Genet Mol Res. 2017 Feb 8;16(1). doi: 10.4238/gmr16018877.

Association between GSTM1, GSTT1, and GSTP1 polymorphisms and gastric cancer risk, and their interactions with environmental factors.

Chen ZH[1], Xian JF[1], Luo LP[2].

Author information

1 The First Affiliated Hospital of Jinan University, Guangzhou, China.

2 The First Affiliated Hospital of Jinan University, Guangzhou, China zuhuichen66@163.com.

Abstract

Glutathione S-transferase (GST) is an important member of phase II metabolic enzymes; GSTM1, GSTT1, and GSTP1 belong to three subfamilies of the GST enzyme. Polymorphisms in GSTM1, GSTT1, and GSTP1 could affect detoxification processes, and increase individuals' susceptibility to cancers. We aimed to investigate the association between GSTM1, GSTT1, and GSTP1 polymorphisms and the risk of gastric cancer in a Chinese population. In addition, we also examined the effect of gene-environmental interactions, and their effect on risk of this cancer. Between July 2013 and June 2015, we recruited 242 gastric cancer patients and 396 healthy controls for our study. Polymerase chain reaction-restriction fragment length polymorphism analysis was used to characterize genetic polymorphisms in GSTM1, GSTT1, and GSTP1. We observed that the Val/Val genotype of GSTP1 was associated with increased risk of gastric cancer when compared with the Ile/Ile genotype (OR = 3.19, 95%CI = 1.84-5.56). Moreover, the Val allele of GSTP1 was associated with higher susceptibility to gastric cancer as compared with the Ile allele (OR = 1.52, 95%CI = 1.19-1.93). However, GSTM1 and GSTT1 polymorphisms did not affect the development of gastric cancer. In conclusion, our study indicated that GSTP1 Ile105Val, but not GSTM1 and GSTT1 polymorphisms, was associated with risk of gastric cancer.

PMID: 28198496 DOI: 10.4238/gmr16018877