

Impact of maternal nutritional status and pre-eclampsia risk on neonatal outcomes

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Objectives

To evaluate the relationship between maternal nutritional status, pre-eclampsia risk, and neonatal outcomes in a cohort of pregnant women monitored throughout prenatal care.

Methods

This observational study included 43 pregnant women followed throughout pregnancy. Anthropometric data were collected at the beginning and end of gestation, and pre-eclampsia risk was assessed in the first trimester. Gestational weight gain was analyzed and correlated with neonatal outcomes, including birth weight and the incidence of intrauterine growth restriction (IUGR) and macrosomia.

Results

The mean maternal weight at the end of pregnancy was 81 ± 13.7 kg, ranging up to 123 kg. The mean gestational weight gain was 10.7 ± 6.2 kg, with a variation from -1 to 26.5 kg. Among the participants, 18 (42%) started prenatal care with a normal weight, 16 (35.6%) were overweight, 4 had grade 1 obesity, 4 had grade 2 obesity, and 1 had grade 3 obesity. The prevalence of gestational diabetes was 20%, hypertension 10%, and hypothyroidism 9%. An increased risk for late-onset pre-eclampsia was identified in 18 (31%) pregnant women, while 7 (12%) had a risk for early-onset pre-eclampsia. The mean birth weight of newborns was 3154 ± 650 g, with 46 (81%) classified as having an appropriate weight, 9 (16%) with stage I IUGR, and 2 (3%) macrosomic. Among the newborns with IUGR, 4 were from mothers with an increased risk for pre-eclampsia, and 5 were from obese mothers.

Conclusions

The findings reinforce the influence of maternal nutritional status and pre-eclampsia risk on neonatal outcomes. Obesity and increased first-trimester pre-eclampsia risk were associated with a higher likelihood of fetal growth restriction. Nutritional monitoring and early pre-eclampsia screening strategies may contribute to improved perinatal outcomes.

