



Prevalence of Low Birth Weight & Associated Maternal Risk Factors in Tribal Medical College (RIMS) Adilabad (TS)

KEYWORDS

Low birth weight, multivariate analysis, risk factors for low birth weight.

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ABSTRACT Background: Low birth weight (LBW) is a major determinant of infant mortality and morbidity. It is generally recognized that the aetiology of LBW is multifactorial. Present case control study was conducted with the objective of studying maternal risk factors associated with LBW neonates.

OBJECTIVES: To know the prevalence of low birth weight & to identify the maternal risk factors associated with low birth weight

Methods: A case-control study design was studied from 1st June 2015 to December 31st 2015. A total of 2915 mothers enrolled of these 391 were low birth weight. The data were entered in SNCU software by a trained data entry operator and analysed by using Epi-info Statistical Package.

Result: Total 2915 newborns were studied. Of these, 391 were low birth weight. The incidence of Low birth weight was found to be 13.47%. The Simple Linear Regression shows that maternal age, weight, haemoglobin (gm%), income, birth interval, Tab FS received were significantly associated with birth weight. Birth order, ANC visits, and T.T. doses received were found to have no significant association with low birth weight

Conclusion: Many risks factor for LBW can be identified before pregnancy occurs. Health education, socioeconomic development, maternal nutrition, and increasing the use of health services during pregnancy, are all important for reducing LBW

INTRODUCTION

Birth weight is a critical determinant of survival, growth and development of baby and also a valuable indicator of maternal health, nutrition and quality of life. Worldwide, out of 139 million live births about 23 million infants had low birth weight i.e. birth weight below 2500 gms(1) In India the prevalence of low birth weight is about 26%(2). One of the factor of infant mortality is low birth weight. The maternal factors play crucial role in the birth weight of baby. The mortality of low birth weight can be reduced if the maternal risk factors are detected early and managed by simple techniques. This study has made an attempt to identify the maternal factors that have a significant association with low birth weight with the help of Linear Regression Model.

OBJECTIVES:

- To know the prevalence of low birth weight.
- To identify the maternal risk factors associated with low birth weight.

MATERIAL & METHODS:

Design: Hospital based observational study. Conducting in Rajiv Gandhi institute of medical science (RIMS)Adilabad, for a period of six month 1st June 2015 to 31st December 2015

METHODOLOGY:

All mothers giving birth to singleton live baby are included in the study. The birth weight of new born was measured preferably within the first hour of life with conventional beam balance machine having accuracy of 10gm. World Health Organization definition of low birth weight (LBW) babies i.e. birth weight less than 2500 g (3) was used to label a child as LBW i.e. up to and including 2499 gm. Mother's weight and height was taken as per guidelines given by Jelliffe (4). The other information was collected

by interview (final MBBS student) of the mother with pre-designed and pre-tested pro-forma and review of records like ANC cards. All these data was recorded in SNCU software. Main Outcome Measure: Birth Weight.

Statistical Analysis: A multivariate analysis by use of Epi-info Statistical Package

RESULTS:

A total of 2915 eligible mothers delivered during the study period of 6 month.(Bar diagram) Of these 391 was low birth weight. The incidence of low birth weight was found to be 13.41%. The maternal factors-Age, Weight, Height, Haemoglobin (gm%), Income, Birth interval, Birth order, ANC visits, T.T. doses, Tab. FS received were studied in relation to birth weight by simple multiple linear regression analysis. Birth weight is considered as a dependent variable and other maternal factors as independent variable. Two steps were involved, in first step (Table No.1) birth weight is tested with each variable individually and "r" (correlation coefficient), regression coefficient (b) with 95% confidence intervals and y-intercept for each factor were calculated. In the second step (Table No.2) simple multiple linear regression was applied. From the Table No.1, it was seen that the following maternal factors, had positive, & significant association with birth weight. 1. Maternal weight, 2. Height, 3. Haemoglobin (gm%), 4. Income, 5. Birth interval, 6. Tab. FS received. Negative and significant correlation is with the age of mother. The interesting finding in table No 2 is that the factors birth order, ANC visits, and T.T. doses when tested individually (Table 1), were significantly associated with birth weight but at second step (Table 2), these factors are not found to be significantly associated to birth weight, indicating that these factors are dependent on the other factors (confounding factors).

