

Breast Cancer Resistance Protein Expression and 5-Fluorouracil Resistance¹

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Objective To filtrate breast cancer resistance protein (BCRP)-mediated resistant agents and to investigate clinical relationship between BCRP expression and drug resistance. **Methods** MTT assay was performed to filtrate BCRP-mediated resistant agents with BCRP expression cell model and to detect chemosensitivity of breast cancer tissue specimens to these agents. A high performance liquid chromatography (HPLC) assay was established, and was used to measure the relative dose of intracellular retention resistant agents. RT-PCR and immunohistochemistry (IHC) were employed to investigate the BCRP expression in breast cancer tissue specimens. **Results** MTT assay showed that the expression of BCRP increased with the increasing resistance of 5-fluorouracil (5-Fu) ($P < 0.05$, $n = 3$) in the cell model, while HPLC assay indicated that the intracellular retention dose of 5-Fu was significantly correlated with the expression of BCRP ($r = -0.897$, $P < 0.05$, $n = 3$). A total of 140 breast cancer tissue specimens were collected. BCRP-positive expression was detected in forty-seven specimens by both RT-PCR and IHC. As shown by MTT assay subsequently, the resistance index (RI) of 47 BCRP-positive breast cancer tissue specimens to 5-Fu was 7-12 times as high as that of adjacent normal tissue samples. BCRP expression was related to 5-Fu resistance ($R^2 = 0.8124$, $P < 0.01$). **Conclusion** Resistance to 5-Fu can be mediated by BCRP. Clinical chemotherapy for breast cancer patients can be optimized based on BCRP-positive expression.

Key words: Breast cancer resistance protein; 5-fluorouracil; Breast cancer; Resistance; Chemotherapy

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