



Effect of variation of ABCB1 and GSTP1 on osteosarcoma survival after chemotherapy

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ABSTRACT. We conducted a comprehensive study to investigate the role of genes involved in metabolic and transport pathways in response to chemotherapy and clinical outcome of osteosarcoma patients. Genotyping of seven gene polymorphisms was performed on a 384-well plate format on the Sequenom MassARRAY platform in 162 patients with osteosarcoma. We studied the correlation of the seven gene polymorphisms with response to chemotherapy and clinical outcome of patients. Individuals with the *ABCB1* *TT* genotype had a higher probability of responding poorly to chemotherapy, indicated by an odds ratio (OR) of 2.64 (95%CI = 1.04-6.83). Similarly, the genotype of *GSTP1* *GG* was significantly associated with improved responses to chemotherapy, indicated by an OR of 3.33 (95%CI = 1.26-8.99). The *ABCB1* *TT* and *GSTP1* *GG* genotypes were significantly associated with a shorter overall survival (OS). Our study found that two gene polymorphisms in two transporter genes and one Phase II metabolism enzymes are associated with response to chemotherapy and

OS in osteosarcoma patients, suggesting the potential of the two gene polymorphisms as prognostic biomarkers for osteosarcoma.

Key words: ATP-binding cassette; Glutathione S-transferases; Osteosarcoma; Clinical outcome