Breast Cancer Resistance Protein Expression and 5-Fluorouracil Resistance

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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 (R²=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

REFERENCES


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