



# Correlation of ERCC1 expression in peripheral blood lymphocytes with outcomes of patients with gastric cancer treated with oxaliplatin-based adjuvant chemotherapy

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**ABSTRACT.** Excision repair cross-complementing gene-1 (ERCC1) is a key regulatory enzyme whose expression patterns in tumor tissues are associated with survival in gastric cancer. The present study aimed to evaluate the effects of ERCC1 expression in peripheral blood lymphocytes (PBLs) on the outcome of patients with gastric cancer treated with oxaliplatin-based adjuvant chemotherapy. Tumor and PBL samples from 48 patients treated with adjuvant oxaliplatin-based chemotherapy for gastric cancer were analyzed. Immunohistochemistry was used to assess the expression of ERCC1. After a median follow-up of 18.5 months, the median disease-free survival (DFS) and overall survival (OS) were 12 and 20 months, respectively. Expression of ERCC1 was found in 72.9% (35/48), 56.3% (27/48), and 10.0% (2/20) of tumor tissues, PBLs from gastric cancer patients, and PBLs from controls, respectively. A significant

positive correlation between ERCC1 expression in PBL and cancer tissue was found ( $\chi^2 = 12.098$ ,  $P = 0.001$ , Pearson contingency coefficient = 0.502). Patients with negative expression of ERCC1 in tumor tissues had a significantly longer median DFS and median OS compared to patients with positive expression of ERCC1 (median DFS, 18 vs 10 months,  $P = 0.006$ ; median OS, 30 vs 17 months,  $P = 0.012$ ). In PBLs, high expression of ERCC1 was associated with decreased DFS (9 vs 18 months,  $P = 0.032$ ), but not OS (16 vs 24 months,  $P = 0.057$ ). Patients with gastric cancer exhibiting negative expression of ERCC1 are more likely to benefit from oxaliplatin-based adjuvant chemotherapy.

**Key words:** Stomach neoplasms; Human ERCC1 protein; Oxaliplatin; Adjuvant chemotherapy; Cancer survival