

## Relationship between zinc concentration in plasma cord blood and infant anthropometric measurement

### ABSTRACT

**Background and purpose:** Low birth weight (LBW) is a key determinant of infant morbidity and mortality. Zinc deficiency during pregnancy may have unfavorable effect on pregnancy outcome, particularly low birth weight. The aim of this study was to determine the association between infant anthropometric characteristic and cord blood plasma zinc level. **Materials and methods:** This study included 268 pairs of mothers and infants (at time of delivery) from whom 134 healthy mothers and their infants <2500g were recruited as case group and 134 healthy mothers and their infants weighing 2500-4000g were participated in control group. The subjects were selected from Fatemieh Hospital Hamadan, Iran. The infants' birth weight, length, head circumference, chest and mid arm circumference were measured. Cord blood plasma zinc level was determined by Atomic Absorption Spectrophotometry (AAS). The concentration of plasma zinc less than 60 µg/dl was considered as severe zinc deficiency, between 60 to 70 µg/dl mild to moderate deficiency and more than 70 to 150 µg/dl were considered normal. Twin infants, abnormal infants and mothers who smoked, consumed alcohol, used illicit drugs, and those with severe stress were excluded from the study. **Results:** Severe zinc deficiency was significantly related to infant low birth weight [OR=12.382, CI; 1.210, 126.710, P= 0.040]. No significant relationships were found between infant length, mid arm, chest and head circumference with plasma zinc level. **Conclusion:** Present study indicated a relationship between infant weights and severe zinc deficiency in plasma cord blood. Severe zinc deficiency could be considered as a major predictor of infant birth weight.

**Keyword:** Anthropometric characteristic; Cord blood; Infant birth Weight; Plasma; Zinc