

**OP 20****Maternal Factors, Cord Lipids and C-reactive Protein as Determinants of Foetal Growth in Infants Born in a Teaching Hospital, Sri Lanka**

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**Background:** Obese children are at a higher risk of becoming obese and developing metabolic syndrome in adulthood. Previous research revealed that foetal growth depends on genetic, intrauterine and maternal metabolic factors. Therefore, finding the impact of modifiable maternal metabolic factors on the foetal growth and controlling them in advance would be useful in the management of childhood obesity. Although limited studies are reported from other Asian countries, none have been carried out in Sri Lanka.

**Objective:** To determine the effects of maternal factors, umbilical cord lipids and C-reactive proteins (CRP) on foetal growth in a tertiary care hospital in Southern Sri Lanka.

**Methods:** A prospective cohort study was conducted at the professorial obstetrics and gynaecology unit of the Teaching Hospital Mahamodara (THM) using convenient sampling among all the mothers who were admitted for their confinement and their newborn babies. Fasting blood samples from mothers before their delivery and umbilical cord blood samples were collected to measure fasting blood sugar (FBS), lipid profile and CRP. Birth weight (BW), birth length (BL), head circumference (HC), occipital frontal circumference (OFC), abdominal circumference (AC) and hip circumference (HpC) as anthropometric measurements and Capillary blood sugar (CBS) level of their newborns were obtained. Ultrasound scan (USS) reports and bed head ticket (BHT) were used to collect socio demographic details and other information. Data were analysed using SPSS version 23.0.

**Results:** Among the 50 newborns, 28 (56%) were females and 42 (84%) were appropriate for their gestational age. Among the maternal population, five (10%) had CRP above normal level (26 mg/dL). Maternal factors such as maternal age, pre pregnancy body mass index, gestational weight gain, haemoglobin (Hb), FBS concentration, high density lipoprotein and low-density lipoprotein had a significant association with the foetal growth. However, the highest positive correlation was observed between the maternal haemoglobin concentrations with BW ( $r=0.281$ ,  $p=0.048$ ), BL ( $r=0.319$ ,  $p=0.024$ ), HC ( $r=0.355$ ,  $p=0.011$ ), OFC ( $r=0.322$ ,  $p=0.023$ ) and AC ( $r=0.351$ ,  $p=0.012$ ).

**Conclusions:** Since maternal Hb concentration showed the highest positive correlation with foetal anthropometric parameters, it is worth exploring further.

**Keywords:** *Cord blood lipid profile, Foetal growth, Haemoglobin, Maternal lipid profile*