Comparative Study

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**Effects of anemia at different stages of gestation on infant outcomes**

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**Abstract**

**Objectives:**Maternal anemia is a public health challenge worldwide. The present study aims to explore the effects of maternal anemia at different stages of gestation on postnatal growth and neurobehavioral development in infants.

**Methods:**A cohort of pregnant Indian women were followed from 13 to 22 wk gestation (i.e., second trimester; n = 211), 29 to 42 wk gestation (i.e., third trimester; n = 178); their infants were followed to ∼3 wk (n = 147) postpartum. Data collected included information on sociodemographic and health-related factors, including anemia (i.e., low hemoglobin status), maternal and infant anthropometric data, and infant neurobehavioral data. A mixed logistic regression model was used to examine the impact of anemia during pregnancy on maternal and infant outcomes (i.e., anthropometric growth parameters and infant neurobehavioral development).

**Results:**The prevalence of maternal anemia was 41% and 55% (P < 0.001), and iron deficiency anemia was 3.6% and 5.6%, respectively, in the second trimester and third trimester. Infants of pregnant women who were not anemic in the second trimester were 0.26 standard deviations (SD) heavier (P = 0.029), 0.50 SD taller (P = 0.001), and had 0.26 SD larger head circumference (P = 0.029) compared with infants of anemic pregnant women. Infants of pregnant women who were not anemic in the third trimester had orientation scores 3.88 higher (P = 0.004) than infants of women who were anemic.

**Conclusions:**Our findings indicate that maternal anemia in the second trimester of gestation influences postnatal infant growth and underscores the necessity of alleviating anemia in young women in the early stages of gestation.

**Keywords:**Anemia; India; Infant outcomes; Iron deficiency; Non-iron deficiency anemia; Pregnant women.