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## Pharmacogenetic studies on chemotherapeutic agents that have the potential to revolutionize the way clinicians determine a patient's optimal treatment regimen

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**A**dvances in genetic technologies improve our understanding of disease etiology and of the factors influencing response to treatment.

**Objectives:** Although there has been relatively little progress to date in using genetics to improve the treatment of common diseases, there are some encouraging signs of progress in basic research. Our aim was to use genetics involved in pharmacogenetics, which seeks to identify the genetic factors that influence responses to medicines.

**Methods:** Seven Polymorphisms in five specific candidate genes were analyzed in DNA obtained from biopsy samples of 280 Breast Cancer patients and compared to 150 healthy age matched women volunteers using PCR and SNP analysis. Statistical analysis determined the significance of the results.

**Results:** The role of genes like CYPs, TS, MTHFR, SULT1A1, and DPD in Breast cancer seen in this study, represents a test for an ADR when the drug is administered and the proportion of people with a negative test who will not have an ADR, respectively. This is the first report from India analyzing the association of polymorphisms in several drug metabolizing genes, showing the drug-gene interactions which are associated with breast cancer.

**Conclusion:** These findings suggest that changes modulated at the molecular biologic level supervene earlier than histologic changes, and that molecular interventions are an early diagnosis in the process of cancer therapy or cancer progression. In addition, impaired body image decreased sexual functioning and sexual enjoyment in patients, must be seriously considered in long-term survivors of breast and cervical cancer, to improve their overall quality of life.

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