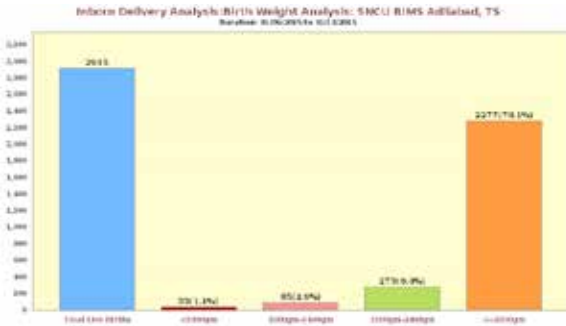


Table 1. Co-relation of various risk factors with LBW.

Risk factor	Correlation Coefficient	Value B	95%CI lower	95%CL upper	Y intercept
Age(yr)	-0.11	-0.0142	-0.0214	-0.0069	2.9362
weight	0.63	0.1019	0.094	0.1088	-1.9389
height	0.43	0.0434	0.0383	0.048	-3.76
Haemoglobin(gm%)	0.53	0.2646	0.2409	0.2882	0.1809
Income(Rs)	0.23	0.0001	0.0009	0.0001	2.3717
Birth interval	0.21	0.0891	0.0655	0.1126	2.4757
Birth order	-0.15	-0.0621	-0.0844	-0.0398	2.7335
ANC visits	0.34	0.1147	0.0972	0.1323	2.2856
T.T.doses	0.15	0.1475	0.0947	0.2004	2.3719
Tab Fs received	0.36	0.1219	0.1041	0.1396	2.3938

Table 2. Multiple Linear regression analysis of risk factors of LBW

Risk factor	mean	B coefficient	95%CI lower	95%CL upper	Standard Error	F-test
Age(YR)	23.9633	-0.02167	-0.0298	-0.0135	0.0041	27.05
Weight(kg)	44.4888	0.0675	0.0591	0.0758	0.0042	252.98
height	146.4065	0.0076	0.0028	0.0123	0.0024	9.84
haemoglobin	9.1269	0.1118	0.0886	0.1350	0.0118	89.14
Income(RS)	1757.96	0.00003	0.000007	0.00005	0.00001	6.71
Birth interval	1.3491	0.0830	0.0620	0.1039	0.0106	60.40
Birth order	2.2133	0.0001	-0.0259	0.02625	0.0133	2.01
ANC visits	2.7029	-0.0166	-0.0397	0.0063	0.0117	2.01
T.T. doses	1.5176	0.0139	-0.0323	0.0603	0.0236	0.34
tab	1.6573	0.0495	0.0285	0.0705	0.0107	21.33

DISCUSSION:

Of the total 2543 deliveries 391 i.e. 13.41% were low birth weight. There is considerable variation in the prevalence of LBW in India. The disparity has ranged from a prevalence of 10% to 49% (5). There are wide interregional, socio-economic and urban verses rural difference in the prevalence of LBW has been recorded. Which is lower than the global prevalence in developed countries (17 %?) (6) The prevalence of LBW was 7.3% as reported by Maznah Dahlu (7),and 10.9% by Abdou jammeh (8) has similar finding as comparable to our study. The simple multiple linear regression shows that maternal age, weight, haemoglobin (gm%), income, birth interval, Tab FS received have significant association with birth weight even if association of other factors is taken into account. Birth order, ANC visits and T.T. doses received have significant association with low birth weight when tested individually, but have no such association if other factors are taken into account. Various hospital based studies(9, 10, 11,12) with multivariate analysis show that the maternal risk factors are associated with low birth

weight. Our findings are consistent with these studies.

CONCLUSION:

Many risks for LBW can be identified before pregnancy occurs. Health education, socioeconomic development, maternal nutrition, and increasing the use of health services during pregnancy, are all important for reducing LBW

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