Maternal anti-inflammatory diet profile at 20 weeks is associated with a lower risk of Small for Gestational Age newborns in a Mediterranean area

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Objective
To evaluate whether a lower Dietary Inflammatory Index (DII) score is associated to Mediterranean diet (MedDiet) adherence and pregnancy outcomes.

Methods
At 19-23 weeks’ gestation, 1028 pregnant women were recruited (2017-2019). Dietary information was assessed by a nutritionist, using a 17-item dietary score to evaluate MedDiet adherence and a validated 151-Food Frequency Questionnaire. DII score according to 33 food and nutritional pro-inflammatory and anti-inflammatory items. Participants were distributed into tertiles according to the DII score, where a lower DII score (1st tertile) represented an anti-inflammatory diet and the 3rd tertile represented the more pro-inflammatory diet. Small for gestational age (SGA) was defined as birthweight <10th centile and severe SGA <3rd centile. Logistic regression models adjusted for potential confounders were used to assess the association of the DII score with pregnancy outcomes, setting the 3rd tertile as the reference group.

Results
Three hundred forty-two women (33.3%) with low DII score (1st tertile, anti-inflammatory) showed higher adherence to MedDiet score compared to 3rd tertile (pro-inflammatory): mean (SD) 9.15 (2.3) vs. 6.21 (2.2), p<0.05. In a multivariate analysis, the anti-inflammatory diet (1st tertile) was significantly associated with a lower prevalence of SGA newborns (adjusted OR=0.20; 95% CI: 0.04-0.93, p=0.04), and of severe SGA (adjusted OR=0.05; 95% CI 0-0.96, p=0.046). No significant associations were observed with preeclampsia, gestational diabetes, or preterm birth.

Conclusion
At mid gestation, pregnant women with an anti-inflammatory diet profile showed a higher adherence to MedDiet and a lower risk to have an SGA newborn. Nutritional interventions during pregnancy aiming to improve dietary patterns could be an effective target to improve pregnancy outcomes.