환경역학			번호: II - B - 3
제 목	국문	GSTM1과 GSTT1 유전자다형성이 산모의 간접흡연과 태아체중의 관련성에 미치는 영향	
	영문	Effects of GSTM1 and GSTT1 polymorphism on the relationship between maternal exposure to environmental tobacco smoke and neonatal birth weight	
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1. 연구 목적

Maternal exposure to environmental tobacco smoke (ETS) has been reported to be an important risk factor for reduced birth weight. ETS is a complex mixture of volatiles and particulate matter, and is composed of numerous compounds, which may cause toxic damage to the fetus. Genetic polymorphisms in enzymes that metabolize exogenous chemicals have been associated with varying degrees of environmental causation of disease. Our objective was to determine whether genetic polymorphisms modulate the effects of exposure to ETS on birth weight.

2. 연구 방법

Survey was conducted in 2000-2001 among 266 pregnant women who hospitalized for delivery and their singleton live births in three residential areas of Korea. To evaluate the effect of genetic polymorphisms on the relationship between maternal exposure to ETS and neonatal birth weight, we determined maternal genetic polymorphisms and measured urinary cotinine of pregnant women at delivery. Cotinine was measured in the urine of mothers by radioimmunoassay. Genetic polymorphisms for GSTM1 and GSTT1 were analyzed by PCR.

3. 연구 결과

Birth weight was significantly decreased with increase of the concentrations of maternal urinary cotinine ($P<0.05$). When we analyzed the effect of GSTM1 and GSTT1 genotypes without consideration of exposure to ETS in the multivariate model, we did not find significant influence of genetic polymorphisms of the metabolic genes on birth weight ($P>0.05$). However, the interactive effect of exposure to ETS and GSTT1 polymorphism was significant in the multivariate models ($P<0.01$), whereas the interactive effect of exposure to ETS and GSTM1 did not reach statistical significance ($P=0.22$).

4. 고찰

Our data indicate that maternal exposure to ETS negatively affects neonatal birth weight. We also found that the adverse effects of maternal exposure to ETS on neonatal birth weight were modified by maternal metabolic genotypes, GSTT1.