



Original Article

This research publication is an earnest tribute to Late Ms. Kabita Akhuli on behalf of her Husband: Dr. Sanjay Akhuli, Guide: Prof. Smritikana Mani and Friend, Well-Wisher: Dr. Lily Podder, to acknowledge and appreciate her hard work, patience and sacrificing her last days in an effort to bring this thesis on the stands. She will be fondly remembered ever by the entire fraternity of nursing.

Status of anaemia among parturient women and its consequences on Maternal and Neonatal outcome

Abstract:

Introduction: Anaemia during pregnancy is a major public health problem, especially in developing countries. It is estimated that 56 million pregnant women (41.8% of the total) are affected with anaemia globally. WHO has estimated that prevalence of anaemia in pregnant women is 65-75% in India.

Objectives: The study was conducted to describe the status of anaemia in parturient women and to identify its consequences on maternal and neonatal outcome.

Methods and Materials: A non-experimental approach with descriptive survey design was adopted for the present study. One hundred samples were selected through non probability purposive sampling technique. Data were collected by using interview schedule from the subjects admitted for delivery in the antenatal ward. Haemoglobin level was estimated with haemoglobin colour scale. The data regarding the maternal and neonatal outcome were collected through record analysis. Data collection technique used for the study was interview, observation and measurement and record analysis. Data was analyzed by using descriptive and inferential statistics.

Results: The findings showed that majority of the women (64%) had anaemia. Out of them 45% had mild anaemia, 19% had moderate anaemia and no sample was found with severe anaemia. The obtained chi square value indicates that there is a statistical significant association of anaemia with presence of infection, pre-eclampsia, preterm delivery and low birth weight [$p < 0.05$]. But presence of eclampsia, IUGR, operative delivery, post partum haemorrhage, birth asphyxia and perinatal death [$p > 0.05$] have no statistical significant association with anaemia.

Conclusion: The magnitude of maternal anaemia is still high and affecting both maternal and neonatal outcome which needs urgent attention to reduce the burden of this problem.

Key Words: Status, Anaemia, Parturient Women, Consequences, Maternal Outcome, Neonatal Outcome

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Introduction

WHO estimates that if the prevalence of anemia is 40.0% or more, it is considered as severe public health problem. It also says that among the South Asian countries, India has the highest prevalence of anaemia. What is even more important is the fact that about half of the global maternal deaths due to anaemia occur in South Asian countries; India contributes to about 80 per cent of the maternal deaths due to anaemia in South Asia.^{1,2}

In India, anaemia is the second most common cause of maternal deaths, accounting for 20% of the total maternal deaths.³ According to National Family Health Survey (NFHS- 3.2005-2006) report,⁴ the prevalence of anaemia in pregnant women in India is 57.9 % and in West Bengal it is 62.6%.

Study report by K. Kalaivani⁵ shows that anaemia begins in childhood, worsens during adolescence in girls and gets aggravated during pregnancy.

Early marriage, repeated pregnancies, poor dietary habits, poverty and illiteracy are all factors which affect its incidence and severity. Studies explained the status of anaemia in antenatal mothers which depends on the socio-economic level, illiteracy, extremes of mother's age, primigravida or grand gravida, short pregnancy intervals and age of gestation.⁶ Women with even mild anaemia may experience fatigue and they may have a reduced work capacity. Severe anaemia is associated with maternal and child mortality.^{11, 12}

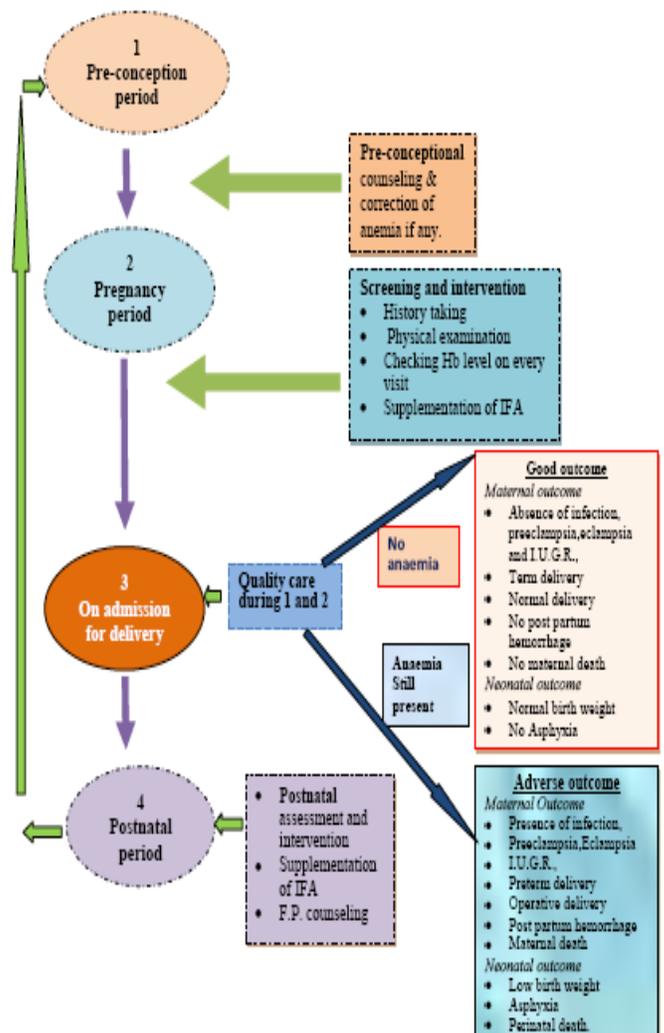
A study by Ahmad N¹⁴ shows that though the National Nutritional Anemia Prophylaxis Programme (NNAPP) was initiated in 1970 with the aim to reduce the prevalence of anemia to 25 percent and since 1992, the daily dosage of elemental iron for prophylaxis and therapy has been increased to 100 mg and 200 mg, respectively under Child Survival and Safe Motherhood (CSSM) Programme, yet the present picture does not show that.

