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Research Article

THE OCCURRENCE OF SEVERE ANEMIA IN PREGNANT WOMEN, ITS COMPLICATIONS AND FETO-MATERIAL OUTCOMES

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Abstract:

Objective: The aim of our study was to find out the occurrence of severe anemia in pregnant women, its material complications and feto-material results.

Study Design: A descriptive case series study.

Place and Duration: This study was conducted at Obstetrics and Gynecology department of CMH Muzaffarabad for the duration of seven months starting from March, 2020 to September, 2020.

Methodology: In our present study we included 186 pregnant women who were admitted for the delivery and having age range ≥ 34 years. We used pre-designed Performa for the collection of demographic information relate to age, parity and gestational age. Post-partum and Intra-partum observations were made for material complications such as postpartum hemorrhage and pregnancy-induced hypertension. We noted perinatal complications such as APGAR score < 7 at 5 minutes and low birth weight.

Results: In our present study we included 186 pregnant women and their Mean age were 26.76 ± 3.36 years. 38.46 ± 0.63 weeks were Mean gestational age of the women. Anemia was observed in 35 patients (19%) among which 4 patients (2.2%) were having mild anemia, 12 patients (6.5%) were having severe anemia and 19 patients (10.2%) were having moderate anemia. Frequency of PPH were noticed in (17.14%) of anemic patients, frequency of PIH were noticed in 47.14% of anemic patients, frequency of APGAR score < 7 were noticed in 60% of anemic patients and frequency of low birth weight were noticed in 62.68% of anemic patients.

Conclusion: At the end of our study, we conclude that severe anemia during pregnancy significantly increase the chance of maternal outcomes and adverse perinatal in terms of PPH, PIH, APGAR score and low birth weight.

Key Words: Pregnancy, Severe Anemia, Feto-Maternal Outcome, Induced Hypertension, Low Birth Weight, Apgar Score, Post-Partum Hemorrhage.

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INTRODUCTION:

Pregnancy is a vital part of a woman's life but it is period of greater risks of different complications for mother and fetus. One of the most prevalent complication is anemia, which is being faced throughout the world. This challenge is more commonly faced in developing countries due to poor nutritional status [1]. According to the estimates of (WHO), anemia has a prevalence of 23% in developed countries with almost double in developing countries [2]. The average prevalence rate is 56% in developing countries with a great variation with respect to different regions of the world ranging from 35% to 100% [3]. Some women have iron deficiency anemia at start of pregnancy, which begins to exacerbate due to physiological changes of mother due to pregnancy.

This complication begins in first trimester and increases with passage of pregnancy. According to WHO definition the women having hemoglobin level of 11 gm/dl or less is considered as anemic during pregnancy [4]. There are many risk factors which contribute to pregnancy anemia including iron deficiency which is considered main cause of anemia. Other contributing factors are deficiency of B12 or thalassemia trait, which are also a very common causes of anemia. The prevalence of anemia is very high especially in third trimester and have a very significant adverse impact on maternal health during pregnancy and fetal outcome [5]. Very severe adverse consequences are related with anemia in pregnancy for mother and fetus. These adverse effects are not bounded during pregnancy, neonatal and infant period only, but this increases the chances of non-communicable diseases during adulthood as well. Studies have also shown relationship of low birth weight in next generation with anemia during pregnancy. Anemia is preventable complication of pregnancy and it can easily be diagnosed and treated with easily available techniques and tools which are affordable and can be implemented in even primary health care settings [6,7].

The frequency of maternal complications is very high among sever anemic pregnant women in comparison with normal pregnant women. In a study it was noted that in anemic pregnant patients the maternal complications like pregnancy induced hypertension (36% vs. 10%), infections (16% vs. 5%) and Post-Partum Hemorrhage (14% vs. 5%) was significantly higher in contrast to normal pregnant women. Similarly, the fetal outcome like low birth weight (57.62% vs. 42.37%), and Apgar score < 7 (57.57% vs. 42.42%) was also significantly distressed in Anemic patients. Some studies have shown

significantly very high difference in low birth weight (64% vs 10%) in anemic and non-anemic pregnant women [8]. Antenatal iron-folic acid supplementation reduces low birth weight and preterm in both developed and developing country settings [9]. Studies conducted in Pakistan show a high percentage of anemia during pregnancy so this study had been planned to find out the adverse effects of anemia during pregnancy on maternal complications (like pregnancy induced hypertension and post-partum hemorrhage) and fetal outcome in terms of low birth weight in our local target population in comparison with normal controls. The aim of this study is to determine the frequency of women having pregnancy with severe anemia, its maternal complications and Feto-maternal outcome.

