



## Detection of cancer cells in peripheral blood with nested RT-PCR and its significance in patients with gastric carcinomas

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### Abstract

**AIM:** To study the detection of micrometastasis in peripheral blood of patients with gastric carcinomas and its clinical significance.

**METHODS:** A cytokeratin 19 (CK19) specific nested reverse transcriptase-polymerase chain reaction (RT-PCR) assay was developed to detect CK19 expressing cancer cells, the sensitivity was determined by serial dilution method using CK19 expressing gastric cancer cells, the specificity was assessed by examining 12 negative controls and 12 positive controls. Then pre-operative peripheral blood from 42 patients with gastric cancer was detected and the relationship

between positive results and biological behavior was studied.

**RESULTS:** CK19mRNA was expressed in all the 12 gastric cancer tissues but not in peripheral blood from 12 healthy individuals; sensitivity of nested RT-PCR amplification for CK19mRNA was confirmed to be 1/106 by serial dilution method using human gastric cancer line SGC-7901; micrometastases in pre-operative peripheral blood were detected in 13 (30.9%) patients with gastric carcinomas, the frequency of micrometastasis in peripheral blood was significantly correlated with tumor size, depth of invasion and TNM stage ( $\chi^2$  test,  $P < 0.05$ ).

**CONCLUSION:** Nested RT-PCR amplification for CK19mRNA is a sensitive and specific method for the detection of micrometastases in peripheral blood in gastric cancer patients; pre-operative detection of micrometastasis in peripheral blood may be helpful in the prediction of tumor progression.

**Key words:** Stomach neoplasms; Micrometastasis; Veins; Keratin; Polymerase chain reaction; Oncogenes; Peripheral blood

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