ARE CIRCULATING IMMUNE COMPLEXES AND COMPLEMENT BREAKDOWN PRODUCTS USEFUL FOR THE DETECTION OF DISEASE ACTIVITY IN NEPHROLOGY?

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Three hundred and thirty seven sera from 187 patients with various types of glomerulonephritis (172 investigated by biopsy, 96 with a follow-up to 39 months) have been tested with the solid-phase C1q enzyme linked immunoassay (SP–C1q) [1, 2] and polyethylene glycol (PEG) test [3, 4] for the detection of circulating immune complexes. Complement breakdown products C3d and Ba were concomitantly studied [5] in 65 sera from 44 patients.

In 5/11 acute post-infectious glomerulonephritis (APGN) and in 17/19 lupus nephritis (LN) the SP–C1q data were in agreement with the clinical activity (in the acute phase: APGN 13.6 ± 18.2μg aggregated human gammaglobulins eq/ml; LN 139.9 ± 165.3μg. Normal values 1.3 ± 3.8μg). Amongst the biopsied nephropathies the highest values with the SP–C1q test were found in five cases of proliferative diffuse LN in the 'acute' phase (131.2 ± 130.0μg). In 6/8 APGN and in 9/10 LN we found a dissociation between the SP–C1q and PEG data, which appears to be an index of good prognosis: the SP–C1q data, when positive in the acute phase, became negative in the early healing stage, while the PEG values, usually negative or slightly positive in the acute phase, markedly increased during the early stages of improvement and became negative in the late phase. In five cases of LN with clinical signs of activity and normal complement, only the SP–C1q data were positive. A good agreement was found between SP–C1q data and DNA-binding activity in 20/36 LN sera: in five only the SP–C1q data were abnormal. An isolated increase of these values preceded a clinical reactivation of LN in 5/6 cases.

In all three cases of extracapillary glomerulonephritis with a granular immunofluorescence pattern, very high and constant levels of SP–C1q corresponded with a poor prognosis. The SP–C1q data, slightly positive in mesangiocapillary glomerulonephritis (11.9 ± 21.6μg) and in glomerulonephritis with IgA deposits (7.7 ± 13.4μg) were not in agreement with clinical features. The rare positive data found in minimal change nephropathy (1.8 ± 1.4μg), focal sclerosing glomerulonephritis (2.6 ± 5.2μg), and membranous glomerulonephritis (3.8 ± 7.4μg) by the SP–C1q test were not of relevance.
In 18/65 sera, with normal complement levels and negative SP–C1q data, the values of C3d and Ba were significantly above those in controls: in 11/18 cases the nephropathies were clinically active.

In patients affected by glomerulonephritis the available immunological tests can give relevant but often incomplete information. Only simultaneous and repeated evaluations of numerous tests may be of value.

References