normal are between 20 and 50 mg./100 ml. serum. Quantitative determinations were made in cases of degenerative joint disease, inflammatory arthropathy (rheumatoid arthritis, psoriatic arthropathy, collagenoses, etc.) and during attacks of various other rheumatological diseases. The results, which are difficult to interpret at this stage, seem to indicate an increase in serum caeruloplasmin, particularly in inflammatory arthropathies. This is not surprising in view of the alpha I glycoprotein changes.

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Effect of Single-dose Alternate-day Corticosteroid Administration on Hypothalamo-pituitary-adrenal Function in Patients with Rheumatoid Disease. By M. E. CARTER, and V. H. T. JAMES (*St. Mary's Hospital, London*).

It would be to the advantage of patients with rheumatic diseases if it were possible to treat them with corticotrophin and/or corticosteroids without causing impairment of hypothalamo-pituitary-adrenal function (HPA). We have made a series of studies aimed at finding such a regimen which is also clinically effective; only daily corticotrophin therapy, which has certain drawbacks, has so far satisfied these criteria.

There is scanty published work relating to attempts to preserve HPA function by giving steroids intermittently to patients with other chronic diseases such as nephrotic syndrome, asthma, sarcoidosis, ulcerative colitis, etc., and it has been claimed (Sadeghi-Nejad and Senior, 1969; Ackerman and Nolan, 1968) that a single dose of prednisone given once in every 48 hours results in less pituitary-adrenal suppression than daily divided doses.

It seems important to try to establish whether this method of steroid administration, especially as applied to the smaller maintenance doses usually employed in rheumatoid disease, would be a therapeutic proposition and would preserve stress responsiveness in these patients. We have therefore studied rheumatic patients on this regimen by serial testing of their responsiveness to the stress of insulin hypoglycaemia over prolonged treatment periods.

Our results so far show that patients converted from daily divided doses of prednisolone to a single equivalent dose taken once in every 48 hours gradually attain normal pituitary-adrenal responsiveness, but this may take as long as 40 weeks; as long, in fact, as it takes some patients to recover normal responsiveness after stopping steroid treatment, as shown by our own data. As usual in this field there is much patient variability. It is also apparent from our data that no firm deductions can be made from the results of single stress tests, and that it is necessary to repeat these tests over treatment periods of several months before any satisfactory conclusion can be reached.

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Mechanism of the Fall in Complement Level in the Synovial Fluid in Cases of Rheumatoid Polyarthritis. By A. P. PELTIER and S. DE SÈZE (*Paris*).

A lowering of the complement level is one of the major immunological disturbances of rheumatoid synovitis.

The simultaneous quantitative determination of the total complement and its four primary components (C¹, C⁴, C², and C³) was performed on sixteen rheumatoid and nineteen non-rheumatoid synovial fluids. In the fluids of the rheumatoid group, a simultaneous lowering of C¹, C⁴, and C² was observed as well as a close and significant correlation between the level of C¹ total and the level of C¹ (0.01 < P < 0.02), C⁴ (P < × 10⁻⁹), and C² (0.001 < P < 0.01). These results would seem to indicate an immunological consumption of the synovial complement in rheumatoid polyarthritis. If this is the case there must be substances with anticomplementary action in rheumatoid synovial fluids.

The anticomplementary activity observed was on average quantitatively 4.5 times higher in rheumatoid synovial fluids than in non-rheumatoid synovial fluids. (P > 0.0001).

After fractioning strongly anticomplementary synovial fluids on a Sephadex G-200 column, the maximum anticomplementary activity appeared in the first fractions eluted. Analysis of these fractions to establish the nature of the proteins responsible for the anticomplementary activity is in progress.

Observations on the Clinical Outcome and Recovery of Hypothalamo-Pituitary-Adrenal Axis Function after Complete withdrawal of Long-term Corticosteroid Therapy in Patients with Rheumatoid Arthritis. By G. NUKI, W. W. DOWNIE, K. WHALEY, W. C. DICK, P. A. FREEMAN, and W. W. BUCHANAN (*Glasgow*).

Stimulatory tests of hypothalamo-pituitary-adrenal (HPA) axis function in patients receiving long-term oral corticosteroid therapy have suggested that suppression of the HPA axis occurs initially at the higher levels (Jasani, Boyle, Greig, Dalakos, Browning, Thompson, and Buchanan, 1967).

The response to insulin-induced hypoglycaemia and metyrapone tended to be abolished before the response to lysine 8-vasopressin, and the response to tetracosactrin was maintained the longest. Studies in which plasma 11-hydro xycorticosteroids (11-OHCS) were monitored during operation in patients who had received long-term corticosteroid therapy, and whose HPA axis had been assessed using the stimulatory tests mentioned above, showed that those patients who had a subnormal response to tetracosactrin had poor plasma 11-OHCS responses to the stress of surgery (Jasani, Freeman, Boyle, Reid, Diver, and Buchanan, 1968). There is, however, a relative paucity of information to guide clinicians as to the likely outcome of withdrawal of long-term corticosteroid therapy both in terms of the recovery of HPA axis function and in terms of the clinical response.

Thirty patients with rheumatoid arthritis who had received long-term oral corticosteroid therapy, and in whom the withdrawal of corticosteroid drugs was considered to be desirable for a variety of clinical reasons, were studied. A full clinical and HPA-axis assessment was carried out before and after the complete withdrawal of corticosteroid therapy. The clinical outcome and recovery of HPA-axis function are extremely variable. Some of these patients have been followed up for up to one year since the cessation of corticosteroid therapy, and some have undergone orthopaedic surgery without corticosteroid cover.