Fetal macrosomia may complicate pregnancies and it has been suggested to be due to elevated levels of fetal insulin-like growth factor-1 (IGF-1). The study objective was to determine the levels of insulin and IGF-1 in macrosomic neonates and correlate their levels with neonatal anthropometric measurement.

**Materials and methods:** This was a comparative study with 150 participants - one hundred neonates with birth weight ≥4kg and 50 neonates with birth weight 2.5-3.5Kg served as control. Neonatal cord blood was collected at delivery, irrespective of the route and anthropometric measurement performed within 24 hours of birth. Blood assay was conducted within the time allotted for analyte stability.

**Results:** Macrosomic and normal weight neonates had mean glucose levels of 78.52±19.22mg/dl and 74.49±30.93mg/dl respectively with a significant difference (p = 0.023). There was a significant difference of plasma IGF-1 (85.09 vs. 53.94; p = 0.0001) and Insulin (4.84 vs. 3.51; p = 0.023) levels in macrosomic neonates compared to normosomic controls. Similarly, there was strong correlation between IGF-1 and femur length (FL) (r = 0.301), occipitofrontal circumference (OFC) (r = 0.373) and birth weight (p = 0.0001) as well as between insulin and FL (r = 0.190) and birth weight (r = 0.181). There was very weak negative correlation between glucose and FL (r = 0.002), OFC (r = 0.114) and birth weight (r = -0.061).

**Conclusions:** Macrosomic neonates have elevated levels of insulin-like growth factor-1 and hyperinsulinaemia, with a correlation between these biomarkers and anthropometric measurement.

**Keywords:** macrosomia, insulin-like growth factor-1, anthropometry, insulin, biomarker