

RESEARCH

Incidence and clinical profile of low birth weight (LBW) babies: A rural tertiary care hospital based study

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ABSTRACT

Objectives: To calculate the incidence of low birth weight (LBW) babies and assess their clinical profile. **Methodology:** All LBW babies born between January 2014 to June 2014 in Obstetrics and Gynaecology Department of Fakhruddin Ali Ahmed Medical College and Hospital (FAAMCH), Barpeta were assessed according to a predesigned proforma. **Results:** Out of total 4048 babies 1099 (27.14%) were LBW with a female male ratio of 959 per 1000. 559 (50.86%) were premature. Multiple pregnancies constituted 79 (7.45%). LSCS was done in 270 (25.47%) cases. Primi gravid was principal birth order as in 706 (64.24%). **Conclusion:** It has been observed that a similar incidence of high LBW is seen in rural areas countrywide.

Keywords: LBW, sex ratio, preterm, IUGR, primi gravida, resuscitation
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LBW is defined by as weight at birth of less than 2500gm irrespective of gestation [1]. It is considered as the major determinant of perinatal survival, infant mortality and morbidity and some non communicable diseases later in life [2]. India being the most populous country in South East Asia, shares the major burden of LBW babies with incidence of about 30% [3] as against developed countries like USA where it is 8.2% [4]. The actual incidence is unclear in view of the low incidence of hospital deliveries and poor record keeping.

LBW at birth may be because of either prematurity or intra uterine growth restriction (IUGR) due to various neonatal and maternal

factors. Thus it is an important public health indicator warranting further clinical and epidemiological studies. This will assist improved preventative health services in the country.

Material and methods

Present study is an ongoing prospective and cross-sectional study done in a rural tertiary care hospital, Fakhruddin Ali Ahmed Medical College & Hospital, Barpeta, during the period from January 2014 to June 2014. Every newborn below 2500 gm born during the study period were included. Each case was attended by our study team from Department of Pediatrics and

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Neonatology and all LBW babies were further evaluated and examined within 24 hours of birth. Mothers were interviewed following a definite proforma of questionnaires and necessary data was collected. Data are expressed in table containing number and percentage.

Results

During the study period total 4048 babies were born. The overall incidence of LBW babies was 1099 (27.14%) with 538 (48.95%) females having female male ratio of 959 per 1000 (Table1 and 2). Among these the majority (790) of the babies were observed to be of 2 kg or more (71.88%) (Table3). Prematurity was noted in 559 (50.86%) of the total LBW babies and among them 287 (26.11%) were more than or equal to 34 weeks of gestation. The other 540 (49.13%) were classified as IUGR. (Table 4)

When the birth order was considered, primi gravid was seen to be the principal birth order totaling 706 (64.24%) (Table5). Multiple pregnancy constituted 79 (7.45%) of total deliveries and mode of delivery was lower segment caesarian section (LSCS) in 270 (25.47%). Resuscitation beyond initial steps was required in 183 (16.65%) cases.

Discussion

In National Family Health Survey-3 (NFHS-3), 34 percent of babies born in the five years preceding the survey, the birth weight were recorded. The proportion of births with a reported birth weight is 60 percent in urban areas and 25 percent in rural areas. Among children reported, 22 percent had a low birth weight. The proportion weighing less than 2.5 kilogrammes is slightly higher in rural areas (23 percent) than in urban areas (19 percent). In our study, the percentage of LBW baby is 27.14% which is comparable to the study done by National Family Health Survey-3 (NFHS3) [5]. Similarly, Negi K.S et al [6], Desmukh J.S et al [7], Joshi H.S et al [8] also revealed the percentage of LBW babies 23.8%, 30.3%, 34.37% respectively in their study. However, a rural study which was conducted by Balaji K et al [9] in Tamilnadu and he reported a significantly low incidence (11.81%) of LBW babies.

Category	Number	Percentage
Babies born during study period	4048	
Non LBW babies	2949	72.85
LBW babies	1099	27.14

Category	Number	Percentage
Total LBW newborn	1099	
Male	561	51.04
Female	538	48.95

Weight in Kg	Number of babies	Percentage
<1	41	3.73
1-1.5	81	7.37
1.5-2	187	17.01
2-2.5	790	71.88

Category	Gestational Age (Wks)	No of babies	Total no. of babies	Percentage
Preterm	<30	69	559	50.86
	30-32	55		
	32-34	148		
	34-37	287		
Term (IUGR)	>37		540	49.13

Birth order	No of babies	Percentage
Primi	704	64.05
2 nd	314	28.57
3 rd or more	79	7.18

Our study showed slightly decreased incidence of LBW in female with a female male ratio of 959 per thousand. These figures are comparable to other study like Kaushal S.K et al [10] where 1302 were male and 1094 were female, thus giving sex ratio as 840 females over 1000 males, of these newborns 38% were below 2.5kg and the proportion of LBW is more among female child (41.78%) as compare to male (35.41%). However, another study by Agarwal N et al [11] showed female preponderance where 2,807 new-boms included in the study, 1,513 (54%) were males and 1,294 (46%) were females.

