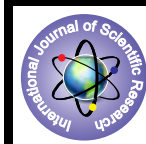


A Comparative Study of Association Between Birth Weight of Newborns and Anaemia in Mothers in an Urban Slum of Mumbai



Community Medicine

KEYWORDS : - Low birth weight, anaemia, infant mortality

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ABSTRACT

Low Birth Weight (LBW) is one of the most serious challenges in maternal and child health in both developed and developing countries. Objective was to study the association between the birth weight of newborns and anaemia in mothers in an urban slum of Mumbai. It was Case control study conducted at cheetah camp urban slum during the period of January 2013 to December 2013 involving 260 cases and 260 controls. Out of total 520 mothers 100 (19.2%) mothers had haemoglobin level 7 to 9 gm%, 263 (50.6%) mothers had haemoglobin level 9.1 to 10.9 gm% and 157 (30.2%) mothers had haemoglobin level \geq 11gm% in their third trimester of pregnancy. Anaemia in mothers was significantly associated with low birth weight.

INTRODUCTION

Low Birth Weight (LBW) is one of the most serious challenges in maternal and child health in both developed and developing countries. LBW is considered the single most important predictor of infant mortality especially of deaths within the first month of life.¹

By international agreement low birth weight has been defined as a birth weight of less than 2.5 kg, the measurement being taken preferably within the first hour of life, before significant postnatal weight loss has occurred.²

It is well known that anaemia per se is associated with high incidence of premature birth, postpartum haemorrhage, puerperal sepsis and thromboembolic phenomenon in the mother.³

Low birth Weight carries a range of grave health risks for children. Weight at birth reflects the Intra-uterine experience; it is a good indicator not only for mother's health and nutritional status, but, also the newborns chances of survival, growth, long-term health and psycho-social development⁴. Prevalence of LBW in India is 28%.⁵

The leading causes of this grim outcome continue to be infection, haemorrhage, anaemia, preeclampsia which can be prevented if the woman had good antenatal care. With improvement in health services, though there is reduction in infant mortality in India by about fifty percent during the past century, the incidence of low birth weight has not changed much⁶.

The mortality of LBW can be reduced if the maternal risk factors are detected early and managed by simple interventions. Thus, it is necessary to identify factors prevailing in a particular area responsible for LBW. With this background in mind the objective of the present study is to identify the anaemia in mother associated with LBW in an urban slum of Mumbai.

Materials and methods:

This community based case control study was conducted at cheetah camp urban slum during the period of January 2013 to December 2013 in the field practice area of Depart-

ment of Community Medicine, Topiwala National Medical College, Mumbai. Sample size was calculated using the formula $n=4pq/l^2$ where Prevalence of LBW in India is 28%, So we had taken 260 mothers of low birth weight babies (cases) & 260 mothers of normal weight babies (controls). The WHO definition of LBW was used i.e. birth weight < 2.5 Kg.²

Sampling Method:

Sampling was done by Simple random sampling method. In urban slum area with the help of anganwadi workers and CHVs (community Health volunteers) all live birth babies were identified. Two lists were prepared. One list containing low birth weight babies (LBW) and other containing normal weight babies (NBW). Only the babies fulfilling inclusion criteria were included. This list served the purpose of sampling frame of 348 LBW and 694 NBW. Out of which 260 were selected from each group by random number table. Study subjects (Mothers of babies) were interviewed by using preformed, pretested, semi structured questionnaire. Data was collected for haemoglobin levels of mothers in their third trimester of pregnancy from available previous records. The collected data was entered in Microsoft Excel 2007 and then data transferred to SPSS version 16, the data was numerically coded and entered. Added data was analysed with appropriate test like chi-square test to find the association of anaemia in mothers with LBW and to find out the level of significance with p value 0.05 considered as significant.

INCLUSION CRITERIA:

1. Mother having live Birth Child
2. Mother should be resident of urban slum for more than 1 yr.
3. Mother having baby of age less than 6 months.

EXCLUSION CRITERIA:

1. Multiple births (Twins, Triplets)
2. Child whose mother is dead.
3. Mother not willing to participate in a study.

RESULTS:

Table 1: Haemoglobin levels and Birth Weight

Haemoglobin level (gm%)	LBW	NBW	Total
7 to 9	64 (24.6%)	36 (13.8%)	100 (19.2%)
9.1 to 10.9	148 (56.9%)	115 (44.2%)	263 (50.6%)
≥11	48 (18.5%)	109 (41.9%)	157 (30.2%)
Total	260 (100.0%)	260 (100.0%)	520 (100.0%)

Chi-Square Tests	Value	Df	p-value	Association is-
Pearson Chi-Square	35.681	2	0.001	Significant

The above table shows that 100 (19.2%) mothers had haemoglobin level 7 to 9 gm%, 263 (50.6%) mothers had haemoglobin level 9.1 to 10.9 gm% and 157 (30.2%) mothers had haemoglobin level ≥ 11gm% in their third trimester of pregnancy.

It was observed that 148 (56.9%) mothers of LBW babies had haemoglobin level 9.1 to 10.9 gm% as compared to 115 (44.2%) mothers of NBW babies, 64(24.6%) mothers of LBW babies had haemoglobin level 7 to 9 gm% as compared to 36 (13.8%) mothers of NBW babies and 48 (18.5%) mothers of LBW babies had haemoglobin level ≥ 11gm% as compared to 109 (41.9%) mothers of NBW babies .

The association between haemoglobin level with LBW was found to be statistically significant.

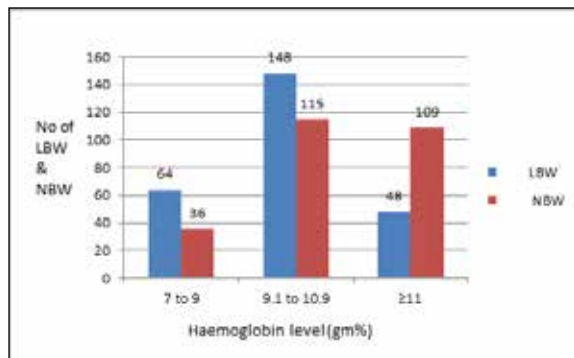


Figure no 1- Haemoglobin levels and Birth Weight

Discussion-

It was observed in this study that mothers with haemoglobin level < 11 gm% had more chance of delivering low birth weight baby as compared to mothers with haemoglobin level >11gm%.

Similar findings were observed in studies performed by Ghosh et al¹¹, Hirve & Ganatra⁹, Deshmukh JS et al¹⁰, Sharma et al⁶, Idris et al⁷, Kiran Anand et al ⁸, Gupta et al¹² which states that anaemia was significantly associated with LBW.

Conclusion

Regular health education programme for anaemia in pregnant women should also be conducted in the community by social worker, Health volunteers and community health workers

Health education of pregnant women regarding anaemia may also be done in groups with help of local NGOs like Mahila mandals, Mahila bachat gat etc..

Improving the family income by community based comprehensive strategy and various income generating schemes should be emphasized as a long term measure to reduce LBW rate.

Conflict of interest: Nil

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