METHODOLOGY:

This descriptive case serious study was conducted at Obstetrics and Gynecology department, CMH Muzaffarabad for the duration of seven months starting from March, 2020 to September, 2020. The sample size was calculated by using WHO sample size calculator taking Confidence level of 95 %, Anticipated population proportion $P = 14\%$ [2], and Absolute precision required = 5%.

All the women were recruited for the study by nonprobability consecutive sampling method. The study was started after taking formal written permission from hospital ethical committee. Informed written consent was taken from all patients who fulfilled the inclusion and exclusion criteria. All women admitted for delivery with gestational age ≥ 34 weeks were included in the study. Pregnant women with known history of thalassemia and sickle cell anemia, women with ante-partum hemorrhage and no available previous report of Hb were excluded from the study.

Demographic information regarding age, gestational age and parity were taken on predesigned Performa. Blood sample was taken from each patient and sent to the laboratory for hemoglobin level. The WHO's anaemia classification and categorization was adopted for functional definition of haemoglobin conditions; anaemic (serum Hb 5-11 g/dL), and nonanemic (serum Hb > 11 g/dL) the anemic group was further divided into Mild (9-10.9 g/dL), Moderate (7.9 g/dL) and severe anemia (< 7 g/dL). Intra-partum and post-partum observations were made for maternal complications like hypertension and postpartum hemorrhage. Perinatal complications like low birth weight and APGAR score < 7 at 5 minutes were noted. All data was analyzed using SPSS Version 20. Mean and

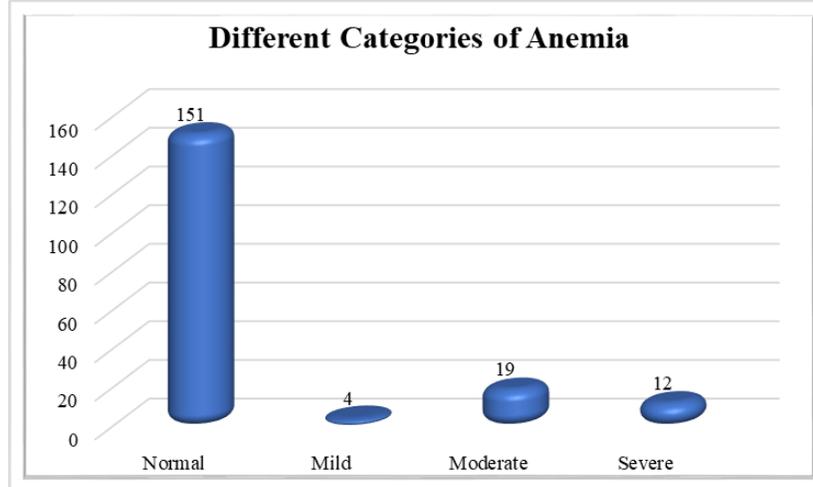
standard deviation was calculated for numerical variables. Frequency and percentages were calculated for categorical variables. Effect modifiers like age, parity and gestational age was controlled by stratification. Post stratification Chi square test was applied to compare pregnancy induced hypertension, PPH, Mode of delivery, APGAR score (< 7) at 5 minutes, low birth weight in anemic pregnant and non-anemic pregnant women. P-value <0.05 was considered significant.

RESULTS:

In our present study we included 186 pregnant women and their Mean age were 26.76 ± 3.36 years. 38.46 ± 0.63 weeks were Mean gestational age of the women. Anemia were observed in 35 patients (19%) among which 4 patients (2.2%) were having mild anemia, 12 patients (6.5%) were having severe anemia and 19 patients (10.2%) were having moderate anemia (Table 01).