Majority of the baby among LBW were above 2 Kg (71.88%) like in other studies Joshi HS et al (80.6%), Kaushal SK et al (67.24%) and Singh M et al (80%) [12].

Our study prematurity constituted 50.86%, while other studies showed higher figures like Agarwal K et al [13] where prevalence of LBW among mothers having gestational age less than 37 weeks at the time of delivery was 76.5% when compared with 31.4% among the mothers whose gestational age at the time of delivery was 37 weeks and above.

Interestingly our study reveals primigravida as the principal birth order with high LBW babies (64.24%). But, Agarwal K et al revealed in their study that the proportion of LBW new born was maximum among birth order 1 (39.1%) followed by birth order 2 (34.9%) and birth order 3 (26.0%); however, this reduction in risk of LBW with increasing birth order was not statistically significant ($P > 0.05$) in their study. Similarly, Agarwal G et al [14] and Joshi H.S et al also found 42.8% and 30.86% of LBW baby in primigravida respectively.

Like in other studies our findings also reported LSCS to be about one forth (25.47%) as the mode of deliveries. But, Balaji K et al and Kaushal S.K et al described the percentage of LSCS delivery in their study 38.5 and 42.8 respectively.

Multiple pregnancy as a cause of LBW is found to be 7.45 % of total pregnancies in our study while Uguwu R et al [15] showed 9% of the preterm births due to multiple gestation in Nigerian community. This 9% of the preterm births of multiple gestation were made up of 112 sets of twins, 11 sets of triplets and 3 sets of quadruplets. But in another study done by Admonstan et al found only 2.9% of multiple gestation in LBW baby [16].

Conclusion

Our study indicates high incidence of LBW babies in a rural setup like ours with nearly equal proportion of prematurity and IUGR as a cause of LBW. Interestingly the first birth order is significantly associated with increased LBW incidence. Further studies need to be done and corroborated in this regard.

References

1. World Health Organization. International statistical classification of diseases and related health problems. Geneva: WHO; 1992.

2. Barker DJ. Intrauterine Growth Retardation and adult diseases, *Current Obst and Gyn* 3: 200-206; 1993.
3. World Health Organization. Bridging the gap, the world health report - Report of the Director General. Geneva: WHO; 1995.
4. U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. *Child Health USA 2011*. Rockville, Maryland: U.S. Department of Health and Human Services; 2011.
5. International Institute for Population Sciences (IIPS) and Macro International. *National Family Health Survey (NFHS-3)*. Mumbai: IIPS; 2007.
6. Negi KS, Kandpal SD, Kukreti. *Epidemiological Factors Affecting Low Birth Weight*. *JK Science*. 2006; 8(1): 31-34.
7. Deshmukh JS, Motghare DD, Zodepy SP, Wadhva SK. *Low Birth Weight and Associated Maternal Factors in an Urban Area*. *Indian Pediatrics*. 1998; 35: 33-36.
8. Joshi H S, Srivastava P C, Agnihotri A K, Joshi M C, Chandra S, Mahajan V. *Risk factors of LBW babies and its Medicolegal Significance*. *Journal Indian Acad Forensic Medicine*. 2010; 32 (3): 212 – 15.
9. Balaji K, Sankar S, Nandagopal B. *Low birth weight of newborns: Magnitude of problem seen in a 100 bed hospital of a rural area in Vellore district, Tamil Nadu, India*. 2010; 35(2): 362-64.
10. Kaushal SK, Misra SK, Gupta SC, Singh R. *A study of maternal factors and birth weight in a border district of Uttar Pradesh, a hospital based study*. *Indian Journal of Community Health*. 2012; 24(2): 86-9.
11. Agarwal N, Reddaiah VP. *Factors affecting birth weight in sub-urban community : a study in secondary level hospital in Delhi*. *Health and Population- Perspectives and Issues*. 2005; 28(4):189-96.
12. Singh M. *Care of the newborn*. 6th edition. New Delhi: Sagar Publications; 2004.
13. Agarwal K, Agarwal A, Agarwal VK, Agarwal P, Chaudhary V. *Prevalance and determinants of low birth weight among institutional deliveries*. *Ann Nigerian Medicine*. 2011; 5: 48-52.
14. Agarwal G, Ahmed S, Goel K, Kumar V, Goel P, Garg M, Punj A. *Maternal risk factors associated with LBW neonates in a Tertiary care hospital, Northern India*. *J Community Medicine & Health Education*. 2012; 2:177.
15. Uguwu R, Eneh A. *The proportion of LBW babies due to small for gestational Age and Prematurity in Port Harcourt, South-south Nigeria- Changing trends*. *The internet Journal of Pediatrics and Neonatology*. 2010; 13(1).
16. Adamson H, Harold. *Low birth weight in relation to maternal age and multiple pregnancies at Muhimbili National Hospital*. *DMSJ*. 2006; 14(2):

