

Neonatal birth weight and related factors in south of Iran, Jahrom

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Abstract

Objective: This study aimed to determinate the relationship between neonatal birth weight and related factors in Jahrom, Iran.

Materials and methods: All women delivering in two hospitals, in which obstetric services were presented, entered the study. In this cross sectional study, 2311 women were enrolled prospectively in a 12- month period during 2006-7. Data were collected during first three post partum days from the following sources: maternal hospital files and charts, interview with the mothers, measurement of anthropometric indices of fathers and the infants. Percentile distribution of birth weight for classified gestational age was calculated.

Results: Results showed significant correlation between neonatal birth weight with neonatal gender, maternal age, weight, education and working status. There was no relation between neonatal weight with paternal weight, maternal education and living in urban or rural areas.

Conclusion: Neonatal birth weight is affected by neonatal gender, maternal age and weight; education and job.

Key words: Neonate, Weight, Maternal weight

Introduction

The risks of neonatal death or diseases, especially those reflecting inadequate adaptation to the extra uterine environment, depend largely on birth weight and gestational age (1). Moreover, growth and development in infancy and childhood are related to the rate of intrauterine growth (2). Therefore, Infants are evaluated according to neonatal weight and estimated gestational age. Weight at birth shows considerable

variation between populations and is related to many factors. So, we conducted a study evaluating neonatal weight in Jahrom. Our objective was to determine age-specific distributions for birth weight and related factors.

Materials and methods

All women delivering in Jahrom hospitals were included in the study. The sample was drawn from two hospitals in that city which obstetric services were presented. In this cross sectional study, they were enrolled prospectively in a 12- month period during 2006-7.

All women who gave birth to live newborns were asked to participate in the study. Data were collected during first three post partum days from the following

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Table 1: Maternal characteristics

Characteristics	Mean± SD or Percent
Maternal age at time of delivery (yr)	26 ± 5.2
Maternal weight before pregnancy (kg)	60.2 ± 11.3
Father s weight (kg)	70.9 ± 11.5
Primigravid (%)	50.5
Education less than diploma (%)	62.7
Unoccupied (%)	92.6
Singleton newborn (%)	95.7
Urban population (%)	48.1
Normal vaginal delivery (%)	51.7

sources: maternal hospital files and charts, interview with the mothers, measurement of anthropometric indices of fathers and the infants. Maternal demographic and medical characteristics included age, weight before pregnancy, parity, education and occupation. Gestational age was determined according to mother's chart, ultrasound scan and an interview with the mother. The infant's birth weight was recorded to the nearest 10 grams with calibrated scales. Percentile distribution of birth weight for classified gestational age was calculated. Relation between neonatal birth weight and various variables was analyzed by chi square, t test and regression analysis. SPSS soft ware version 11.5 was used for statistical analysis and P value less than 0.05 was considered as significant difference.

Results

The present study included 2311 women. Table 1, shows maternal characteristics of the participants and Table 2 shows percentiles of birth weight in various gestational ages. Mean age of mothers was 26±5.2 (range 14-49 years) and median gravity was 1 (1- 11). Mean gestational age of infants was 38.8±1.4 weeks (range 24-42). Regarding sex of the neonates 50.4 percent of them were male and 49.6% of them were female. Mean birth weight was 3155±468 grams. The

incidence of low birth weight (less than 2500 grams) was 6.6%.

There was significant difference in birth weight between both sexes; male newborns were heavier (3206.4 vs. 3103.7 grams, $P \leq 0.001$). There was also relation between maternal age and weight and neonatal birth weight ($P \leq 0.001$). Younger and smaller mothers had smaller babies. Occupied mothers had heavier infants (3228.4 vs. 3149.8 grams, $P = 0.036$).

The neonates of normal vaginal delivery were heavier than those born with cesarean section (3173.4 vs. 3136.3 grams). There was significant difference of neonatal birth weight between primigravid and multigravid mothers; multigravid mothers had heavier neonates (3184.9 vs. 3126.4, $P = 0.003$). No relation was observed between neonatal weight with paternal weight, maternal education and living in urban or rural areas.

Discussion

The data of the present study reflects the usual range of weight at birth in the aforementioned community and not necessarily the optimal value that hoped to be seen in that population.

The present study showed positive relation between maternal weight and neonatal weight. The frequency of preterm deliveries as well as low neonatal birth weight in underweight mothers is higher than in other groups (3, 4). There is much evidence that the size of the mother and other characteristics such as parity exert important effects on fetal growth (5, 6). Though; in study of Duke University Medical Center, paternal age, weight and body mass index do not independently influence birth weight (7).

One of the maternal risk factors for small for gestational age (SGA) is multiple gestations (1). In Zahedan city, the overall prevalence of low birth weight (LBW) was 11.8%, after logistic regression analysis, the only significant risk factors were: birth

Table 2: Birth weight; smoothed values for percentiles

Grouping gestational age (wk)	Percentile; weight (g)						
	5	10	25	50	75	90	95
Less than 32	750	750	950	1800	2575	2900	2900
32-34	1000	1200	1687	1825	2125	3050	3550
35-37	2130	2300	2550	3000	3200	3590	3700
38-40	2500	2700	2900	3200	3500	3750	3900
More than 40	2700	2760	2900	3200	3600	3890	4090

Both sexes are included.

interval < 3 years, twin birth, no use of ferrous sulfate and maternal disease (8). The present study showed that multigravid mothers had heavier neonates (3184.9 vs. 3126.4 grams $P=0.003$).

The present study did not show relation between level of education and neonatal birth weight, but based on the study in Rasht and Shiraz, maternal education was considered as the determinant of birth weight and low birth weight (LBW) in that population (9, 10). In the present study, the infants with congenital anomalies were not excluded.

Another factor influencing birth weight is neonatal gender. There was significant difference in birth weight between two sexes, male were heavier (3206.4 vs. 3103.7 grams, $P\leq 0.001$). In study in South West Ethiopia, Sex of the newborn, antenatal care follow up and obstetric illness during the last pregnancy were significantly related to birth weight (11).

In Conclusion, evaluating birth weight of neonates, related factors especially maternal size should be considered.

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