

## The function of apoptosis and protein expression of *Bcl-2*, *p53* and C-myc in the development of gastric cancer

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### Abstract

**AIM:** To understand the rule and possible function of apoptosis and protein expression of *Bcl-2*, *p53* and C-myc in chronic gastritis, gastric ulcer, non-classic nonproliferation of gastric mucosa and gastric cancer.

**METHODS:** Apoptosis was detected by using in situ terminal labelling (TUNEL). The protein expression of *Bcl-2*, *p53* and C-myc was detected by immunohistochemical method.

**RESULTS:** The indexes of apoptosis in chronic active gastritis, gastric ulcer, mild and severe non-classic proliferation of gastric mucosa, early and progressive gastric cancer were  $16.8\% \pm 12.3\%$ ,  $24.1\% \pm 20.0\%$ ,  $19.3\% \pm 16.4\%$ ,  $15.7\% \pm 15.2\%$ ,  $10.1\% \pm 9.1\%$  and  $6.3\% \pm 6.0\%$ , respectively. The index of progressive gastric

cancer was lower than that of early gastric cancer and non-classic proliferation of gastric mucosa ( $P < 0.05$ ). The positive rate of *Bcl-2* protein was 9.4%, 27.6%, 52.9%, 75.0%, 83.3% and 46.7%, respectively. The positive rate of *Bcl-2* of early gastric cancer was higher than that of progressive gastric cancer. The positive rates of *p53* protein of severe non-classic proliferation, early and progressive gastric cancer were 25.0%, 33.3% and 63.3%, respectively. The positive rate of *p53* of progressive gastric cancer was higher than that of early gastric cancer and non-classic proliferation ( $P < 0.05$ ). In Lauren types, the index of apoptosis, protein expression rates of *Bcl-2*, *p53* and C-myc of intestinal type were  $8.3\% \pm 7.2\%$ , 38.9%, 77.7% and 56.6%, while that of diffuse type were  $5.1\% \pm 4.9\%$ , 58.3%, 50.0% and 8.3%, respectively. All markers had statistical difference between two types ( $P < 0.05$ ).

**CONCLUSION:** Apoptosis was inhibited stepwise in the development of non-classic proliferation of gastric mucosa to early gastric cancer and then to progressive gastric cancer. The high expression of *Bcl-2*, *p53* and C-myc was related to the development of gastric cancer. *Bcl-2* might play an important role in early gastric cancer while *p53* and C-myc act mostly in middle and late stage gastric cancer. The Lauren typing of gastric cancer is closely related to the index of apoptosis and expression of *Bcl-2*, *p53* and C-myc. the Medical Research Foundation of Guangdong Province, No. 1997423

**Key words:** Stomach neoplasms; Genes, *p53*; Apoptosis; Gastric mucosa; Immunohistochemistry; Genes, myc

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