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364 - PFAS BIOMONITORING OVER 16 YEARS: TEMPORAL TRENDS AND DETERMINANTS AT FOLLOW-UP IN INMA-VALENCIA WOMEN

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Resumen

Background/Objectives: Per- and polyfluoroalkyl substances (PFASs) are persistent environmental chemicals and humans are exposed to them through water, food and consumer products. Human biomonitoring studies are key tools for public health surveillance as they do not only quantify human exposure to these contaminants, but also evaluate whether restrictions and bans on the use of certain PFASs, gradually implemented in Spain since 2009, have resulted in reduced exposure levels. This study aimed to assess PFASs levels at two time points 16 years apart in women and evaluate changes between them, as well as to identify determinants related to PFASs levels in the second survey.

Methods: A longitudinal study was conducted on 251 women from the INMA-Valencia cohort. PFASs levels (i.e., PFHxS, PFOA, PFOS and PFNA) were measured in maternal blood at week 12 of pregnancy (2003-2005; age: 18-42 years) and 16 years later (2019-2021; age: 34-57 years). A paired t-test was used to assess whether PFASs levels differed significantly between both visits. Also, multivariable linear regression models were applied to study determinants of PFASs levels at the second follow-up. Sociodemographic, reproductive health, and lifestyle variables were gathered using questionnaires in both surveys.

Results: All PFASs levels decreased significantly between the two time points (p-value< 0.001). PFOS had the largest decrease (mean [SD], µg/L: 6.61 [2.59] to 1.63 [1.07]), followed by PFOA (2.66 [1.44] to 0.75 [0.56]), PFHxS (0.59 [0.28] to 0.30

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[0.14]) and PFNA (0.66 [0.38] to 0.42 [0.28]). All PFASs levels were associated with sampling season. PFHxS, PFOA and PFNA levels were positively associated with being post-menopausal. PFHxS levels were positively associated with later ages at menarche and negatively associated with higher number of children and longer breastfeeding duration. In addition, positive associations were found for PFOA and physical activity, PFOS and higher education, and PFNA and alcohol intake, whereas negative associations were found for PFOS and higher BMI.

Conclusions/Recommendations: Overall, PFASs levels were lower at the 16-year follow-up than during pregnancy. PFASs levels reflected the combined influence of seasonality, lifestyle, and reproductive, anthropometric and sociodemographic factors. Despite reductions in PFASs levels (likely associated with regulatory restrictions), they remain detectable in adult women, underscoring the continued importance of biomonitoring exposure.

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