



## Expression of antral somatostatin mRNA in duodenal ulcer disease complicated with antral gastritis associated with *Helicobacter pylori*

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Received: July 6, 1998

Revised: August 15, 1998

Accepted: September 6, 1998

Published online: October 15, 1998

### Abstract

**AIM:** To explore the gene expression of antral somatostatin mRNA in duodenal ulcer disease complicated with antral gastritis associated with *Helicobacter pylori*.

**METHODS:** Twenty-six patients with active duodenal ulcer (all cases *Helicobacter pylori* are positive), antral biopsy showed moderate or severe gastritis. Twenty-four non-ulcer control subjects (6 *Helicobacter pylori* positive) antral biopsy showed mild gastritis. *Helicobacter pylori* were examined by rapid urease test, giemsa stain and Hp specific IgG (ELISA), at least two of them are positive. The diagnosis of antral gastritis was accordant with the criterion of "quantitative diagnosis of chronic gastritis". The contents of somatostatin in antral mucosa were determined by means of radioimmunoassay. The counts of D-cells were investigated by means of immunohistochemistry. The expression of SS mRNA was measured by northern blot and slot-blot analysis.

**RESULTS:** (1) In twenty-six patients with active duodenal ulcers, the contents of somatostatin in antral mucosa tissues ( $266.37 \pm$

$56.25$  pg/mg wet weight) were significantly decreased compared with those in twenty-four non-ulcer control subjects ( $335.48 \pm 110.22$  pg/mg wet weight) ( $P < 0.01$ ). According to antral mucosa biopsy, giemsa stain and SS radioimmunoassay, we found that the SS contents of antral mucosa had close relation to infected Hp quantity and the degree of antral gastritis. The more the Hp quantity and the more severe the degree of antral gastritis, the lower the SS contents. (2) The counts of D-cells in duodenal ulcer group ( $36.28 \pm 13.34/\text{mm}^2$ ) were remarkably decreased compared with those in non-ulcer control group ( $58.96 \pm 41.75/\text{mm}^2$ ) ( $P < 0.05$ ). The counts of D cells have close relation Hp quantity in antral mucosa and the degree of antral gastritis. Owing to almost all duodenal ulcer diseases are complicated with moderate or severe antral gastritis associated with Hp, therefore D cell counts are obviously decreased. (3) Somatostatin mRNA levels were significantly lower in active duodenal ulcer ( $0.52 \pm 0.11$  densitometer unit) than in non-ulcer control subjects ( $3.26 \pm 0.87$  densitometer unit) ( $P < 0.01$ ). This showed that at the level of gene transcription, owing to the affection of antral gastritis associated with Hp, the synthetic function of SS had decreased.

**CONCLUSION:** *Helicobacter pylori* infection has close relation to duodenal ulcer occurrence. *Helicobacter pylori* infection can lead to antral gastritis. Owing to the influence of antral gastritis associated with *Helicobacter pylori*, antral D-cells in patients with duodenal ulcer not only showed decrease in quantity but also decrease in function of synthesis.

**Key words:** Duodenal ulcer; Gastritis; *Helicobacter pylori*; somatostatin; RNA, messenger

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Zheng CQ, Fu WQ, Li YQ, Sun SY, Zhou Z. Expression of antral somatostatin mRNA in duodenal ulcer disease complicated with antral gastritis associated with *Helicobacter pylori*. *World J Gastroenterol* 1998; 4(Suppl2): 120 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v4/iSuppl2/120.htm> DOI: <http://dx.doi.org/10.3748/wjg.v4.iSuppl2.120>

E- Editor: Li RF



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