[신진연구자]

Prenatal Second Hand Smoke Increases Atopic Dermatitis in Children with TNF-α, TLR4 and GSTP-1 Polymorphisms

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1. Introduction

Although Second Hand Smoke (SHS) exposure is associated with asthma, its effect on eczema is unclear. The aim of this study is to investigate gene-environment interactions between SHS exposure and TNF-α/TLR4/ GSTP1 polymorphisms on childhood eczema.

2. Meterials and Methods

From 2005 to 2006, 3,639 children aged 7 or 8 years were enrolled and followed up 2 years later. Details of SHS exposure and eczema were collected by questionnaires. TNF-α (rs1800629), TLR4 (rs1927911) and GSTP1 (rs1695) genotypes were determined.

3. Results and Discussion

Maternal passive smoking during pregnancy was associated with increased prevalence of eczema diagnosis ever (aOR, 1.50; 95%CI, 1.25-1.79), eczema symptoms in the past 12 months (aOR, 1.23; 95%CI, 1.01-1.50), and current eczema (aOR, 1.30; 95%CI, 1.06-1.60). Persistent SHS exposure (from the prenatal period to present) was associated with increased prevalence of eczema diagnosis ever (aOR, 1.40, 95%CI 1.19-1.66). Maternal passive smoking during pregnancy and persistent SHS exposure was associated with increased risk of new eczema diagnosis in children with the TNF-α AA or AG (aOR, 2.83, 95%CI 1.11-7.23 in the group of maternal passive smoking during pregnancy; and aOR 3.65, 95%CI 1.29-10.29 in the group of persistent SHS exposure), TLR4 CC (aOR 3.02, 95%CI 1.38-6.63 in the group of maternal passive smoking during pregnancy; and aOR 2.31, 95%CI 1.01-5.28 in the group of persistent SHS exposure) or GSTP1 AG or GG (aOR 2.58, 95%CI 1.23-5.42 in the group of maternal passive smoking during pregnancy; and aOR 3.04, 95%CI 1.32-7.01 in the group of persistent SHS exposure) genotypes. Conclusions: Interactions between SHS and TNF-α/TLR4/GSTP1 polymorphisms may affect eczema development in children. Reducing SHS exposure from the prenatal period onward may prevent childhood eczema in susceptible populations.

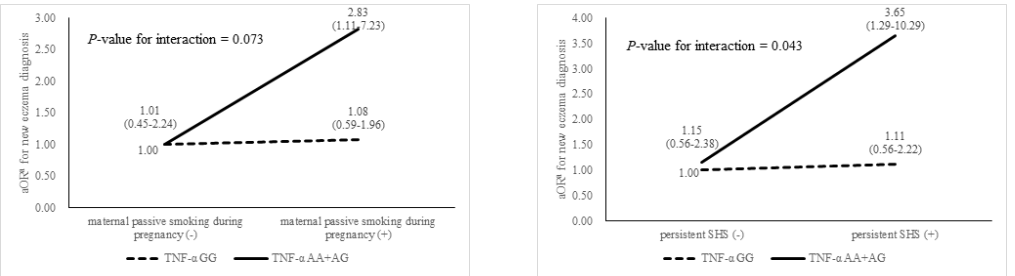

Fig. 1. Influence of the TNF-α (rs1800629) genotypes with (a) maternal passive smoking during pregnancy and (b) persistent SHS exposures on development of new eczema diagnosis.

4. References

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