

Sex differences in the effect of mediterranean diet or mindfulness-based stress reduction on prevention of small for gestational age newborns

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Objective

To investigate the effect of a Mediterranean diet (MedDiet) or Mindfulness-based Stress Reduction (MBSR) in high-risk pregnancies to reduce the proportion of Small-for-Gestational-Age (SGA) in female vs. male newborns.

Methods

In a randomized clinical trial with parallel-group conducted at a University Hospital in Barcelona, Spain (2017-2020), 1221 pregnant women at high-risk for SGA were randomly allocated at 19-23 weeks' gestation into three groups: a MedDiet intervention, a MBSR program or non-intervention. Participants in the MedDiet group (n=407) received monthly individual and group educational sessions, and free provision of extra-virgin olive oil and walnuts. Women in the MBSR group (n=407) underwent an 8-week MBSR program adapted for pregnancy, consisting of weekly 2.5-hour and one full-day sessions. The main outcome was the prevalence of SGA (birthweight <10th centile). This trial sub analysis considers the effects of interventions according to newborns' sex.

Results

Among 1182 participants considered for the intention-to-treat-analysis, 624 (52.8%) had a male and 558 (47.2%) had a female newborn. Among male newborns, SGA occurred in 52 (23.7%) in the non-intervention, 30 (15.2%) in the MedDiet group (OR 0.57, 95% CI 0.35-0.94, p=0.029), and 24 (11.6%) in the MBSR group (OR 0.42, 95% CI 0.25-0.71, p=0.001). While among female newborns, SGA occurred in 36 (19.9%) in the non-intervention, 25 (12.9%) in the MedDiet group (OR 0.60, 95% CI 0.34-0.99, p=0.049), and 36 (19.7%) in the MBSR group (OR 0.99, 95% CI 0.59-1.65, p=0.96).

Conclusion

A structured MedDiet intervention during pregnancy reduce SGA in both male and female newborns, whereas the effect in MBSR program was mainly present for male newborns. These results must be considered with caution since the trial was not designed for this specific outcome.