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Neonatal foot length: An alternative predictor of low birth weight babies in rural India

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Background: Birth weight is an important parameter and a determinant factor regarding perinatal morbidity and mortality. However, in rural area of developing countries, weighing facility may not be available for all home deliveries, where an alternative parameter like foot length may be considered in place of birth weight.

Aim: The present study was undertaken to find out the best simple anthropometric parameter for identifying low birth weight (LBW) babies.

Methods: This was hospital-based cross-sectional study. Participants were newborn babies born at AVBRH hospital, Sawangi (Meghe), Wardha. All consecutive full-term, single ton, live born babies were included and anthropometric measurements carried out within 48 hours after birth.

Results: Out of 520 newborn babies, there were 267 male and 253 female babies. Foot length (FL) attained the highest correlation with birth weight ($r=0.715$) while mid arm circumference (MAC) attained the lowest ($r=0.355$). FL had the highest coefficient of determination (r^2 value= 0.511). Receiver operating curve (ROC) analysis was done to identify the optimal cut-off points of these anthropometric measures separately for LBW babies. The best discrimination of LBW, as detected by Area under curve (AUC), was obtained by FL (AUC= 0.909 , 95% CI $0.0133-0.93538$) followed by length (AUC= 0.89 , 95% CI $0.87642-0.92969$). Length of 49 cm, head circumference (HC) of 33 cm, MAC of 9.5 cm, and chest circumference (CC) of 30 cm and FL of 8 cm were the corresponding cut-off values with the best combination of sensitivity and specificity for identifying LBW babies.

Conclusion: FL appears to be better indicators for picking up LBW babies. This parameter can be used at community level by health workers for early detection of LBW babies.

Biography

Patel Zeeshan Jameel has completed his MBBS at Kasturba Medical College-Manipal University, Manipal. He is pursuing his Post-graduation in the Department of Pediatrics, in Jawaharlal Nehru Medical College at Datta Meghe Institute of Medical Sciences, Sawangi (Meghe), Wardha, Maharashtra.

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