Relationship Between Antinuclear Antibodies, DNA Binding Capacity, and Electroprecipitation, Serum Complement Level, and the Presence of Soluble Complexes in Systemic Lupus Erythematosus and Rheumatoid Arthritis. G. D. Johnson, I. I. Onyewotu, and E. J. Holborow (*MRC Rheumatism Unit, Canadian Red Cross Memorial Hospital, Taplow, Maidenhead, Berks.*)

Serum from 88 patients thought likely to have circulating soluble complexes were examined. The underlying clinical disorders varied from established SLE through probable SLE, rheumatoid arthritis with complications (particularly cutaneous vasculitis) to seronegative arthritides and miscellaneous medical conditions. This paper reports only the serological correlations.

The presence of antinuclear antibodies detectable by immunofluorescence, ANA (Holborow and Johnson, 1969), was associated with electroprecipitating antibody to DNA (Johnson, Edmonds, and Holborow, 1973) and high levels of soluble complexes (Onyewotu, Holborow, and Johnson, 1974), but not with increased DNA-binding capacity and reduced C3 levels. This suggests that antibody avidity may have an important role in the procedures employed. Results of the soluble complex tests, however, were correlated with all the other serological findings except in SLE in which condition ANA positivity was independent of the level of complexes. It is therefore apparent that the ANA test alone does not provide an adequate screen for other serological abnormalities in the group of diseases studied. All possible combinations of results of the tests for DNA-binding capacity and electroprecipitating activity were obtained with serum from patients with SLE and complicated RA who had positive ANA tests and significant levels of circulating complexes. This finding accorded with the clinical overlap seen in the cases selected for study.

A better understanding of the contribution of immune complexes to connective tissue disease may be achieved by the use of the five tests reported here.

References

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Circulating Complexes and Disease Activity in SLE. C. Bruneau, J. P. Edmonds, and G. R. V. Hughes (*Department of Medicine, Royal Postgraduate Medical School, London*)

Detailed serological studies were performed in 38 patients with SLE, extending over periods up to 4 years. Evidence of circulating complexes was sought by Clq precipitation, anticomplementary activity estimations, and by DNase treatment of sera. These observations were correlated with evidence of disease activity, in particular with proteinuria, DNA binding activity and complement levels. DNase treatment of serum, with the aim of releasing complexed antiDNA antibody and resulting in a rise in DNA-binding was performed on 63 serum samples in 28 SLE patients, 14 with clinical renal involvement. Serial studies were done on 7 patients, 5 with renal involvement. In only one patient was evidence of DNA/antiDNA complexes obtained by this method, a 13-year-old girl with rapidly progressive lupus nephritis. Density gradient analysis (in association with Dr. L. Aarden and Dr. B. Feltkamp, Amsterdam) showed these complexes to be of low molecular weight.

Clq precipitation was shown in 23 out of 56 SLE sera tested. There was poor correlation between Clq precipitation and disease activity. This test presented many technical problems and was reproducible only on fresh serum. Anticomplementary activity was detected in 44 of 155 serial serum samples from 19 patients with SLE. Positive results were found only during periods of disease activity but were not confined to patients with renal disease.

The conclusions drawn from these studies were. (1) Positive results, suggestive of circulating immune complexes, were found in 45% of SLE patients by one or other of the 3 methods used. (2) In only one patient was clear evidence obtained that a proportion of these complexes were DNA-antiDNA. (3) Of the 3 methods, determination of anticomplementary activity appeared to be the most clinically useful.

Correction: The price of 'Future Trends in Inflammation. Proceedings of an International Meeting on Inflammation, Verona, June 28-30, 1973', was wrongly quoted as £45 in the June issue, the correct price being U.S. \$45.