taken from the diseased skin of untreated patients with discoid (12) and with systemic lupus erythematosus (5). Biopsies taken from uninvolved skin were obtained from two patients with the systemic form of this disease.

According to our previous results gamma-globulin appeared to be present in the region of the basal membrane in skin lesions of both forms of lupus erythematosus and also in uninvolved skin in systemic lupus erythematosus.

In the skin lesions of two of the 12 patients with discoid and also in those of two of the four patients with discoid lupus erythematosus, macroglobulin appeared to be concomitantly bound to the region of the basal membrane. Only in one biopsy of a patient with discoid lupus erythematosus IgA globulin could be demonstrated in the region in question.

In all sections examined L-chain type κ and λ "protein" could be demonstrated in the dermo-epidermal junction (with the aid of the "double layer" method).

The heterogeneity in respect to the occurrence of these classes of immunoglobulins is similar to that already known for antinuclear factors.

References

Cormane, R. H.: "Bound" globulin in the skin of patients with chronic discoid lupus erythematosus and systemic lupus erythematosus. *Lancet* I: 534 (1964).

Kalsbeek, G. L. and Cormane, R. H.: "Bound" complement in the skin of patients with chronic discoid lupus erythematosus and systemic lupus erythematosus. *Lancet* II: 178 (1964).