[ID: 4532] Effect of a maternal Mediterranean diet or stress reduction on offspring neurodevelopment. Results from the IMPACT BCN Trial

Nakaki A[1], Urru A[2], Piella G[2], Gonzalez Ballester MA[2,3], Youssef L[1], Casas R[4,5], Castro-Barquero S[1,4,5], Vieta E[6], Estruch R[4,5], Eixarch E[1], Crispi F[1], Gratacós E[1], Crovetto F[1]

[1]Fetal Medicine Research Center, BCNatal – Barcelona Center for Maternal-Fetal and Neonatal Medicine (Hospital Clínic and Hospital Sant Joan de Deu), IDIBAPS, University of Barcelona, and Centre for Biomedical Research on Rare Diseases (CIBER-ER), Barcelona, Spain; [2]DTIC, Universitat Pompeu Fabra, Barcelona, Spain; [3]ICREA, Barcelona, Spain; [4]Department of Internal Medicine Hospital Clinic, IDIBAPS, University of Barcelona, Barcelona, Spain; [5]Centro de Investigación Biomédica en Red de Fisiopatología de la Obesidad y Nutrición (CIBERON), Madrid, Spain;[6]Department of Psychiatry and Psychology, Hospital Clinic, Neuroscience Institute, IDIBAPS, University of Barcelona, CIBERSAM, Barcelona Spain

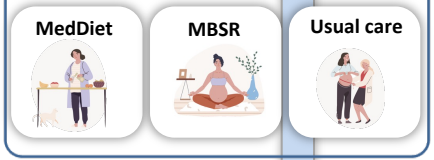
Aim

To assess whether a Mediterranean diet (MedDiet) or a Mindfulness-Based Stress Reduction (MBSR) intervention during pregnancy influence fetal brain volume and neonatal development.

Methods

Recruitment & Randomization
IMPACT trial (19 – 24 weeks)

Interventions



3T MRI
30 participants each, 36.9 [0.6] weeks
3D reconstruction &
semi-automatic segmentation

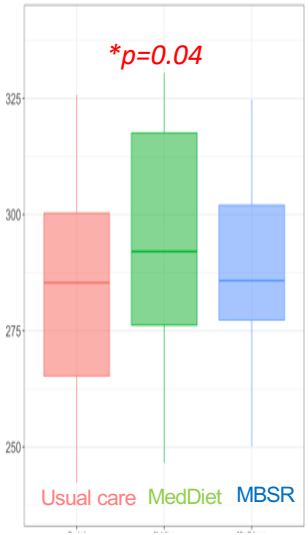
Delivery

Neonatal follow-up

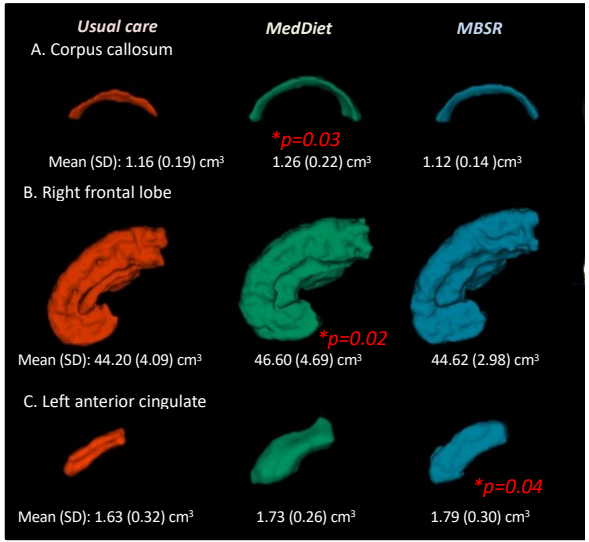
Neonatal Behavioral Assessment scale (NBAS)
692 newborns, 45.9 [3.0] days after birth
(MedDiet 239, MBSR 227, Usual care226)

Results

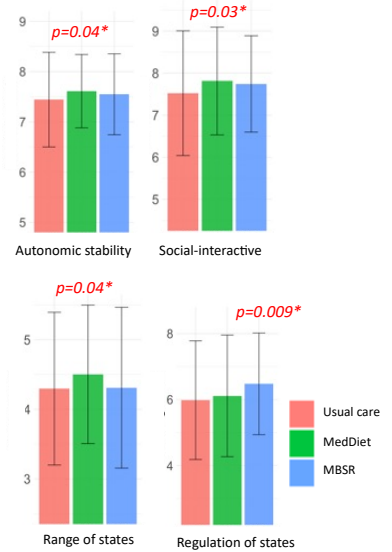
Total brain volume



Regional volumes



NBAS



Conclusions

- ✓ Offspring whose mothers followed a MedDiet or MBSR intervention during pregnancy have a different brain development than those without intervention.
- ✓ Subsequent neurodevelopment assessment in children at advanced ages is required.