Glutathione S-transferase P1 rs1695 A>G polymorphism and breast cancer risk: evidence from a meta-analysis

M. Kuang1,4*, W. Xu1*, C.X. Cao1, L.L. Shen1, J. Chang3, X.L. Zhang2, J.F. Chen1 and C.J. Tang1

1Department of Oncology, Nanjing First Hospital, Nanjing Medical University, Nanjing, China
2Department of Oncology, Nantong Tumour Hospital, Nantong University, Nantong, China
3Department of Oncology, Taixing people’s Hospital, Yangzhou University, Taixing, China
4Department of Oncology, Liyang People’s Hospital, Liyang Jiangsu Province, China

*These authors contributed equally to this study.
Corresponding authors: J.F. Chen / C.J. Tang
E-mail: tanguojia2015@163.com / jinfeichen@sohu.com

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ABSTRACT. Breast cancer (BC) is the most widespread cause of cancer-related deaths in women. Many published studies have assessed the association between the glutathione S-transferase P1 (GSTP1) rs1695 polymorphism and BC risk. However, the effect of the GSTP1 rs1695 polymorphism on BC risk has remained controversial. Therefore, this meta-analysis was conducted to obtain a comprehensive estimation of this association. A total of 20,615 cases and 20,481 controls from thirty-six case-control trials were extracted from an online literature survey. The meta-analysis indicated that the GSTP1 rs1695 A>G polymorphism did not contribute to the susceptibility of...
BC when the overall population was considered. However, intriguingly, this polymorphism was significantly associated with increased risk of BC in Asian women [GG vs AA: odds ratio (OR) = 1.4, 95% confidence interval (CI): 1.06-1.88, P = 0.02; AG vs AA: OR = 1.08, 95%CI = 1.00-1.16, P = 0.05; GG/AG vs AA: OR = 1.11, 95%CI = 1.04-1.19, P = 0.00]. Moreover, a subgroup analysis based on the source of control groups showed a marked increase in BC susceptibility in hospital-based control subjects (GG vs AA: OR = 1.28, 95%CI = 1.10-1.48, P= 0.00; GG vs AG/AA: OR = 1.22, 95%CI = 1.06-1.41, P = 0.00; GG/AG vs AA: OR = 1.10, 95%CI = 1.02-1.18, P = 0.00). In conclusion, our study indicated that the GSTP1 rs1695 A>G polymorphism was correlated with elevated BC risk in Asian women. Our results must be validated with further research.

**Key words:** GSTP1; Polymorphism; Breast cancer; Meta-analysis