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Maternal nutrition and birth weight: Role of vitamins and trace elements

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Pregnancy is a period of increased metabolic needs. Vitamins, minerals and trace elements are major determinants of the health of the pregnant woman and the fetus. To evaluate maternal intakes of vitamins and trace elements in the first, second and third trimesters of pregnancy and assess their effect on birth weight. A prospective and longitudinal study have been conducted among 226 pregnant women throughout the whole period of pregnancy in the centers of prenatal consultations and follow up in Constantine (Algeria) from December 2013 to June 2016. We analyzed maternal intakes of iron, minerals and vitamins by comparing them to the normally recommended dietary allowances (ANC) and then by multivariate analysis, we studied the correlation between these intakes and birth weight. Statistics were performed using the Statview TM and SPSS software. This study noted the positive effect of some maternal factors on birth weight, such as maternal age, parity, pre-pregnancy BMI and pregnancy term. The average daily intake of minerals (iron, calcium, zinc and magnesium) and vitamins (B9, B1 and E) were below the ANC. In contrast, average intakes of vitamin C in the 2nd and 3rd trimesters of pregnancy corresponded to the ANC. Only magnesium intakes in the first trimester ($p=0.02$) and vitamin B9 in third one ($p=0.004$) were significantly correlated with birth weight. Intakes of trace elements and vitamins in our study population are reduced compared to the ANC. The correction of the pregnant women diet is urgently needed.

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