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# Maternal nutrition and the risk of congenital malformations in the tea garden community of Assam, Northeast India

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**Aims:** Iodine deficiency during pregnancy causes wide spectrum of disorders and congenital malformations (CM) in the fetus. Previous studies have shown higher prevalence of endemic goiter in Dibrugarh district of Assam. The present study aims to evaluate the iodine status among pregnant women of the tea garden community and its effect on the fetus.

**Methods:** We conducted a cross-sectional study to estimate urinary iodine (UI) level in each trimester for 156 pregnant women (age 18-35 years) and 160 age-matched apparently healthy non-pregnant women from the same community. The WHO reference medians were used to classify iodine intake as deficient, adequate or excessive. Anthropometric, obstetric and socioeconomic data including information regarding food habits, source of drinking water, type of salt consumed was obtained from each participant.

**Results:** The Median urinary iodine concentration (MUIC) of pregnant women in their 1st trimester was 170 µg/l (IQR 100 µg/l) which increased to 275 µg/l (IQR 166 µg/l) during the 2nd trimester and decreased to 265 µg/l (IQR 160 µg/l) at the 3rd trimester. Among primigravida MUIC <150 µg/l was notable in 1st and 2nd trimester as compared to 1st and 3rd trimester among multigravida women. The UI levels were significantly higher in the test population than the control group. Malformations were noted in 16 babies. One baby was stillborn. 12 babies were born preterm. Univariate analysis indicated that a MUIC <150 µg/l during the 1st trimester was significantly associated with CA (OR 3.59, 95% CI: 1.20-10.79). Within the cohort, maternal BMI <18.5 (OR 2.68, CI: 1.25-5.74), age <20 years (OR 1.39, CI: 0.22-8.70), iodine unawareness (OR 1.68, CI: 0.72-3.95) and illiteracy (OR 1.12, CI: 0.55-2.30) elevate risk of having MUIC <150 µg/l during the 1st trimester. The overall prevalence of Goitre was 14.1%.

**Conclusion:** Significant association was observed between low iodine status during early part of pregnancy and congenital malformations. Other notable risk factors of congenital malformations low maternal BMI, younger age, illiteracy and unawareness among mothers regarding iodine nutrition etc.

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