

Clinical Data on 50 Patients with Rheumatoid Arthritis

Sex	Age (Mean \pm S.E.)	Sero- positive	Sero- negative	Sub- cutaneous Nodules	Kerato- conjuncti- vitis Sicca	Dyspepsia	Gastric Parietal Cell Antibody	Haemo- globin	E.S.R.	Articular Index	Blood Urea	Blood Sugar
All patients	54.4 \pm 1.58	40 (80%)	11 (22%)	11 (22%)	10 (20%)	7 (14%) (Barium neg. 1, duodenal ulcer 2, hiatus hernia 4)	5 (10%)	8.3-16.9 (12.3 \pm 2.4)	5-10 (52.4 \pm 3.9)	2-62 (21.9 \pm 2.2)	18-250 (39.9 \pm 4.6)	48-113 (75.8 \pm 3.96)
35 F. (70%)	56.7 \pm 1.7											
15 M. (30%)	49.7 \pm 3.2											

171 \pm 38 pg/ml was significantly greater ($P < 0.005$) than the mean fasting gastrin level in control subjects of 56 \pm 8 pg/ml. Plasma gastrin values were converted to logarithms before statistical analyses in order to normalize the distribution of values. In eight patients with rheumatoid arthritis the plasma gastrin level was greater than 1,000 pg/ml. In five patients with rheumatoid arthritis gastric parietal cell antibodies were found.

Discussion

Raised gastrin levels have been described in patients with Zollinger-Ellison syndrome (Yalow and Berson, 1971) and in patients with pernicious anaemia or chronic atrophic gastritis (McGuigan and Trudeau, 1970 a). Acid secretory studies were not performed on the patients in the present study. Nevertheless, it is of interest that in only five patients were gastric parietal cell antibodies found. Of these, one had a normal gastrin level and only two had levels greater than 1,000 pg/ml. Hence, while this does not exclude chronic atrophic gastritis as a cause of the hypergastrinaemia, it makes it seem unlikely (Irvine *et al.*, 1962). Plasma gastrin levels tend to rise with age (McGuigan and Trudeau, 1970 b) but in the control subjects and in the patients with rheumatoid arthritis the age distribution is similar. No obvious relation was found between gastrin levels and the severity of the arthritis as judged by raised E.S.R., a high articular index of joint tenderness, or the presence of anaemia.

Particular attention was paid to the possibility that drug therapy influenced the plasma gastrin levels. While this cannot be excluded, many patients being on several different drugs, no particular drug emerged as the likely aetiological agent. It is of course possible that this is a property of the anti-inflam-

matory drugs as a group, and this is under review. It is conceivable that the presence of rheumatoid factor in the serum of patients with rheumatoid arthritis could interfere with antibody binding in the gastrin assay. Raised gastrin levels, however, were found in both seronegative and seropositive patients (chart) and a normal plasma gastrin was found in 21 patients with seropositive arthritis of whom one had a titre greater than 1/256.

Dilutional studies showed that the immunoreactive material measured was immunologically identical to gastrin, and while this study is clearly limited and several questions remain unanswered, the finding of raised gastrin levels in patients with rheumatoid arthritis demands further study. It is of interest that of seven patients who complained of dyspepsia only one had a raised gastrin level.

Requests for reprints should be addressed to Dr. P. J. Rooney, Centre for Rheumatic Diseases, 35 Baird Street, Glasgow G4 0EH.

References

- Buchanan, K. D., and McCarroll, A. M. (1971). In *Radioimmunoassay Methods*, ed. K. E. Kirkham and W. M. Hunter, p. 136. London, Churchill Livingstone.
- Ganguli, P. C., Cullen, D. R., and Irvine, W. J. (1971). *Lancet*, **1**, 155.
- Hunter, W. M., and Greenwood, F. C. (1962). *Nature*, **194**, 495.
- Irvine, W. J., Davies, S. H., Delamore, J. W., and Wynn-Williams, A. (1962). *British Medical Journal*, **2**, 454.
- McGuigan, J. E., and Trudeau, W. L. (1970 a). *New England Journal of Medicine*, **282**, 358.
- McGuigan, J. R., and Trudeau, W. L. (1970 b). *Gastroenterology*, **59**, 6.
- Ritchie, D. M., *et al.* (1968). *Quarterly Journal of Medicine*, **37**, 393.
- Ropes, M. W., Bennet, G. A., Cobb, J., Jacob, R., and Jessar, R. A. (1959). *Annals of the Rheumatic Diseases*, **18**, 49.
- Yalow, R. S., and Berson, S. A. (1970). *Gastroenterology*, **58**, 609.
- Yalow, R. S., and Berson, S. A. (1971). *Gastroenterology*, **60**, 215.