Effect of Selected Maternal Parameters on Anthropometry of Newborn from Selected Medical Officers of Health Divisions of Jaffna District in Sri Lanka

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Abstract—Low birth weight (LBW) newborns are those born with less than 2500 g. LBW can be caused either by premature delivery or by foetal growth retardation, which can be maternal age, period of gestation and educational levels of mothers etc. Objective of this study was to determine the influence of maternal age, gestational age at birth and educational status of the mothers on the birth weight (BW) and length of the newborns from selected MOH Divisions of Jaffna District. Four hundred and seventy seven pregnant mothers were selected by systematic random sampling technique from six MOH divisions in Jaffna District in Sri Lanka. Maternal age and educational status were obtained from mothers who attended the clinics at third trimester of gestation. Anthropometries of the newborns of the selected mothers were measured within a day of delivery. Data was analyzed with SPSS version 16 software. Ethical approval was obtained from ethics review committee, Faculty of Medicine, University of Jaffna, Sri Lanka. Age of the mothers was categorized as <20, 20-29, 30-39 and $\geq$ 40 years and the educational levels were categorized as non formal, up to grade 5, grade 6-11, grades 12-13 and graduates and above. Period of gestation (POG) at birth was categorized as preterm (<37 weeks), term (37-41 weeks) and post term ($\geq$42 weeks). BW was categorized into Low Birth Weight (LBW)(<2500 g), Normal Birth Weight (NBW)(2500-4500 g) and High Birth Weight (HBW) (>4500 g). Among the 477 newborns, 239 were males (50.5%). Mean BW of the newborns was 3031.5($\pm$432.6) g, while the mean length was 51.1 ($\pm$2.1) cm. Both parameters were higher in males (3061.5 g and 51.2 cm) than in females (3000.5 g and 50.9 cm), but the values did not differ significantly between the sexes (p=0.13, 0.23). BW of males ranged from 1700.0 to 5000.0 g and of females from 1500.0 to 4350.0 g. Length of the newborns ranged from 45.0 to 58.0 cm for males and from 44.0 to 57.0 cm for females. The LBW, NBW and HBW were 11.3 (*n*54), 88.5 (*n*422) and 0.2 % (*n*1) respectively. Of the total number of pregnant mothers, 1.5(*n*7), 52.0 (*n*248), 44.0 (*n*210) and 2.5% (*n*12) were of the age groups of <20, 20-29, 30-39 and $\geq$40 years. Increasing maternal age has significantly correlated with the BW of the newborns (r=0.137, p=0.003). The educational levels such as non formal education, grade 1-5, grades 6-11, Grade 12-13 and degree and above of the mothers were 0.2 (*n*1), 9.6 (*n*46), 58.9 (*n*281), 23.9 (*n*114) and 7.3% (*n*35) respectively. Educational levels of the mothers have statistically correlated with the BW of the newborns (r=0.119, p=0.009). Gestational age of the mothers has ranged from 37 to 42 weeks for 95.0 % (*n*453). With the increase in period of gestation LBW decreased and NBW increased. Gestational age of mothers has significantly correlated with BW (r=0.196, p=0.0001) and length (r=0.128, p=0.005) of the newborns.

Keywords— maternal age, gestational age, birth weight, educational status and anthropometry.

I. CONCLUSION

Maternal age, educational levels and gestational age of the mothers are the important parameters which determine the anthropometry of the newborn

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