Abstract Number	**P-1-33-07**
Presenter	Caterina Ledda*, Margherita Ferrante, Alfredo Busà, Maria Fiore, Placido D'Agati, Chiara Copat, Roberto Fallico, Elena Proietti, Venerando Rapisarda
Exposure	pesticides
Health domains	cardiovascular disease
Type of research	cohort study

Risk of hypertensive disorders and pesticide exposure during pregnancy

Background. Hypertensive disorders of pregnancy complicate 2–8% of all pregnancies. They include both pregnancy-induced hypertension (PIH) and preeclampsia (PE). PE is a major cause of maternal and perinatal morbidity and mortality, and severe PIH has been reported to have similar adverse effects. Several studies have shown an association between pesticides and hypertension in general. Aims. In this study we sought to examine the relation between pesticide exposure during pregnancy and the development of PIH and PE. Methods. We enrolled a cohort of 1902 farmers and private applicators of pesticide. All women completed a questionnaire on health status and on pesticide-related activities. 177 of 889 women were excluded for various confounding and also people who had chronic hypertension (HTN) before pregnancy. We defined four pesticide exposure categories. We estimated the odds ratios (ORs) for PIH and PE, treating the four exposure categories as a class variable. We used women with no reported exposure as the reference category. All statistical analyses were done using SPSS, version 16. Results. The proportions reporting PIH and PE were 6.4% and 5.1%, respectively. First-trimester pesticide exposure was associated with PIH and PE for chi-square tests of the overall predictive contribution of the pesticide variable for the two outcomes, having p-values of <0.05 and <0.01, respectively. The adjusted odds ratios (AORs) of the restricted analysis for pesticide exposure in relation to PIH were 1.26 (95% CI, 0.89–1.65) for residential exposure and 1.91 (95% CI, 1.11–2.84) for agricultural exposure. The corresponding ORs for pesticide exposure in relation to PE were 1.22 (95% CI, 0.83–1.77) and 2.13 (95% CI, 1.21–3.42). Conclusions. Exposure to pesticides during pregnancy may increase the risk of hypertensive disorders of pregnancy.

Abstract Number	**P-2-01-01**
Presenter	Shi Chen*, Shinsuke Kato, Yoonkyung Kang, Keisuke Nakao
Exposure	ambient air pollution
Health domains	infectious diseases
Type of research	case-control study

CFD Analysis about Influence of Human Movements on Diffusion of Indoor Air Pollutants

It has been proved that human movement plays an important role in diffusion of indoor air pollutants. A typical place of an example is the reception in hospital. This place is crowded with walking patients, doctors, and virus may be diffused. Therefore it is essential to know how human movements affect the indoor air pollutants, so that we can control the diffusion of pollutants. The main aim of our research is to evaluate the influence quantitatively with Scale for Ventilation Efficiency 2 (SVE2), which indicates the second moment of space distribution of concentration. By means of SVE2, we can evaluate the effectiveness of ventilation system. In the near future, this method would be helpful to develop better systems to deal with dynamic conditions such as human movements. As a method, we used CFD simulation to study the influence for pollutant diffusion by ventilation or human movement. First, we did a validation for the software by referring the experiment carried out by Kondo. Next, we simulated two situations including a room with ventilation, and the same room with a person doing the circular movement. The pollutants diffusion of these two situations are compared to study the influence caused by ventilation or movements. We calculated SVE2 for both situations to evaluate the influence quantitatively. The results of validation work show that in totally 6 test points, CFD results for air velocity of 4 points fit well with the experiment results. Calculation results of SVE2 show that the influence of human movements are more significant than the influence of ventilation with the same input power. It is also confirmed for the influence of movements with different types of human models, the less input power, the less influence on diffusion of pollutants. We conclude that firstly CFD method is proved to be validated. Secondly SVE2 is a proper scale to evaluate the diffusion effect of human movements or ventilations. Further study is to be carried out to continue using the scales to evaluate how ventilation systems restrain the diffusion of pollutants.