Despite the fact that most of the cases of anaemia seen in pregnancy are largely preventable & easily treatable if detected in time, anaemia still continues to be a common cause of maternal, fetal and neonatal mortality and morbidity significantly in India.

Hence the investigators have taken up the present study to assess the status of anaemia among parturient women, to identify the maternal outcome and neonatal outcome and also to determine the association of anaemia with maternal and neonatal outcome.

CONCEPTUAL FRAMEWORK:

Figure 1: Conceptual framework based on Epidemiological study developed by Kathleen Abu-Saad and Drora Fraser.



*Dotted lines are not under study

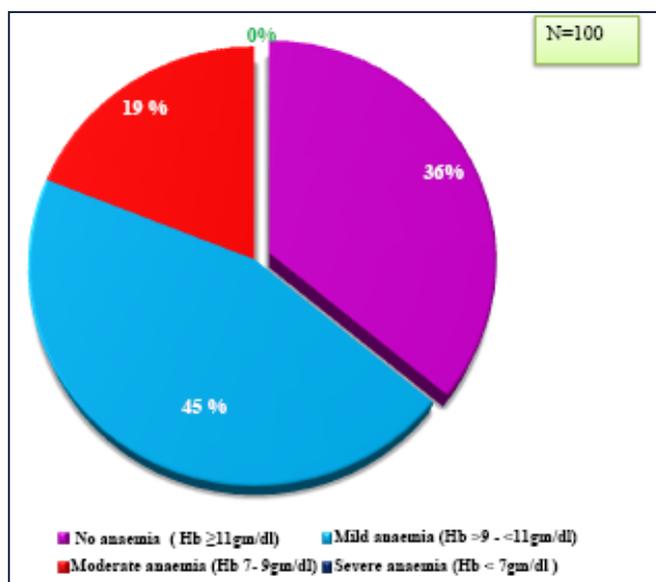
Methods

Quantitative non experimental approach with Descriptive survey design had been adopted for the present study. The Study was conducted at Maternity unit of Murshidabad Medical College and Hospital. 100 parturient women admitted in the maternity unit of selected hospital were selected by using non probability purposive sampling technique. The mothers admitted with ante partum hemorrhage, pregnancies with Thalassemia or any other medical illness were excluded from the study. Data were collected by using a valid and reliable interview schedule from the subjects. Haemoglobin level was estimated with haemoglobin colour scale. After the delivery of baby the data regarding the maternal and neonatal outcome were collected from record analysis. Data was analyzed by using descriptive and inferential statistics.

Results

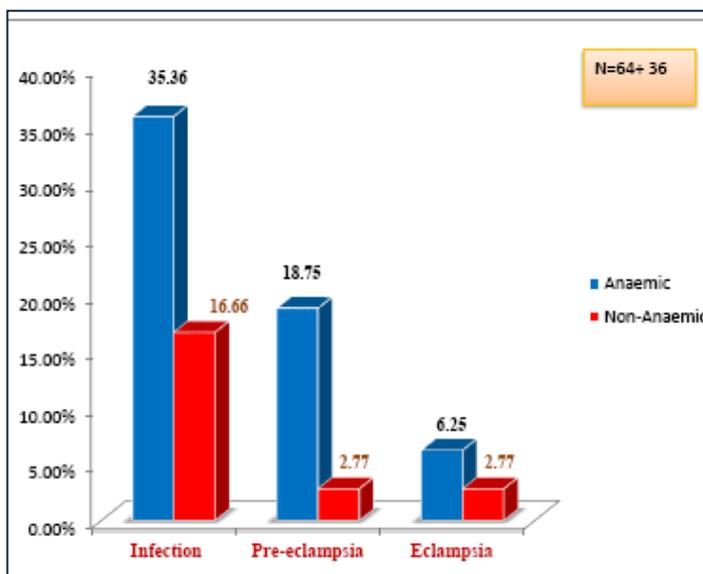
Maximum number of samples (35%) were less than 20 years of age. Most of the parturient women (72%) got married before 19 years of age and 56% became pregnant for the first time before 19 years of age. Most of them (59%) were Muslim by religion. Majority (60%) of the samples had primary level of education; 98% were home maker. More than half of the parturient women (55.55%) were below poverty line. Most of them (58%) were primigravida. Only 18% parturient women maintained birth spacing of ≥ 2 years. Majority of the them (62%) got registered within 12 weeks of pregnancy. Most (71%) of the women had ≥ 4 antenatal check-up. Eighty nine percent had haemoglobin estimation during antenatal period, among them majority (80.89%) were anaemic.

