IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 14, Issue 12 Ver. IV (Dec. 2015), PP 09-11
www.iosrjournals.org

The Relationship between Maternal Anemia and Birth Weight in New Born

Pagadpally Srinivas[1], P Srinivasan[2]
[1]*Associate professor, Dept of Paediatrics, Vinayaka Mission's Medical college and Hospital,Karaikal*
[2]*Post Graduate(DCH), Dept of Paediatrics, Vinayaka Mission's Medical college and Hospital,Karaikal*

Abstract:
Objective : To study the relationship between maternal anemia and perinatal outcome as a retrospective study of pregnant women and to highlight the importance of antenatal care regarding maternal health and fetal outcome.
Methodology :A retrospective study where delivery sample of 1182 mother by systemic random sampling delivered at GH, Karaikal between January 2014 to December 2014 was done. Data were collected and assessed for maternal age, haemoglobin, gestation, blood group and the fetal birth weight, mode of delivery.Data was analysed by SPSS -16.
Study period: Deliveries between January 2014 to December 2014.
Result: Out of 1182 pregnant mothers, 924 were anemic (Hemoglobin <11g/dL) . Perinatal outcome include low birth weight , mode of delivery, risk of LBW among anemic mother were (118) 12% and in non-anemic mother (17) 6%. Birth weight, risk of LSCS among anemic mother were (537) and in non-anemic were (386). The rest are normal delivery in anemic mother (146) and in non-anemic (111).
Conclusion: No correlation was found between maternal anemia & low birth weight and operative delivery tended to be higher in the anemic pregnant women.

Keywords: Maternal anemia, Low birth weight

I. Introduction

Anemia in pregnancy is a main challenge worldwide particularly in developing countries[1]. Maternal anaemia influences perinatal outcomes such as risk of low birth weight, mode of delivery[2,3].
Maternal anemia is one of the most common medical problem in India and has varied in etiology and severity. Anemia in pregnancy is defined as Hemoglobin less than 11g/dL according to WHO. Several research have reported an association between anemia in pregnancy and low birth weight but many limitations have complicated the interpretation of the result.

The objective of this study was to evaluate if there is a relationship between maternal anaemia and low birth weight infant in women delivering at Government Hospital, Karaikal, Puducherry UT.

This study was designed to investigate not only the correlation between maternal anemia and low birth weight but also effect of anemia on neonatal route of delivery.

II. Materials and Methods

The retrospective study was conducted at the Government Hospital, Karaikal, Puducherry UT. The study enrolled pregnant women who gave birth at GH, Karaikal from 1st January 2014 to 31st December 2014.

Inclusion Criteria

1. Pregnant women whose (Hb <11g/dL) included into the study group and women whose Hb >11g/dL was included as a control group
2. HIV negative

Exclusion criteria

1. Multiple pregnancy
2. PIH
3. GDM
4. Placenta praevia
5. Abruptio placenta
6. Maternal medical complaints

were chosen randomly based on a cut-off (Hb 11g/dL). All pregnant women belong to the range of 17-37yrs.

The study and the control groups were extracted from MRD (Medical Records Department). The research proposal was approved by the ethical committee of Vinayaka Mission Medical College &, Karaikal,and Medical Superintendent, RMO, Head of Department of Obstetrics & Gynaecology of Government General

Hospital, Karaikal, Puducherry UT. There were 1182 pregnant women who delivered at GH Karaikal during this period.

Maternal demographic data was collected including Maternal age, Hemoglobin (third trimester), Gravida, mode of delivery.

The primary outcome checked was low birth weight i.e birth weight less than 2500gms. The secondary outcome were mode of delivery – normal vaginal delivery or operative delivery (LSCS).

Statistical analysis was undertaken using SPSS-16. Statistical significance was evaluated using the chi-square test. The p value <0.05 was considered statistically significant.

III. Results

From January 1, 2014 to December 31, 2014; total of 1182 women fulfil criteria. Among this, 924 were anemic and 258 were non-anemic.

The incidence of maternal anemia during the study period average 78.2%

Table 3 shows correlation between anemic ,non anemic mother and birth wt of their new born

Table 1 shows demographic characteristic of the group. The mean of the Hemoglobin was 9.8g/dL and in group was 13.5g the control /dL

	Frequency	Percentage	Cumulative percentage %
Anemia	924	78.2	78.2
Normal	258	21.8	21.8
Total	1182		

Figure 1: incidence of anaemia

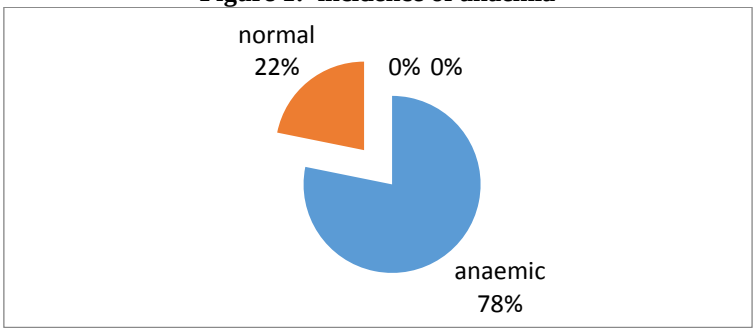

Table 2: Mode of delivery

		LBW	NBW	TOTAL
Mode of delivery	LSCS	537	146	683
	ND	388	111	499
Total		925	257	1182

