



## Predictive role of *RRM1* and *BRCA1* mRNA expression on the clinical outcome of advanced non-small cell lung cancer

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**ABSTRACT.** This study aimed to evaluate the association between *RRM1* and *BRCA1* expressions and the therapeutic efficacy of platinum-based chemotherapy in non-small cell lung cancer patients in terms of their response and prognosis. In total, 377 patients agreed to participate in our study, and all of them received platinum-based combination chemotherapy between January 2008 and January 2009. The relative cDNA quantitation for *RRM1* and *BRCA1* was conducted using a fluorescence-based, real-time detection method, using  $\beta$ -actin as a reference gene. The average age of the 377 patients was 64.6 years (range: 25.5-86.4 years), including 269 men and 108 women. Patients with high *RRM1* expression benefited more from a platinum-containing regimen, and patients with high *BRCA1* expression showed a high response rate to a platinum-containing regimen and reduced disease progression. Patients with high *RRM1* expression were associated with

a longer progression-free survival (PFS) and overall survival (OS) than those with low expression, and the hazard ratios (HRs) (95% confidence interval (CI)) were 0.67 (0.32-0.91) and 0.54 (0.30-0.95), respectively. Patients with high *BRCAl* expression showed longer PFS and OS compared to those with low expression, and the HRs (95%CI) were 0.54 (0.30-0.95) and 0.62 (0.32-0.93), respectively. These results could be used in personalized chemotherapy decisions and to increase the response rate and prolonged survival, and could encourage exploration of the predictive value of other genes.

**Key words:** *RRMI*; *BRCAl*; Non-small cell lung cancer; Clinical outcome