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Effect of gestational Mediterranean diet intervention on newborn fat mass and cord blood leptin level

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Background: Maternal nutritional status is an important determinant of intrauterine growth and neonatal size. No published surveys exist on maternal Mediterranean diet intakes and newborn adiposity.

Objectives: The main objective of this study to evaluate the impact of individual maternal Mediterranean diet on the utero programming of body composition and cord leptin level in newborn.

Methods: Pregnant women with a pre-pregnancy body mass index (BMI) between 30 and 35 kg/m2 (n=118) assisted for individual dietary counselling based on the Mediterranean diet Healthy Eating were included. According to diet adherence, participants (paired mother and newborn) were divided into intervention group and control group. We examined the association between diet modification and gestational weight gain, maternal and cord leptin level together with newborn anthropometry (weight and fat mass %).

Results: Gestational weight gain, newborn birth weight and cord leptin level was higher in control group than the intervention group. Neonatal fat mass was significantly higher in control group than intervention group, umbilical cord leptin levels strongly correlated with neonatal fat mass percent in both groups but maternal serum leptin did not correlate with the newborn parameters in the intervention group.

Conclusion: Energy intake from healthy fat and diet intervention were associated with decreased fat mass and leptin level in neonates.

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