Umbilical Cord Leptin and Insulin Levels as Indicators of Neonatal Fat Mass in Egypt: A case control study.

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Background and aim: Umbilical cord Leptin and Insulin levels were investigated repeatedly in relation to fetal growth with controversial outcomes. Previous studies suggested an ethnic difference in the effects of these hormones on growth. This study aims to assess serum umbilical cord Leptin and Insulin in Egyptian neonates in relation to their anthropometric measures.

Methods: 45 healthy neonates of diabetic mothers and 45 of normo-glycemic ones were selected and their umbilical cord Leptin and Insulin were measured. Full examination and anthropometric measurement of the neonates were done. This study was approved by Suez Canal University ethical committee and a verbal and written consent was obtained from each participant prior to his recruitment. **Results:** Both cord Insulin, and Leptin were higher in the study group (17.74 ± 4.31 mU/ml; 8.46 ± 2.48 ng/dl) than the control one (8.46 ± 2.91 mU/ml; 5.99 ± 2.72 ng/dl) (p 0.009; 0.024). Insulin and Leptin levels were higher in pre-gestational (18.98 ± 4.04 mU/ml; 9.33 ± 2.65 ng/dl) than gestational diabetes (16.05 ± 4.19 mU/ml; 7.28 ± 1.66 ng/dl) (p 0.023; 0.002). A positive correlation between cord Insulin/Leptin and the neonatal weight were found (r 0.571, P 0.0001; and r 0.555, p 0.0001). Both serum cord Insulin and Leptin were identified as significant independent risks of the increased neonatal weight (β 0.571, p 0.0001; and β 0.555, p 0.0001) while other maternal factors were not. **Conclusion:** Serum umbilical cord insulin and Leptin levels are higher in pre-gestational than gestational diabetic mothers and they independently increase the risk of fetal macrosomia.