Table No 01: Frequency Distribution of Different Categories of Anemia

Category of Anemia	Qty	%age
Normal	151	81.2%
Mild	4	2.2%
Moderate	19	10.2%
Severe	12	6.5%
Total	186	100%

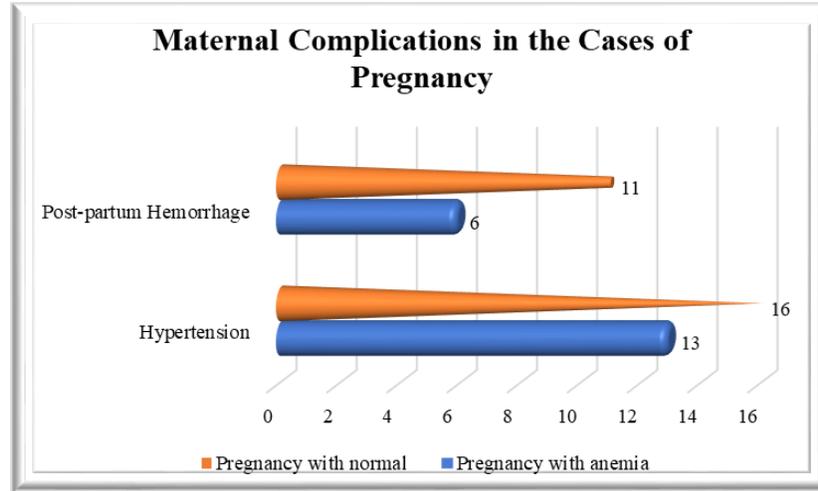


In our study sample 35 women were anemic and among these 13 (37.14%) women had pregnancy induced hypertension. While Among 151 nonanemic women only 16 (10.59%) had pregnancy induced hypertension. A statistically significant (pvalue=0.000) association was present between anemia and pregnancy induced hypertension. Among

anemic women 6 (17.14%) suffered from Post-Partum Hemorrhage, while among non-anemic only 11 (7.29%) suffered from Post-Partum Hemorrhage. Which shows statistically insignificant (p-value=0.068) association between anemia and Post-Partum Hemorrhage. (Table 02).

Table No 02: Maternal Complications in the Cases of Pregnancy with Anemia

Complications	Pregnancy with anemia		Pregnancy with normal		Total
	Qty	%age	Qty	%age	
Hypertension	13	37.17%	16	10.60%	29
Post-Partum Hemorrhage	6	17.14%	11	7.28%	17



The results showed that among anemic women the fetal outcome was significantly poor as compared with non-anemic women. Among women with anemia 22 (62.86%) had low birth weight babies as compared to non-anemic mothers in which 40 (26.49%) had low birth weight babies showing a statistically significant (p-value=0.000) association between mother's anemic status and low birth weight babies. Similarly, among

babies of anemic mothers, APGAR score <7 at 5 minutes was observed in 21 (60%) babies as compared to 63 (41.72%) babies of non-anemic mothers who had APGAR score <7 at 5 minutes. There was no statistically significant (p-value=0.05) association between anemia and APGAR score <7 at 5 minutes. (Table 03).

Table No 03: Perinatal Complications like Low Birth Weight and Apgar score < 7 At 5 Minutes in Pregnancy with Anemia

Complications	Pregnancy with anemia		Pregnancy with normal		Total
	Qty	%age	Qty	%age	
Low birth Weight	22	62.86%	40	26.49%	62
APGAR score (<7)	21	60%	63	41.72%	84

DISCUSSION:

Anemia is a pregnancy complication which can be prevented easily and fetal and maternal morbidity and mortality related to anemia can be minimized. The prevalence of anemia is very high with great variations in different regions around the globe. It varies from 15% in western countries to 75% in developing countries of Africa and Asia. In developing countries its prevalence ranges from 33% to 75% in different regions [10,11]. The incidence of iron deficiency anemia in Pakistan has been report quite high by different studies. A high incidence of 50% was found despite routine iron therapy in a study conducted in Lahore. Similar high incidence of iron deficiency anemia among pregnant women has been reported from other developing countries of Africa and India [12,13].

