



## Investigation of *ERCC1* and *ERCC2* gene polymorphisms and response to chemotherapy and overall survival in osteosarcoma

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**ABSTRACT.** We assessed the role of single nucleotide polymorphisms (SNPs) in *ERCC1* and *ERCC2* genes in the clinical outcomes for osteosarcoma patients receiving cisplatin-based treatment. A perspective study was conducted on 260 patients with osteosarcoma during 2010 and 2011. A polymerase chain reaction restriction fragment length polymorphism (PCR-RFLP) assay was used to assess the *ERCC1* rs11615 and rs3212986, and the *ERCC2* rs1799793 and rs13181 gene polymorphisms. After adjustment for clinical variables, we found that the CC genotype of *ERCC1* rs11615 was significantly associated with better response to chemotherapy (OR = 2.87, 95%CI = 1.24-6.97). Our study found that those carrying the CC genotype of *ERCC1* rs11615 had a longer overall survival compared with the TT genotype, and the OR (95%CI) was 0.35 (0.12-0.92). In conclusion, our results suggest

that the *ERCC1* rs11615 polymorphism might influence the response to cisplatin-based chemotherapy and affect the clinical outcome for osteosarcoma patients.

**Key words:** *ERCC1*; *ERCC2*; Chemotherapy; Overall survival; Osteosarcoma; Single nucleotide polymorphism