

Evaluating The Use Of Circulating Tumor Cells As A Prognostic Marker In Gastric Cancer

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Abstract

Gastric cancer is one of the leading causes of cancer related death worldwide. Based on Union for International Cancer Control (UICC), the 5-year survival rates of patients with stage IIIA, IIIB, and IV gastric cancers are 30.8–54.0%, 16.1–36.5% and 9.2–23.9%, respectively. Up to now, there are no effective therapeutic methods for gastric cancer. Recurrence and metastasis remain the major problems in the treatment of this disease. Circulating tumor cells (CTCs) constitute rare cells that are shed from primary or secondary tumor deposits into the blood stream. Studies have demonstrated that CTCs provide the opportunity for noninvasive sampling which indicates valuable insights into tumor biology. CTCs isolation might be an easily formidable alternative to tissue biopsy and thus it can serve as a 'liquid biopsy'. Accumulating evidence implies that the presence of CTCs in the peripheral blood is not sufficient to initiate metastasis. Only a minority of CTCs with stem cell-like properties can survive and migrate to distant sites to create secondary tumors. These cells are called circulating tumor stem cells (CTSCs) that are responsible for tumor initiation, invasion and metastasis, similar to cancer stem cells (CSCs). They are also resistant to chemotherapy and thus their existence correlates with poor prognosis in cancer patients. Recent studies suggest that identification and measurement of CTSCs in peripheral blood of these patients could be a remarkable tool for evaluating metastasis, tumor stage, survival rate, and monitoring their response to cancer therapy. Isolating CTSCs may provide more clinically useful prognostic information than only detecting CTCs. Stem cell markers which are often overexpressed in CTSCs, are able to separate CTSCs in the circulation of gastric cancer patients. CD44 and CD133 have been recognized as gastric cancer stem cell biomarkers. In this review we propose that CD44 and CD133 could be considered as reliable prognostic markers for gastric cancer patients. The presence of CD44 and CD133 positive CTCs in the circulation may associate with metastasis, recurrence and shorter survival.

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