Women having anemia during pregnancy often feel body aches and fatigue. There are many causes of anemia in Pakistan. The main contributing causes are poor economic conditions, repeated pregnancies with short interval, gender bias, worm infestation and lack of health seeking behavior. The major causative factor for anemia in Pakistan is iron deficiency during and at the start of pregnancy [14]. The anemia a common pregnancy complication increases the risk of low birth weight and intra uterine growth retardation [15]. In this study 35(19%) women had anemia. As per WHO criteria 151(81.2%) women had normal Hb level, 4(2.2%) had mild, 19(10.2%) moderate and only 12(6.5%) women had severe anemia. Lahore study reported (52%) of patients presented with moderate anemia, 12% with severe anemia requiring blood

transfusions, and 36% of pregnant women were mildly anemic [16]. Study from Lahore showed severe anemia in 8%, mild anemia in 44% and moderate anemia in 48% of patients [17]. This prevalence of anemia in this study 19% was comparable to studies conducted in Trinidad and Tobago (15.3%), Thailand (20.1%), Zurich (18.5%), Hawassa (15.3%), and Gondar town (22%). 17-21 In this study pregnancy induced hypertension was present in 37.14% women who were anemic and present in 10.60% in women who were not anemic [18].

Post-Partum Hemorrhage was seen in 17.14% women who were anemic and in 7.28% women who were not anemic. Among 62.86% anemic mothers the babies were low weight while 26.49% among non-anemic women babies had low birth weight. There were 60% women whose fetus had APGAR score <7 at 5th minute and 41.72% non-anemic women babies had APGAR score <7 at 5minute. Ram Hari Ghimire in his study explored the association between anemia and maternal and perinatal complications. In his results he reported that pregnancy induced hypertension and Post-Partum Hemorrhage was significantly high in women who were anemic (PIH =36%, PPH= 14%) as compared to (PIH=10%, PPH=5%) in non-anemic women. Results regarding fetal complication among anemic and non-anemic mothers showed that APGAR score <7 was 18% and 5% among anemic and non-anemic mothers and low birth weight of fetus was observed as 22% and 9% in anemic and nonanemic mothers [19,20].

Lone et al, in a multivariate analysis of their study population showed that the risk of low-birth-weight babies in the anemic population was 1.9 times higher [21]. A local study from Rawalpindi reported the number of low-birth-weight infants (64%) was highly significant in the anemic mothers than the nonanemic (10%) [22]. The anemia during pregnancy increases the chances of obstetric hemorrhage, infection rate and obstetric shock and trauma due to labor complication etc. This increases the chance of maternal mortality by five times as compared with non-anemic women. Similarly, in severe anemic patients having hemoglobin less or equal to 6 gm/100ml the chance of high cardiac output failure rises significantly specifically in cases of hypertension and pre-eclampsia [23]. These complications are less likely to occur in patients having mild or moderate anemia. But in these patients having mild or moderate anemia the child can come up with some speech learning or behavioral problems. Anemia in pregnancy has been found as a significant contributing risk factor for adverse perinatal and maternal outcomes. Special

attention should be given to minimize the anemia especially during pregnancy [24].

CONCLUSION:

At the end of our study, we conclude that severe anemia during pregnancy significantly increase the chance of maternal outcomes and adverse perinatal in terms of PPH, PIH, APGAR score and low birth weight.

REFERENCES:

1. Khatana A, Yadav K. Study of fetomaternal outcome in patients of moderate and severe anaemia in > 28-week pregnancy, *J Med Sci Clin Res.* 2017; 5: 25071-6.
2. Melku M, Addis Z, Alem M, Enawgaw B. Prevalence and Predictors of Maternal Anemia during Pregnancy in Gondar, Northwest Ethiopia: An Institutional Based Cross-Sectional Study. *Anemia.* 2014; 7: 771.
3. Uche-Nwachi E, Odekunle A, Jacinto S, Burnett M, Clapperton M, David Y, et al. Anemia in pregnancy: associations with parity, abortions and child spacing in primary healthcare clinic attendees in Trinidad and Tobago. *African health sciences.* 2016; 10: 66.
4. Nair M, Choudhury MK, Choudhury SS, Kakoty SD, Sarma UC, Webster P, et al. Association between maternal anaemia and pregnancy outcomes: a cohort study in Assam, India. *BMJ Global Health.* 2016; 1: e000026.
5. Rizwan F, Qamarunisa H, Memon A. Prevalence of anemia in pregnant women and its effects on maternal and fetal morbidity and mortality. *Pak J Med Sci.* 2016; 26: 92-5.
6. Dayal S, Dayal A. Prevalence & consequences of anemia in pregnancy. *Int J Med Res Review.* 2014; 2: 296- 9.
7. Kalaivani K. Use of intravenous iron sucrose for treatment of anemia in pregnancy. *The Indian J Med Res.* 2013; 138: 16-7
8. Ahmad MO, Kalsoom U, Sughra U, Hadi U, Imran M. Effect of maternal anemia on birth weight. *J Ayub Med Coll Abbottabad.* 2011; 23: 77-9.
9. Christian P, Shahid F, Rizvi A, Klemm RD, Bhutta ZA. Treatment response to standard of care for severe anemia in pregnant women and effect of multivitamins and enhanced anthelmintic. *Am J Clin Nutr.* 2013; 89: 853-61.
10. Rehu M, Punnonen K, Ostland V, Heinonen S, Westerman M, Pulkki K, et al. Maternal serum hepcidin is low at term and independent of cord blood iron status. *Eur J Haematol.* 2011; 85: 345-52.

