Observational Study

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# Effect of Severe Maternal Iron Deficiency Anemia on Neonatal Platelet Indices

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## Abstract

**Objective:**To evaluate the effect of maternal iron deficiency anemia (IDA) on fetal thrombopoiesis.

**Methods:**In this prospective observational study, maternal and cord blood iron status parameters (serum iron, serum ferritin, total iron-binding capacity, and transferrin saturation), and platelet indices, such as, absolute platelet count (APC), mean platelet volume (MPV), platelet distribution width (PDW) and plateletcrit, were estimated in a convenient sample of 142 mothers with IDA (hemoglobin <11 g/dl and serum ferritin <12 ng/ml) and an equal number of healthy non-anemic (hemoglobin ≥11 g/dl) mothers, who delivered singleton live neonates at term gestation. Mothers with antenatal thrombocytopenia, infections, inflammatory conditions, pregnancy-induced hypertension and neonates with perinatal asphyxia, sepsis and congenital malformations were excluded.

**Results:**For statistical analysis, the IDA group was further subdivided into mild-to-moderate (hemoglobin 7-10.9 g/dl) and severe (hemoglobin <7 g/dl) anemia. Cord blood APC and PDW were comparable between non-anemic and mild-to-moderate anemic mothers (242,550 ± 54,320/μL vs. 235,260 ± 34,620/μL for APC and 16.2 ± 1.4 vs. 16.4 ± 1.8 fl for PDW, respectively), but in severe IDA group, cord blood APC and PDW were significantly lower (74,520 ± 12,380/μL and 17.8 ± 2.1 fl, respectively, p < 0.001). MPV and plateletcrit were comparable. None of the study neonates had a platelet count <30,000/μL or showed any evidence of clinical bleeding.

**Conclusions:**Neonates born to mothers with severe IDA had moderate thrombocytopenia with increased PDW, though no change was observed in MPV and plateletcrit. Further studies should be carried out to identify the cause and consequences of this observation.

**Keywords:**Absolute platelet count; Iron deficiency anemia; Maternal; Mean platelet volume; Neonatal; Platelet distribution width.