

ASSOCIATION BETWEEN POP EXPOSURE AND TYPE 2 DIABETES IN THE HELSINKI BIRTH COHORT STUDY

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Background and Aims: The prevalence of type 2 diabetes is increasing alarmingly in both developed and developing countries. Lately, exposure to persistent organic pollutants (POPs) has been associated with its increasing incidence. The purpose of this study is to examine the association between type 2 diabetes and POP exposure in the Helsinki Birth Cohort Study. The participants were born between the global POP emission peak, and have mainly been exposed during adulthood. This offers an interesting opportunity to study the association when limited exposure during fetal period has occurred.

Methods: The cohort consists of 8760 people born in Helsinki, Finland, during 1934–44. In 2003, a baseline clinical examination was performed, including blood sampling for laboratory analyses of serum lipids and six POPs. Complete data from the baseline examination was available for 1988 participants. A repeat sampling was performed in 2006, but data from this was not yet available for the present study. The concentrations of each POP were categorized into four groups based on percentile intervals and logistic regression was performed across the POP categories, adjusting for sex, age, waist circumference, and mean arterial pressure, and using the lowest category as the reference group.

Results: Among the participants with the highest exposure to oxychlorodane, *trans*-nonachlor, *p,p'*-DDE, and PCB 153, the risk of type 2 diabetes was 1.64–2.24 times higher than among those with the lowest exposure ($p_{lin}=0.003–0.050$). In the BMI-stratified analysis, the associations between type 2 diabetes and oxychlorodane and *trans*-nonachlor remained significant, and were strongest among the overweight participants. Exposure to BDE 47 and BDE 153 was not associated with type 2 diabetes.

Conclusions: Type 2 diabetes was associated with high adult-only exposure to organochlorine pesticides in a general urban population.

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