Neonatal birth-weights and reference intervals in sonographically monitored normal fetuses

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Introduction An important dilemma of pediatric care is the prediction of fetal birth as it is not only an indicator of the prenatal maternal nutrition, her socio-economic status and a part of normal growth milestones of the fetus, but is also concerned with the subsequent care of the newborn. Pakistani population is heterogeneous and very little data exists in the country with regard to birth weights at term in normal infants. This study evaluates the birth-weight normograms constructed by utilizing the subjects having a normal fetal ultrasound. The objective of this study is to determine the normal neonatal birth-weights and to establish the normal reference intervals (normal range) in sonographically monitored normal fetuses in a tertiary care hospital.

Methods This study enrolled 387 pregnant women with normal singleton pregnancy having fetal biometry by ultrasound. The ultrasound parameters used were bi-parietal diameter, head circumference, abdominal circumference and femur length. All women had delivered between 39 to 41 completed weeks of gestation. The birth-weight of the newborn was recorded within 15-30 minutes of delivery on an infant beam balance (Tanita- Japan, Capacity 20 Kg). The criteria for inclusion were normal singleton gestation having spontaneous onset of labor at term and vaginal or abdominal delivery.

Results Mean age of the mother was 26.3 ± 4.6 years, while the mean height of the mother was 158.9 ± 6.2 cm. The mean height of the father was 171.1 ± 8.8 cm. About 92% of women were housewives; 97% were literate (having 10+ years of education). The mean birth-weight was 3.06 ± 0.34 Kg, with the 5th percentile at 2.50 Kg and the 95th percentile at 3.61 Kg. The range was 2.5 to 4.1 Kg. The mean birth-weight for male newborns was 3.13 ± 0.33 Kg, while that for the female newborns was 2.96 ± 0.32 Kg (P < 0.001).

Table

Birth-weight (Kilogram)	Number (n)	Percentage (%)
2.5 – 3.0	197	50.9%
3.1 – 3.5	153	39.5%
3.6 – 4.0	33	8.5%
4.1 – 4.5	4	1.0%
Total	387	100%

Conclusions In this sample of newborns, the minimum birth-weight was 2.5 Kg, and no babies were low-birth-weight (< 2.5 Kg) according to the WHO criteria. However, the vast majority (51%) of babies weighed between 2.5 Kg and 3.0 Kg at birth. This sample belongs to a population that is relatively better-off in socioeconomic terms. Nonetheless, the birth-weight among female newborns is significantly lower than the mean birth-weight among male newborns.

References

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N-terminal pro-BNP in acute coronary syndrome patients with ST elevation (STE-ACS) versus non ST elevation (NSTE-ACS)

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Introduction Pro-BNP was synthesized as a pro-hormone by cardiac myocytes then cleaved by enzyme to N-teminal proBNP (NT-proBNP) and BNP (brain naturetic peptide). Conventional cardiac markers, such as troponin-T (Tn -T), and creatine kinase (CK)-MB isozyme, detect the development of minor myocardial necrosis [1]. A direct release of BNP from ischemic cardiomyocytes and ischemia induced by increase in ventricular wall stress was postulated. Natriuretic peptides have cyto-