Association of Catechol-O-Methyltransferase (COMT) Gene Polymorphism and Breast Cancer

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A hospital based case-control study was conducted to evaluate the association between genetic polymorphism of COMT and breast cancer in Korean women.

One hundred and eighty nine histologically confirmed incident breast cancer cases, 330 controls with no present or previous history of cancer recruited from three hospitals during 1994-1998 were analyzed for COMT genetic polymorphisms by PCR-RFLP with *Nla*III digestion. The frequency distribution of low activity COMT genotype ($COMT^{LL}$) in Korean women was lower (9% in control, 4% in cases) than those (25%) reported from Caucasian. Compared women with high activity COMT genotype ($COMT^{HH}$), the odds ratios for the breast cancer risk with heterozygote genotype ($COMT^{HL}$) and $COMT^{LL}$ were 1.89 (95% CI, 1.30-2.75) and 0.40 (95% CI, 0.16-0.98). However, there was no statistically significant trend for increased risk with $COMT^{L}$ dosage (Ptrend=0.49). Because there were only six $COMT^{LL}$ in breast cancer cases, combined $COMT^{LL}$ and $COMT^{HL}$ genotype was compared with $COMT^{HH}$.

Combined types were significantly associated with breast cancer (OR: 1.5, 95% CI: 1.07-2.19). These results suggest that people with low-activity COMT genotype might have increased risk of breast cancer.