

Gastric emptying and plasma levels of gastrointestinal hormones in patients with peptic ulcer

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Abstract

AIM: To study the plasma level of gastrointestinal hormones and the time of gastric emptying in patients with peptic ulcer.

METHODS: Thirty patients with gastric ulcer (GU), 29 patients with duodenal ulcer (DU), and 12 healthy controls were studied. Plasma levels of somatostatin (SS), vasoactive intestinal peptide (VIP) and substance P (SP) were measured by radioimmunoassay. Gastric emptying half-time ($GE_{1/2}$) was measured by the TC-99^m resin/solid meal method.

RESULTS: $GE_{1/2}$ was significantly longer in the GU patients than that in the healthy controls (65.9 ± 14.8 min vs 53.3 ± 4.3 min, $P < 0.01$) and plasma VIP levels were significantly higher (37.5 ± 10.7 ng/L vs 18.4 ± 5.9 ng/L, $P < 0.05$). There was a significant positive correlation between $GE_{1/2}$ and plasma VIP levels ($r = 0.55$, $P < 0.01$).

No significant differences were found in SS and SP levels when GU patients were compared with healthy controls ($P > 0.05$). $GE_{1/2}$ was markedly shorter in the DU patients than in the healthy controls (41.7 ± 10.2 min vs 53.3 ± 4.3 min, $P < 0.01$) and plasma SS levels were significantly lower (6.4 ± 2.5 ng/L vs 11.9 ± 3.4 ng/L, $P < 0.01$). There was a significant positive correlation between $GE_{1/2}$ and SS levels ($r = 0.56$, $P < 0.01$). Plasma SP levels in the DU patients were significantly higher than those in the healthy controls (54.4 ± 12.7 ng/L vs 41.6 ± 5.8 ng/L, $P < 0.01$). There was a significant negative correlation between $GE_{1/2}$ and SP levels ($r = -0.68$, $P < 0.01$). No significant differences were found in the plasma VIP levels when DU patient were compared to healthy controls ($P > 0.05$).

CONCLUSION: Elevation in VIP may contribute to occurrence of GU and its associated delay in $GE_{1/2}$. Increased SP and reduced SS may play important roles in $GE_{1/2}$ acceleration and in the pathogenesis of DU.

Key words: Peptic ulcer/physiopathology; Gastric emptying; Gastrointestinal hormones/blood

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