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Prediction of Newborn Anthropometric Parameters using Maternal Anthropometry at Tertiary Care Maternity Hospital in Galle District, Sri Lanka

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The state of maternal nutrition, denoted by maternal anthropometric parameters, is found to play a pivotal role in determining new-born anthropometric parameters. This study was conducted to predict new-born anthropometric parameters based on maternal anthropometric parameters. A hospital based cross-sectional study was conducted among randomly selected 333 pregnant mothers admitted for delivery after 28 weeks of gestation at Teaching Hospital Mahamodara, Galle. Pregnant mothers who had multiple pregnancies, registered after 12 weeks of gestation and pre-existing disease conditions that might affect the anthropometric parameters were excluded from the study. Multiple linear regression was performed using SPSS (25th version) at 0.05 significance level. New-born anthropometric and maternal anthropometric parameters which were considered in the study were normally distributed. Maternal anthropometry had mean (SD) of pre-pregnancy weight of 55.1(12.8) kg, maternal height of 154.7(5.7) cm and pregnancy weight gain of 9.6(4.1) kg. New-born anthropometry had Mean (SD) birth weight of 2.79(0.6) kg, head circumference of 32.6(1.7) cm and length of 50.8(3.0) cm. Birthweight was statistically significantly predicted ($F=11.25$, $p<0.001$, adjusted $R2 = 0.090$) using pre-pregnancy weight ($\beta=11.75$, $p<0.001$) and pregnancy weight gain ($\beta=39.33$, $p<0.001$). Head circumference ($F=13.11$, $p<0.001$, adjusted $R2 = 0.035$) and length at birth ($F=13.91$, $p<0.001$, adjusted $R2 = 0.037$) were statistically significantly predicted using pregnancy weight gain ($\beta=0.37$, $p<0.001$ and $\beta=0.60$, $p<0.001$ respectively). New-born anthropometric parameters can be predicted using pregnancy weight gain and pre-pregnancy weight. Hence pre-pregnancy care should be strengthened to optimize pregnancy weight gain and pre-pregnancy weight to achieve optimal new-born anthropometric parameters.

Keywords: *new-born anthropometric parameters, maternal anthropometric parameters*