

Cytochrome P4501A1 Polymorphism and Breast Cancer: Study of Women in Marathwada Maharashtra

Kalpana A. Lohiya

Swami Ramanand Teerth Rural Government Medical College, Maharashtra, India

Dr. Mogarekar M.R.

Swami Ramanand Teerth Rural Government Medical College, Maharashtra, India

Dr. Satishkumar

Swami Ramanand Teerth Rural Government Medical College, Maharashtra, India

Abstract

Backgrounds and Aims: One member of the cytochrome P450 family, CYP1A1, is one of the genes involved in the metabolism of carcinogens and estrogen. This gene has been identified to be associated with breast cancer (BC). The present study evaluated the association of CYP1A1m2 (A4889G) gene polymorphism in women with breast cancer in the region of Marathwada, Maharashtra, India.

Materials and Methods: This cross-sectional study was conducted on 52 patients with breast cancer and 52 healthy women at SRTRGMC&H, Ambajogai. Genomic DNA was extracted from peripheral blood cells using DNA isolation kit (HIMEDIA, Pune) and amplified using the polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) method. The genotypes were identified and then association between A-G polymorphism and BC was evaluated.

Results: The mean age of patients and controls was 46.49 ± 10.82 and 41.7 ± 10.2 respectively. The results showed that the allele frequencies for the wild type (A) and mutant (G) were 0.62 and 0.38 in cases and 0.76 and 0.24 in controls respectively. (OR=0.51; 95%CI:0.28-0.92; P=0.022). Where A may be the protective allele and patients carrying G allele may increase the chances of developing BC.

Conclusion: Results suggests a significant association between the CYP1A1 m2 gene polymorphism and breast cancer.

Index Terms

Breast Cancer, CYP1A1, Polymorphism, Carcinogen