

Maternal dietary for the prevention of small for gestational age newborns

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Objective

Promotion of Mediterranean diet during pregnancy has demonstrated to significantly reduce the prevalence of small-for-gestational age (SGA) newborns. However, which nutrients or dietary components may be mediating the effect on fetal growth has not been determined. The aim of this study was to evaluate the association between maternal dietary intake of (poly)phenols and the incidence of SGA newborns.

Methods

This study represents a pre-defined secondary analysis of the IMPACT BCN trial, a randomized clinical trial with 1,221 pregnant women at high risk for SGA, randomly allocated at 19–23 weeks' gestation into three groups: a Mediterranean diet intervention, a stress reduction program or usual care. SGA was defined as birthweight below the 10th percentile. Maternal (poly)phenol intake during pregnancy was assessed using Phenol-Explorer database with a validated 151-item food frequency questionnaire administered at the last study visit (weeks 34-36). We assessed the association between (poly)phenols and SGA risk in each intervention arm independently using consistent analytic methods and then summarized the results from for all 3 arms using a random-effects meta-analysis. For each arm, odds ratios (OR) were estimated by logistic regression models, with adjustment for potential confounding factors.

Results

SGA was significantly associated with total (poly)phenol intake (OR per 1 SD increase 0.80 [95% CI 0.62-0.98]) and flavonoids intake (OR per 1 SD increase 0.77 [95% CI 0.59-0.95]). Among flavonoid subclasses, significant associations with SGA were observed for proanthocyanidins (OR per 1 SD increase 0.80 [95% CI 0.57-0.93]), flavanones (OR per 1 SD increase 0.75 [95% CI 0.57-0.93]) and catechins (OR per 1 SD increase 0.75 [95% CI 0.57-0.93]).

Conclusion

High maternal dietary intake of (poly)phenols, especially flavonoids, is associated with lower risk of SGA newborns. This study highlights the importance of healthy diet -rich in (poly)phenols- during pregnancy, particularly in pregnant women at high risk for SGA.