EVALUATION OF A SENSITIVE AND SPECIFIC RADIOIMMUNOASSAY FOR HUMAN GASTRIN AND ITS CLINICAL APPLICATION*

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Successfull radioimmunoassay methods have been developed for gastrin and have permitted studies of changes in circulating hormone under physiological and clinical conditions.

The present work describes a highly sensitive and specific gastrin radioimmunoassay employing a carefully prepared tracer, with great stability and quality comparable with a commercial tracer. It also evaluates the operational characteristics of the assay and confirmes its validity by its application in the measurement of gastrin from very low to extremely high levels.

Synthetic gastrin was radioiodinated by the chloramine T technique and purified on QAE-Sephadex A 25. The specific antiserum, 1611 raised in rabbits, was supplied by Dr. J.H.Walsh. The technique employed was the dextran-coated charcoal radioimmunoassay. The assay sensitivite was of the order of 1 pmol/l and the precision was 3.6 - 11.9% (CV, within-assay) and 2.8 - 10.1% (CV, between-assay). Recovery was between 82 and 100%.

Fasting gastrin levels in subjects with Chagas disease, pernicious anemia, chronic renal failure and Zollinger-Ellision syndrome were greater than in normals (16.4 ± 2.0 pmol/l; mean ± SEM). Very low levels were determined in gastrectomized subjects. No significant difference was found between the determination of serum or plasma gastrin concentration in normals ($p < 0.05$).

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