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## ERCC1 expression in metastatic triple negative breast cancer patients treated with platinum-based chemotherapy

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**Background:** Possible targeted therapies for metastatic triple negative breast cancer (TNBC) include cytotoxic chemotherapy that causes inter strand breaks (platinum-based drugs). The excision repair cross-complementation 1 (ERCC1) enzyme plays an essential role in the nucleotide excision repair pathway, removes platinum-induced DNA adducts and cisplatin resistance. Detecting ERCC1 overexpression is important in considering treatment option for metastatic TNBC, individualized approaches to therapy and may improve response or reduce unnecessary toxicity. We hypothesized that assigning cisplatin based on pretreatment ERCC1 expression would improve response and survival.

**Aim:** To assess the impact of ERCC1 expression on PFS, OS and response rate in metastatic triple negative breast cancer patients treated with platinum-based chemotherapy.

**Materials & Methods:** From June 2012 to November 2013, 52 metastatic triple negative breast cancer patients were enrolled. ERCC1 protein expression was detected from pretreatment biopsies by Immunohistochemistry. All patients received cisplatin plus paclitaxel. The primary end point was the impact of ERCC1 expression on PFS and OS.

**Results:** 34 patients (65.4%) showed positive ERCC1 expression while 18 patients (34.6%) showed negative ERCC1 expression. Positive ERCC1 expression was associated with short PFS (median, 5 months vs. 7 months;  $P=0.043$ ). Positive ERCC1 expression was associated with short OS (median, 9 months vs. 11 months;  $P=0.033$ ). Also, positive ERCC1 expression was associated with poor response to cisplatin based chemotherapy ( $P=0.046$ ).

**Conclusions:** This prospective study further validates ERCC1 as a reliable biomarker for customized chemotherapy in metastatic triple negative breast cancer patients and shows that high expression of ERCC1 was significantly associated with poor outcome in patients treated with platinum based chemotherapy.

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