

## Effect of jianpiyiwei capsule on gastric secretory function, mucosal hexosamines and malonic dialdehyde concentrations in chronic atrophic gastritis in rats

Xue-Ying Shi, Feng-Zhi Zhao, Xin Dai, Lian-Sheng Ma, Xiu-Yun Dong, Jie Fang

Xue-Ying Shi, Feng-Zhi Zhao, Xin Dai, Jie Fang, Department of Pathology, Affiliated Hospital, Beijing University of Traditional Chinese Medicine, Beijing 100700, China

Lian-Sheng Ma, Taiyuan Research and Treatment Center for Digestive Diseases, Taiyuan 030001, Shanxi Province, China

Xiu-Yun Dong, Department of Gastroenterology, Third School of Clinical Medicine, Beijing Medical University, Beijing 100083, China

Author contributions: All authors contributed equally to the work.

Correspondence to: Dr. Xue-Ying Shi, Department of Pathology, Affiliated Hospital, Beijing University of Traditional Chinese Medicine, Beijing 100700, China

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### Abstract

**AIM:** To study the therapeutic mechanism of Jianpiyiwei capsule (JPYW) on chronic atrophic gastritis (CAG) in rats.

**METHODS:** The model of CAG was established in male wistar rats by synthetic method: a metallic spring was inserted into gastric pylorus sphincter. 1 week after operation, 50-60 °C hot paste which contains 15% NaCl were given twice a week orally for 15 wk, then 10 normal and 11 CAG model rats were killed and sampled to study: (1) The volume of gastric juice, (2) Gastric acidity and total output of gastric acid, (3) Activity of pepsin and its total output, (4) Mucosal hexosamines and malonic dialdehyde (MDA) concentrations. The other CAG rats were treated with JPYW 1.5 g/kg/d or 4.5 g/kg/d, weimeisu (WMS) 0.6 g/kg/d, or distilled water (DW) respectively ( $n = 10$  each group). After 12 wk, all the rats were killed and detected as above.

**RESULTS:** The volume and acidity of gastric juice, activity of pepsin,

total output of acid and pepsin, mucosal hexosamines and MDA concentrations were  $1.17 \pm 0.29$  mL/2h,  $48.54 \pm 16.95$  mEq/L,  $0.519 \pm 0.115$  unit/mL,  $27.63 \pm 8.07$   $\mu$ Eq/h,  $0.291 \pm 0.058$  unit/h,  $4.82 \pm 0.74$   $\mu$ g/mg, tissue and  $37.41 \pm 4.91$   $\mu$ mol/100mg, tissue in model group whereas  $2.08 \pm 0.19$ ,  $96.80 \pm 18.20$ ,  $0.843 \pm 0.143$ ,  $100.11 \pm 17.63$ ,  $0.873 \pm 0.139$ ,  $6.85 \pm 1.14$  and  $24.90 \pm 2.48$  in normal group, which were significantly different ( $P < 0.01$ ). After 12 wk treatment, JPYW increased the volume and acidity of gastric juice, activity of pepsin, total output of acid and pepsin significantly ( $2.12 \pm 0.86$ ,  $96.10 \pm 30.91$ ,  $0.780 \pm 0.168$ ,  $95.84 \pm 31.05$ , and  $0.779 \pm 0.169$  respectively in 4.5 g/kg group) as compared with DW group ( $1.37 \pm 0.51$ ,  $50.20 \pm 16.47$ ,  $0.515 \pm 0.142$ ,  $32.89 \pm 11.73$  and  $0.327 \pm 0.082$  respectively) ( $P < 0.05$  or  $P < 0.01$ ). Furthermore, it decreased mucosal MDA concentration obviously ( $27.09 \pm 3.98$  in 4.5 g/kg group and  $41.87 \pm 4.27$  in DW group) ( $P < 0.01$ ). Although the hexosamines concentration was increased mildly ( $5.62 \pm 0.93$  in 4.5 g/kg group), it made no statistical difference to DW group ( $4.90 \pm 0.84$ ) ( $P > 0.05$ ). WMS also had influence on above-mentioned indices, but was not as marked as JPYW 4.5 g/kg/d group, especially in total output of acid ( $56.54 \pm 12.25$ ) and pepsin ( $0.585 \pm 0.100$ ) and mucosal MDA concentration ( $31.43 \pm 5.02$ ) (comparing to 4.5 g/kg group,  $P < 0.05$  or  $P < 0.01$ ).

**CONCLUSION:** Improving the secretory function of gastric juice and preventing gastric mucosa from the injury of free radical may be one of the therapeutic mechanism of JPYW on chronic atrophic gastritis.

**Key words:** Gastritis, atrophic/therapy; Jianpiyiwei capsule; Hexosamines; Malonic dialdehyde; Disease models, animal

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