PTU-119 PLASMA GASTRIN:SOMATOSTATIN RATIO IS DECREASED IN GASTRINOMAS

doi:10.1136/gut.2011.239301.247

R Ramachandran,[1,2,*] P Bech,[2] K G Murphy,[2] W S Dhillo,[1,2] L Marelli,[3] M A Ghatei,[2] S R Bloom,[2] M Caplin,[3] N M Martin[1,2] *[1]Diabetes Endocrinology and Metabolism, Imperial College Healthcare NHS Trust, London, UK; [2]Department of Investigative Medicine, Imperial College, London, UK; [3]Neuroendocrine Tumour Unit, Royal Free Hospital, London, UK*

Introduction Fasting gastrin alone is inadequate for diagnosis of gastrinoma because hypergastrinemia occurs in a number of non-gastrinoma conditions, including atrophic gastritis. Confirmation of diagnosis requires more invasive investigations to demonstrate low gastric pH. The density of somatostatin secreting D-cells and gastrin secreting G-cells is dependent on gastric pH. A low gastric pH is associated with a relative increase in D-cell density, resulting in a decrease in G-cell:D-cell ratio. We compared plasma somatostatin levels and the plasma gastrin:somatostatin ratios in patients with achlorhydria secondary to atrophic gastritis and in patients with gastrinoma. We also compared chromogranin A (CgA) levels in the two groups.

Methods Plasma gastrin, somatostatin and CgA were measured in 21 patients with gastrinomas and 23 patients with atrophic gastritis referred to the Supra regional Assay and Advisory Service Laboratory at our centre.

Results There was no significant difference between plasma gastrin in patients with gastrinomas and atrophic gastritis. Plasma somatostatin was significantly higher in patients with gastrinomas compared to patients with atrophic gastritis ($p<0.005$). Gastrinoma patients had significantly lower plasma gastrin:somatostatin ratios compared to those with atrophic gastritis ($p<0.001$). Patients with gastrinomas had significantly higher plasma Cg A compared to patients with atrophic gastritis ($p<0.005$). No patients with atrophic gastritis had Cg A levels greater than100 pmol/L. The combination of plasma Cg A and plasma gastrin:somatostatin ratio has a predictive power of 76% and an area under ROC curve of 0.87.

Conclusion The plasma gastrin:somatostatin ratio and measurement of plasma Cg A may be helpful in planning the diagnostic work-up for patients with raised fasting gastrin levels. Combining these biochemical tests could allow correct identification of gastrinoma patients requiring further assessment and significantly reduce unnecessary investigation of gastric pH in non-gastrinoma patients.

Competing interests None.

Keywords gastrin, gastrinoma, somatostatin.