

VERY HIGH CORRELATIONS BETWEEN FRESH WEIGHT AND LIPID-ADJUSTED PCB-153 SERUM CONCENTRATIONS – IRRESPECTIVE OF FASTING STATUS, AGE, BODY MASS INDEX, GENDER, OR EXPOSURE DISTRIBUTIONS

Lars Rylander, *Lund University, Sweden*

Anna Axmon, *Lund University, Sweden*

Aleksander Giwercman, *Lund University, Sweden*

Bo AG Jönsson, *Lund University, Sweden*

Christian Lindh, *Lund University, Sweden*

Anna Rignell-Hydbom, *Lund University, Sweden*

Background and aims: Persistent organochlorine pollutants (POPs), such as PCBs, DDT and dioxins, are lipophilic pollutants accumulated in the food chain. These compounds have in epidemiological studies been associated with health hazards, not only detected among highly exposed populations, but also among populations with lower exposure levels. The exposure window might be crucial and it is, accordingly, important to analyze exposure concentrations in samples collected at the window of interest. This makes the use of stored blood samples extremely interesting. However, the blood volumes available from stored samples in biobanks are often less than 0.2 ml, which means that the researchers in epidemiological studies have to select a limited number of biomarkers representing the POP exposure and abstain from analyses of lipid concentrations. This raises the question of the necessity of lipid adjustment and the implications for interpretation of health effects. The aim of the present study was to evaluate how well the correlation between fresh weight and lipid adjusted concentrations is?

Methods: We have performed a number of epidemiological studies where we have used the PCB congener 2,2',4,4',5,5'-hexachlorobiphenyl (PCB153) as a biomarker for POP exposure. In all studies fresh weight as well as lipid adjusted PCB-153 concentrations is known. The variety of the cohort members (in total 1628) in the different studies give us the possibility to better understand how well these measures correlate.

Results: When all individuals were included in the analyses a correlation coefficient of 0.95 between fresh weight and lipid adjusted serum concentrations was obtained. Restricting the analyses to specific subgroups (based on gender, fasting status, age and bmi) gave correlation coefficients between 0.90 and 0.97.

Conclusions: This study do strongly support the use of samples from biobanks in epidemiological studies for analyzing PCBs even though it is not possible to lipid adjust the analyses.