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LUNG ALERT

Using molecular markers as a means of predicting prognosis and outcomes in the treatment of lung cancer

▲ Zheng Z, Chen T, Li X. DNA synthesis and repair genes RRM1 and ERCC1 in lung cancer. *NEJM* 2007;**356**:800-08.

This study evaluated the potential association between the expression of two specific proteins and treatment outcomes of patients with early non-small-cell lung cancer.

Increased expression of the gene RRM1 (regulatory subunit of ribonucleotide reductase) has been shown to reduce metastases, inhibit development of lung tumours and prolong survival. Similar data have been shown for ERCC1 (excision repair cross-complementation group 1).

The study group consisted of 187 patients who had undergone thoracotomy for resection of stage 1 non-small-cell lung cancer and had had no other treatment.

The expression of RRM1, ERCC1 and PTEN (phosphatase and tensin homologue) were measured with a new fully automated and quantitative system, and the genetic results compared with clinical outcomes. RRM1 expression correlated with the expression of ERCC1 but not with PTEN.

The median disease-free and overall survival rate exceeded 120 months for patients with high expression of RRM1 (gene expression score >40.5) compared with 54.5 months' disease-free survival and 60.2 months' overall survival for those with low expression of the gene.

Patients with co-expression of both RRM1 and ERCC1 were divided into four groups according to high and low expression of the proteins. Significantly, of the patients who had undergone potentially curative lung cancer surgery, 30% with high expression of both proteins had a good outcome at 10 years.

The authors concluded that high expression of these genes correlated with favourable outcome in early disease, but alluded that same markers have been recognised to predict tumour-resistance to platinum agents and gemcitabine in advanced disease. This identified two key areas of management. Those with resected early stage disease who may not need adjuvant chemotherapy and those who are not likely to benefit from conventional chemotherapeutic agents in advanced cancer.

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Using molecular markers as a means of predicting prognosis and outcomes in the treatment of lung cancer

Jenny Cosgrove

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