Maternal dietary diversity and Nutritional adequacy in relation with anthropometric measurements of newborns at birth: a cohort study in Tehran city

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Maternal dietary intake during pregnancy plays an important role in fetal development and birth outcomes (1– 2). The aim of the present study was to determine maternal dietary diversity and Nutritional adequacy in relation with anthropometric measurements of newborn at birth as a cohort study in Tehran city.

This prospective cohort study, was conducted by participation of 585 pregnant women referred to public health centers and hospitals covered by Shahid Beheshti, Tehran and Iran Universities in Tehran City. Using face-to-face interviews, general characteristics were obtained by questionnaire. Pre-pregnancy dietary intake was measured by a 168-item semi-quantitative food frequency questionnaire at the first visit, and dietary intake during pregnancy was measured by 2 non-consecutive 24-hour food recall (one holiday and one regular day) at 31–34 weeks. Dietary diversity and nutritional adequacy of mothers` dietary intake was assessed by calculating Dietary Diversity Score [DDS](3) and mean adequacy ratio (MAR) (4), respectively. Maternal height and weight were measured using standard tools and protocol at the first visit, and maternal weight at the end of pregnancy and data related to neonatal anthropometric indices were collected from mothers and neonates' health records in the *Sib* electrical system. Infants' anthropometric data was inputted in AnthroPlus software (version 1.0.4) for calculating weight for age z-score (WAZ), Height for age z-score (HAZ) and body mass index (BMI) for age z-score (BAZ). By applying SPSS software (version 23) the association was analysed by linear regression with adjusting for confounding factors. P-value < 0.05 was considered as significant.

Mean ± standard deviation of BMI of pre-pregnancy, pregnancy weight gain, BAZ at birth of infants were 24.52 ± 4.12, 12.16 ± 6.85 kg and -0.61 ± 1.48, respectively. Mean ± SD of the DDS and MAR before and during pregnancy were 5.31 ± 1.11, vs.5.23 ± 1.42 and 289.85 ± 113.12 vs. 371.07 ± 197.28, respectively. After adjusting for confounding factors DDS in the third trimester of pregnancy was inversely correlated with WAZ [B=−0.16, 95% CI=−0.23_0.30] and BAZ (B = -0.24, 95% CI=−0.06_0. 42) at birth, MAR of pre-pregnancy (B = −0.001, 95% CI = − 0.002_0.00) and in the third trimester of pregnancy (B =−0.18, 95% CI=− 0.35_0.004) were negatively associated with WAZ at birth.

The findings showed that maternal nutritional status (dietary diversity and nutritional adequacy) before and during pregnancy were correlated with neonatal anthropometric indices at birth.

References

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