11. Olatunbosun OA, Abasiattai AM, Basse EA, James RS, Ibanga G, Morgan A. Prevalence of Anaemia among Pregnant Women at Booking in the University of Uyo Teaching Hospital, Uyo, Nigeria. *Bio Med Res Int.* 2014; 8: 849080.
12. Singh S, Singh S, Singh PK. A Study to Compare the Efficacy and Safety of Intravenous Iron Sucrose and Intramuscular Iron Sorbitol Therapy for Anemia During Pregnancy. *J Obstet Gynecol India.* 2013; 63: 18–21.
13. Awan MM, Akbar MA, Khan MI. A study of anemia in pregnant women of railway colony, Multan. *Pak J Med Res.* 2014; 43: 11-4.
14. Khan DA, Fatima S, Imran R, Khan FA. Iron, folate and cobalamin deficiency in anaemic pregnant females in tertiary care center at Rawalpindi. *J Ayub Med Coll Abbottabad.* 2016; 22: 17-21.
15. Badshah S, Mason L, McKelvie K, Payne R, Lisboa PJ. Risk factors for low birthweight in the public-hospitals at Peshawar, NWFP-Pakistan. *BMC Public Health.* 2018; 8: 197.
16. Ghimire RH, Ghimire S. Maternal and Fetal Outcome Following Severe Anemia in Pregnancy: Results from Nobel Medical College Teaching Hospital, Biratnagar, Nepal. *J Nobel Med Coll.* 2013; 2: 22-6.
17. Rai N, Nandeshwar S, Rai P. A study on magnitude of anaemia and its sociodemographic correlates among pregnant women in Sagar city of Bundelkhand Region, Madhya Pradesh, India. *Int J Community Med Public Health.* 2016; 3: 128-32.
18. Sritippayawan S, Wong P, Chattapiban T. Iron deficiency anemia during pregnancy in the lower north of Thailand- prevalence and associated factors. *Malaysian J Pub Health Med.* 2012; 12: 1-5.
19. Abriha A, Yesuf ME, Wassie MM. Prevalence and associated factors of anemia among pregnant women of Mekelle town: a cross sectional study. *BMC Res Notes.* 2014; 7: 888.
20. Alem M, Enawgaw B, Gelaw A, Kenaw T, Seid M, Olkeba Y. Prevalence of anemia and associated risk factors among pregnant women attending antenatal care in Azezo Health Center Gondar town, Northwest Ethiopia. *Journal of Interdisciplinary Histopathology.* 2013; 1: 137-44.
21. Lone F, Qureshi R, Emmanuel F. Maternal anemia and its impact on perinatal outcome in a tertiary care hospital in Pakistan. *East Mediator Health J.* 2014; 10: 801-7.
22. Ahmad MO, Kalsoom U, Sughra U, Hadi U, Imran M. Effect of maternal anemia on birth weight. *J Ayub Med Coll Abbottabad.* 2011; 23: 77-9.
23. Stevens GA, Finucane MM, De-Regil LM, Paciorek CJ, Flaxman SR, Branca F, et al. Global, regional, and national trends in haemoglobin concentration and prevalence of total and severe anemia in children and pregnant and nonpregnant women for 1995–2011: a systematic analysis of population-representative data. *The Lancet Global Health.* 2013; 1: e16-e25.
24. Goonewardene M, Shehata M, Hamad A. Anemia in pregnancy. *Best Pract Res Clin Obstet Gynaecol.* 2012; 26: 324.