

Abstracts

Abstract Number	S-1-13-01
Presenter	I-Jen Wang*, Shoei-Loong Lin
Exposure	others
Health domains	allergies
Type of research	cross-sectional study

Environmental exposures and the development of childhood allergic diseases

Background: Environmental factors may play a role to the increment of allergic diseases. Since the onsets of allergic diseases are relatively early in life, identification of environmental factors among genetically susceptible children are of critical importance. Aims: We conducted a Taiwan Childhood Environment and Allergic diseases Study (TCEAS) to investigate which environmental exposure could initiate sensitizations and predispose individuals to the development of allergic diseases. Methods: A total of 3192 kindergarten children in Taipei were recruited by stratified systematic sampling. Skin prick tests for mite, cockroach, animal dander, milk, egg, and crab allergens were performed. Information about the development of allergic diseases and environmental exposures by standardized questionnaires were collected. Multiple logistic regressions were performed to estimate the association between environmental factors, allergen sensitizations, and the development of allergic diseases after adjusting for potential confounders. Results: There were 485 (15.2%) children with AD, 1126 (35.3%) with AR, and 552 (17.3%) with asthma. Of all the risk factors collected, children with environmental tobacco smoke exposure and fungi at house wall had a higher risk of asthma with OR (95%CI) of 1.25(1.03-1.52) and 1.22 (1.01-1.47). Of all the allergens tested, mite sensitization rate was found to be the highest. Mite sensitization showed a significant increase in the risk of AD, AR, and asthma with OR (95%CI) of 2.15(1.53-3.03), 1.94(1.46-2.58), and 2.31(1.63-3.29), respectively. Cockroach sensitization also increased the risk of asthma with OR(95%CI) of 2.38(1.01-5.61). Mite sensitization was associated with carpet at home and fungi at house wall while milk sensitization was associated with duration of breast feeding. Conclusions: Environmental exposures play a role in the development of allergic diseases. Early environmental interventions are important to stop the atopic march.

Abstract Number	S-1-13-02
Presenter	Bing-Fang Hwang*, Ya-Hui Chen, Yung-Ting Lin, Xiao-Tang Wu, Yungling Lee
Exposure	ambient air pollution
Health domains	allergies
Type of research	cohort study

Gender Differences of Long-Term Exposure to Fine Particle and Ozone in Lung Function Growth.

Background: There are only a limited number of studies on the association between long-term exposure to ambient air pollutants and lung function growth among children, which, nevertheless, leave inconclusive results. Aim: To assess the effect of air pollutants on lung function growth. Methods: We conducted a prospective cohort study of 3,207 Taiwanese children aged 12 at baseline followed from October 1, 2007 through November 31, 2009. The final study population comprised 2,941 non-smoking children who completed lung function tests at both baseline and follow-up surveys. We applied spatial modeling for individual-level exposure assessment to clarify the role of potential community-level confounding. The exposure parameters were yearly average and calculated from the 24-hour PM_{2.5}, and 10:00 AM to 6:00 PM 8-hour O₃ corresponding to residential address over the 2-year follow-up period. The effect estimates were presented as annual deficit of lung function growth per interquartile ranges (IQR) for PM_{2.5} and O₃. Results: In a multiple linear regression adjusting for confounding, deficits in FVC, FEV₁, and MMEF growth were associated with exposure to PM_{2.5} and O₃. The annual deficits in FVC of 75 ml in boys and 61 ml in girls increased with an IQR PM_{2.5} (17.92 µg/m³), and annual deficits in FVC of 54 ml in boys and 40 ml in girls increased with an IQR O₃ (3.59 ppb). Similar associations were found in FEV₁, and MMEF growth. Conclusions: The study provides evidence that long-term exposure to PM_{2.5} and O₃ may increase the risk of deficit in FVC, FEV₁, and MMEF growth among Taiwanese children, especially among boys.
