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INTRODUCTION: Exposure to toxic elements such as Lead (Pb), Cadmium (Cd), Lithium (Li) and Arsenic (As) pose health risks particularly for vulnerable groups like pregnant women and children. Knowledge about toxic metal exposure in these groups is scarce in Portugal.

OBJECTIVES: This study aims to identify food and lifestyle determinants of maternal exposure to toxic elements.

METHODOLOGY: Pregnant women from the IoMum cohort, undergoing first-trimester fetal ultrasound between April 2018 and December 2021 at CHUSJoão (Porto) and Hospital CUF Descobertas (Lisbon), were invited to participate. At this stage, dietary and lifestyle information was collected through a structured questionnaire. A random urine sample was collected for Pb, Cd, Li and total (inorganic + organic) As quantification by ICP-MS and the values were adjusted for urinary creatinine concentration. A total of 305 mother: child pairs were included.

RESULTS: The majority of the sample had detectable urinary levels of toxic elements (n (%): 269 (88), 157 (52), 305 (100) and 293 (96) for Pb, Cd, Li and total As, respectively). Pb urinary concentration was inversely associated with education level ($p=0.008$) while Cd and As levels were positively associated with education level ($p<0.001$ and 0.002 , respectively). Smoking was associated with higher Pb levels ($p<0.001$). Fish intake frequency was positively associated with Cd and As levels ($p=0.005$ and $p<0.001$, respectively) with women with fish intake higher than 4 times a week presenting median (P25;P75) in $\mu\text{g/g}$ total As 33.8 (20.9 ; 67.7) concentration above the reference range typically ($\geq 24.0 \mu\text{g/g}$), seen in a group of healthy individuals. On the other hand, milk intake frequency was inversely associated Pb levels ($p=0.025$).

CONCLUSIONS: Our results suggest that fish consumption may be a significant source of Cd and As exposure and that a higher milk intake may have a protective effect against Pb exposure.

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PO21. A NUTRITIONAL INTERVENTION TO PROMOTE MEDITERRANEAN DIET IN HIGH-RISK PREGNANCIES: PRELIMINARY RESULTS FROM A RANDOMIZED TRIAL

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INTRODUCTION: The rising prevalence of obesity during women's reproductive years highlights the need for effective strategies to improve nutritional literacy as a preventive approach to adverse postpartum outcomes.

OBJECTIVES: This pilot randomized controlled trial aims to evaluate the impact of nutritional education sessions promoting the Mediterranean Diet (MedDiet) on Mediterranean Diet Adherence Screener (MEDAS), preconception weight recovery, and cardiometabolic outcomes.

METHODOLOGY: A PERIMYR-OralBioBorn mother-infant birth cohort sub-sample with obesity, hypertension, and/or diabetes was randomized to receive a MedDiet intervention, that consisted of a face-to-face session using a 13-page manual, followed by five monthly newsletters. Participants were re-evaluated at one, and six months postpartum. To assess the adherence to the MedDiet, the 14-item questionnaire MEDAS validated for the Portuguese population was used. Cardiac function and structure during pregnancy and postpartum were evaluated by echocardiography. Statistical analyses included Chi-square tests, T-tests, and Mann-Whitney tests.

RESULTS: Fifty-six women with cardiometabolic risk factors (obesity, diabetes, and/or hypertension), with a median age of 33 [30; 36.5] years in the third trimester of pregnancy, were included. No significant differences in MedDiet adherence scores were observed between control and intervention groups before the intervention (8.6 ± 1.8 vs. 8.5 ± 1.5 , $p=0.815$). One month postpartum, both groups maintained moderate adherence (7.7 ± 2.1 vs. 8.2 ± 2.6 , $p=0.731$), with no differences between groups at six months (7.4 ± 1.9 vs. 8.1 ± 2.3 , $p=0.466$). The intervention did not affect preconception weight recovery at six months. However, the intervention group showed better cardiac relaxation (E/e' ratio) than controls (5.7 ± 1.4 vs. 6.6 ± 1.4 , $p=0.042$), with no differences in cardiac mass or left ventricle wall thickness regression 6 months postpartum.

CONCLUSIONS: Although preliminary findings do not indicate a significant change in MedDiet adherence scores or weight recovery, we observed improved left ventricular diastolic function. Future research incorporating detailed dietary intake assessments, metabolic biomarkers, and physical activity tracking could help clarify these effects.

PO22. IMPACT OF MATERNAL STEVIA CONSUMPTION ON OFFSPRING'S METABOLIC HEALTH: A ROLE IN FETAL PROGRAMMING

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INTRODUCTION: The consumption of non-sugar sweeteners (NSS) by pregnant women has increased in recent decades. Stevia, a natural NSS, is generally