



Expression of ERCC1 and BRCA1 predict the clinical outcome of non-small cell lung cancer in patients receiving platinum-based chemotherapy

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ABSTRACT. We examined mRNA expression levels of ERCC1, BRCA1, RRM1, and human β -tubulin-III (TUBB3) in non-small-cell lung carcinoma (NSCLC) patients and investigated the association between expression of these genes and the clinical outcome of NSCLC treatment. A total of 366 patients who underwent surgery for NSCLC were included in this study. All patients received third-generation platinum-based chemotherapy as first-line treatment. The relative cDNA quantification for ERCC1, RRM1, BRCA1, and TUBB3 was determined using a fluorescence-based, real-time detection method. We found that low expression of ERCC1 and BRCA1 was associated with a good response to platinum-based chemotherapy, with an odds ratio [95% confidence interval (CI)] of 2.09 (1.33-3.27) and 2.92 (1.85-4.62), respectively. Multivariate Cox regression analysis indicated that patients with low expression of ERCC1 and BRCA1 attained a longer overall survival time than those with high expression, with a hazard ratio (95%CI) of 0.42 (0.23-0.77) and 0.39

(0.21-0.71), respectively. However, RMM1 and TUBB2 expressions were not correlated with clinical outcome of NSCLC. In conclusion, we found that low expression of ERCC1 and BRCA1 can be useful for selecting NSCLC patients who would benefit from chemotherapy and warrants further investigation in prospective studies.

Key words: Non-small cell lung cancer; BRCA1; RRM1; RRM2; Overall survival