Genetics and Molecular Research

Genetic variability of *ERCC1* and *ERCC2* genes involved in the nucleotide excision repair pathway influences the treatment outcome of gastric cancer

D.L. Zheng[1,2], G.D. Tang[1], Y.N. Chen[2], T. Zhang[2] and M.B. Qin[1]

[1]Department of Gastroenterology,
The First Affiliated Hospital of Guangxi Medical University, Nanning, China
[2]Department of Gastroenterology,
Ruikang Hospital Affiliated to Guangxi University of Chinese Medicine,
Nanning, China

Corresponding author: G.D. Tang
E-mail: tanggudd@163.com

Genet. Mol. Res. 15 (2): gmr.15027384
Received August 6, 2015
Accepted December 9, 2015
Published April 26, 2016
DOI http://dx.doi.org/10.4238/gmr.15027384

ABSTRACT. We conducted a prospective study to investigate whether *ERCC1* rs11615 and rs3212986 and *ERCC2* rs13181 and rs1799793 gene polymorphisms could serve as potential biomarkers for the prognosis of gastric cancer. Between January 2010 and December 2012, 246 patients with pathologically proven gastric cancer who were receiving platinum-based chemotherapy were recruited from the First Affiliated Hospital of Guangxi Medical University. The genotyping of the gene polymorphisms was conducted using the polymerase chain reaction coupled with restriction fragment length polymorphism. By logistic regression analysis, we found that the AA genotype of *ERCC1* rs3212986 was associated with lower rates of complete remission and partial remission following chemotherapy in gastric cancer patients, and the OR (95%CI) was 0.19 (0.06-0.60). We found that the AA genotype of

rs3212986 was correlated with higher risk of death from gastric cancer according to the Cox proportional hazards model, and the adjusted HR (95%CI) was 1.60 (0.81-3.16). However, we found no association between *ERCC1* rs11615, *ERCC2* rs13181, and *ERCC2* rs1799793 and overall survival of gastric cancer. In conclusion, the results of the present retrospective study indicate that the *ERCC1* rs3212986 gene polymorphism has a significant effect on the pharmacokinetics and treatment outcome of gastric cancer.

Key words: *ERCC1*; *ERCC2*; Polymorphism; Gastric cancer; Treatment outcome

