

adjusted odds ratio for preterm birth per 10 ppb increase in ozone was, for women with gestational diabetes mellitus exposed in the third trimester, 1.12 (95% confidence interval: 1.01, 1.23) and in women without gestational diabetes was 1.02 (95% CI: 1.01, 1.03) (p for interaction < 0.001). These findings suggest that exposure to O₃ in pregnancy is associated with increased risk of preterm birth, particularly for women with gestational diabetes mellitus.

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Gene-Environment Interaction between Catalase Polymorphisms and Environment Exposure on the Development of Allergic Rhinitis in Childhood

Hsin Chen¹, Ting Yu Lin¹, Fang Bing Hwang¹

China Medical University, Department of Occupational Safety and Health, Taichung, Taiwan

Background: Allergic rhinitis is a highly prevalent inflammatory chronic disease affecting 40% of the children in Taiwan. Genetic susceptibility may interact with specific environmental factors in allergic disease development.

Objective: To assess the role of gene-environment interaction between catalase polymorphisms and environmental exposure (visible molds, mold odor, moisture in the surfaces, and water damage) on the development of allergic rhinitis.

Methods: We conducted a case-control study. Data on allergic rhinitis and environmental factors were collected using the ISSAC questionnaire from 858 children in Taiwan. The case group consisted of 263 children with allergic rhinitis and the control group (n=595). Genotyping was performed for rs1001179 and rs769214 polymorphisms and four indicators of exposures including histories of visible molds, mold odor, moisture in the surfaces, and water damage in children.

Results: We found that presence of visible molds, mold odor, and moisture in the surfaces increased the risk of current allergic rhinitis. Apparent joint effects between catalase promoter and indoor mold problem were observed on multiplicative scales. Specially, the risk of allergic rhinitis was significantly associated with children carrying the GG genotype and mold odor comparing with those carrying the AG genotype without any exposure indicator (adjusted odds ratio [aOR], 2.027; 95% confidence interval [CI], 1.255-3.275; P for interaction =0.0058).

Conclusions: Our finding suggests that gene-environment interactions between the catalase (rs769214) and mold odor may play an important role in childhood allergic rhinitis.