Cytochrome P450 CYP1B1 and catechol O-methyltransferase (COMT) genetic polymorphisms and breast cancer susceptibility in a Turkish population

Journal	Archives of Toxicology
Publisher	Springer Berlin / Heidelberg
ISSN	0340-5761 (Print) 1432-0738 (Online)
Issue	Volume 76, Number 11 / November, 2002
Category	Organ Toxicity and Mechanisms
DOI	10.1007/s00204-002-0387-x
Pages	643-649
Subject Collection	Biomedical and Life Sciences
SpringerLink Date	Thursday, February 19, 2004

Add to marked items
Add to shopping cart
Add to saved items
Permissions & Reprints
Recommend this article

PDF (202.5 KB) HTML Free Preview

Abstract

Epidemiological studies indicate that most risk factors for breast cancer are related to reproductive and hormonal factors. Estrogen has been proposed to trigger breast cancer development via an initiating mechanism involving its metabolite, catechol estrogen (CE). Because of the important role of cytochrome P450 1B1 (CYP1B1) and catechol O-methyltransferase (COMT) in mammary estrogen and carcinogen metabolism, we examined the CYP1B1 and COMT genes to determine whether genetic variations could account for inter-individual differences in breast cancer. In this case-control study, we determined CYP1B1 and COMT genotypes in 84 breast cancer patients and 103 healthy unrelated women controls from a Turkish population. In the case of CYP1B1, we genotyped CYP1B1*3 (L432 V) allele. We found that carriers of the CYP1B1*3 allele were more frequent among breast cancer patients with adjusted odds ratio (OR) for age, age at menarche, age at first full-term pregnancy, body mass index (BMI) and smoking status of 2.32 (95% confidence interval 1.26-4.25) associated with the allele. However, this allele appeared to be a significant factor for susceptibility only in patients with a BMI greater than 24 kg/m^2. Menopausal status did not appear to affect susceptibility. In the case of COMT, there was no significant difference in susceptibility for breast cancer development between patients with low activity COMT-L (V158 M) allele and high activity COMT-H allele, and susceptibility was not affected by menopausal status, BMI or CYP1B1 genotype. We conclude that the CYP1B1*3 allele appears to be a factor for susceptibility to breast cancer in Turkish women especially those with a BMI greater than 24 kg/m^2.