BACKGROUND CONTAMINATION LEVEL OF PERFLUORINATED COMPOUNDS IN A BELGIAN GENERAL POPULATION

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Background:

PFOS and PFOA are well-known perfluorinated compounds (PFCs) included or currently reviewed to be included in the "black list" of the Persistent Organic Pollutants (POPs) according to the Stockholm convention. However in Belgium, the only available data on human exposure are about 10 years old and concerned the Flemish population while no study has been carried out yet in Wallonia. The aims are therefore to assess the current exposure level of the general Walloon population, and to indentify subpopulation highly exposed thus presenting higher risk to develop endocrine disruption related diseases.

Methods:

In 2015 were recruited 252 participants aged from 18 to 76 years old and living in the Province of Liege. They provided a blood sample in clot activator tube and answered to a questionnaire about their food habits, life styles and home environment. Blood samples were centrifuged at 3000 rpm to collect serum which were extracted using mixed mode SPE and analyzed for 11 PFCs (PeFPA, PFHxA, PFHpA, PFOA, PFNA, PFDA, PFUdA, PFDoA, PFBS, PFHxS, PFOS) by LC-MS/MS.

Results:

PFPeA, PFHxA, PFDoA and PFBS were never detected, while the other PFCs were positively measured in 21% to 100% of the samples. PFOS contributed for more than 50% of the global contamination with a median level of 4.30 µg/l, followed by PFOA, PFHxS and PFNA (median ranging from 0.54 to 1.91 µg/l).

Short discussion/conclusions:

100% of the participants were simultaneously contaminated by at least 4 PFCs. The PFOS and PFOA levels were 1.5 to 4 times lower compared to those measured in 2008-2009 within a Flemish study. However a half of the present population showed levels above the HBM-I value (German HBM Commission) meaning that risk to develop adverse health effects is not excluded. Some predictors of exposure such like fish consumption were highlighted but the predictability of the statistical model was poor.