Figure 2: Mode of delivery

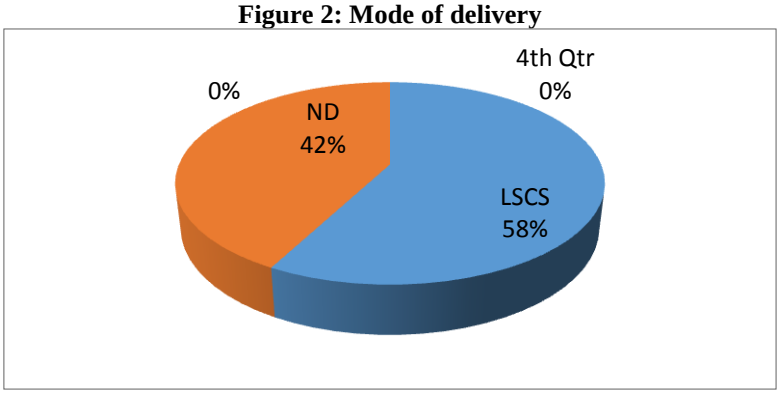

Table 3: shows correlation between anemic ,non anemic mother and birth wt of their new born

		LBW	NBW	Total
Maternal anemia	Anemic	118 (12%)	806	924
	Normal	17 (6%)	241	258
Total		135	1042	1182

IV. Discussion:

Out of 1182 pregnant mothers, 78%(n=924) were anemic (Hemoglobin <11g/dL) and 258 were non-anemic (Hemoglobin >11g/dL). Incidence of low birth weight delivery among anaemic mother was 12%(n=118) and in non-anemic mother 6%(n=17). The rest of 1042 were normal birth weight. Risk of LSCS among anaemic mother was 45%(n=537) and in non-anemic was 32% (n=386). The rest are normal delivery: in anemic mother (146) and in non-anemic (111).

Anaemia in pregnancy defined by the WHO as a haemoglobin level 11g/dl. In our study, mean Hb value is 9.6g/dl

In this study there was no increase in LBW in anaemic group,where as the most published results of studies on maternal anemia and foetal outcome shows that maternal anaemia was associated with increased LBW and LSCS rates[4,5,6,7].

There is a significant difference between the route of delivery among the 2 group ($p<0.010$)

We conclude that the maternal anemia is not correlated with low birth weight from this study.there was no increase in LBW but increase in LSCS in anemic compare to non anaemic pregnant women. This is in contrast from previous studies finding which found association between maternal anemia and low birth weight[4,5,6,7]. This may be because of mother mean (Hb9.8g/dl) is not very severe anemia, anaemia in the first trimester and not during the third trimester influences birth weight[8,9,10] and may be some other nutritional deficiency in association with anaemia can produce LBW and most of mothers received iron and folic acid during pregnancy.

References:

[1]. World Health Organization. The prevalence of anaemia in women: atabulation of available information. 2nd ed. Geneva: World Health Organization, 1992.

[2]. Cunningham FG, Gant NF, Leveno KJ, Gilstrap LC, Hauth JC, Wenstrom KD. Williams Obstetrics. 21st ed. McGraw-Hill. 2001;1308–16.

[3]. Amalia L A, Drora F B, Miriam Katz C, Moshe M C, Eyal S. Maternal anemia during pregnancy is an independent risk factor for low birthweight and preterm delivery. EJOGRB. Elsevier Ireland Ltd 2005; 122:182–6.

[4]. Bondevik GT, Lie RT, Ulstein M, Kvale G. Maternal hematological status and risk of low birth weight and preterm delivery in Nepal. Acta Obstet Gynecol Scand 2001;80:402–8.

[5]. Ren A., Wang J., Ye R.W., Li S., Liu J.M., Z. Li. Low first–trimester hemoglobin and low birth weight, preterm birth and small for gestational age newborns. Int J Gynecol Obstet 2007;98:124-8.

[6]. Chumnijarakij T, Nuchprayoon T, Chitinand S, Onthuam Y, Quamkul N, Dusitsin N, et al. Maternal risk factors for low birth weight newborn in Thailand. J Med Assoc Thai 1992;75:445-52.

[7]. Cessie S Le, Verhoeff F H, Mengistie G, Kazembe P, Broadhead R, Brabin B J. Changes in Haemoglobin levels in infants in Malawi : effect of low birth weight and fetal anaemia. Arch Dis Child Fetal Neonatal Ed 2002;86:182-

[8]. Henna Hamalainen, Katja Hakkarainen, Seppo Heinonen. Anaemia in the first but not in the second or third trimester is a risk factor for low birth weight. Clin Nutr 2003;22: 271-5

[9]. Monika Malhotra, Sharma J.B., Batra S., Sharma S., Murthy N.S., Arora R. Maternal and perinatal outcome in varying degrees of anemia. Int J Gynecol Obstet 2002;79:93-100.

[10]. Scanlon KS, Yip R, Schieve LA, Cogswell ME. High and low haemoglobin levels during pregnancy: differential risks for preterm birth and SGA. Obstet Gynecol 2000;96:741–7.

CORRESPONDING AUTHOR

DR. PAGADPALLY SRINIVAS,
27, VELLAI PILLAIYAR KOIL ST,
KOTTUCHERRY,
KARAIKAL-609609.
PONDICHERRY UT.
sreenu77@gmail.com

DR. P SRINIVASAN,
I-2, STAFF QTS, N-2, VMMC,
KARAIKAL-609609.
PONDICHERRY UT