

Cancer Research

Epidemiology

Abstract 1223: Significance of GSTM1 and GSTT1 gene polymorphism to breast cancer susceptibility in Nigerian women

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Abstract

Human glutathione-S-transferases play a key role in the metabolism of drugs and environmental chemicals. There have been conflicting reports on the association of breast cancer susceptibility with null genotypes of glutathione-S-transferase (GST) classes of mu and theta (GSTM1 and GSTT1). However, this is the first report of the association of null genotypes of GSTs with breast cancer patients from Nigerian population. By multiplex PCR, we examined the null genotypes of GSTM1 and GSTT1 in relation to breast cancer risk in Nigerian women. The case-control study included 56 clinically diagnosed breast cancer patients and age-matched control participants. Odds ratio (OR) and 95% confidence interval (CI) from conditional logistic regression model were used to estimate the association between GSTM1 and GSTT1 subtypes and breast cancer risk. The frequencies of GSTM1 and GSTT1 null genotypes in breast cancer (BC) patients differed from healthy controls (HC) (61% in BC vs. 39% in HC and 66% in BC vs. 34% in HC for GSTM1 and GSTT1 respectively). GSTM1 and GSTT1 null genotypes and their combinations were associated with increased breast cancer risk [OR = 3.06 (95% CI 0.98-9.48)], [OR = 14.06 (95% CI 3.02-70.6)] and [OR = 6.98 (95% CI = 0.11-16.5)] respectively. The study showed an increased breast cancer risk in patients with GSTT1 homozygous gene deletions with relative risk (RR) value of 5.6 than those with GSTM1 (RR = 1.77). In conclusion, the data from our work provide evidence of increased risk of breast cancer associated with GSTM1 and GSTT1 homozygous gene deletions in women from Nigeria.

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