Figure 2: Status of anemia among parturient women



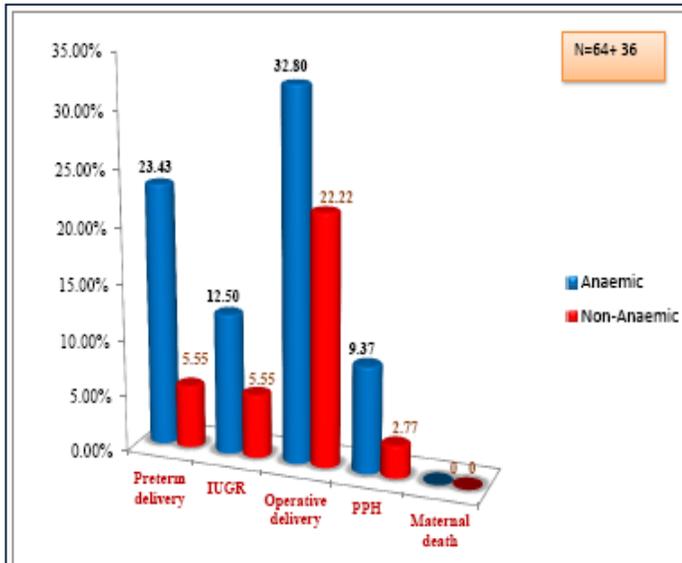
Data presented in Figure 2 shows that majority of the women (64%) had anaemia. Out of them 45% had mild anaemia, 19% had moderate anaemia but no one had severe anaemia.

Figure 3: column diagram showing maternal outcome among anemic and non-anemic parturient in terms of infection, pre-eclampsia and eclampsia



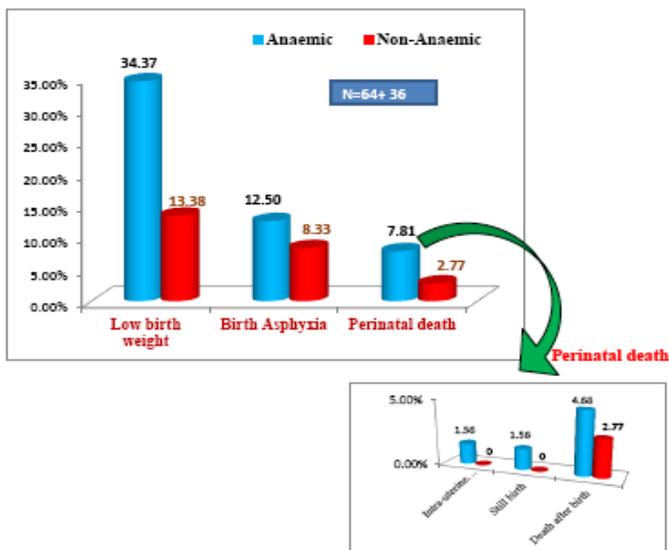
Data of Figure 3 illustrates that 35.93% of anaemic women and 16.66% of non-anaemic women suffered from infection during their antenatal period. In anaemic women, preeclampsia (18.75%) was more than eclampsia (6.25%) whereas in non-anaemic women both the conditions were same (2.77%) as evidenced by record analysis.

Figure 4: column diagram showing maternal outcome among anaemic and non-anaemic parturient in terms of pre-term delivery, IUGR, operative delivery, PPH and maternal death



Data presented from record analysis in Figure 4 reveal that preterm delivery and IUGR was 23.43 % and 12.50% respectively in anaemic women but in non-anaemic women it was only 5.55% in both the conditions. The incidence of operative delivery and P.P.H. was 32.82% and 9.37% respectively in anaemic women and 22.22% and 2.77% in non-anaemic women. No maternal death occurred among the samples during data collection period.

Figure 5: Column diagram showing neonatal outcome among anaemic and non-anaemic parturient



Data presented in Figure 5 depicts that 34.37% of neonate with low birth weight (< 2.5 kg) were of anaemic mother and 13.88%

were of non- anaemic women. The data also depict that presence of birth asphyxia was in 12.5% and 8.33 % neonate of anaemic mother and non- anaemic women respectively. Perinatal death was 7.81% [IUF (1.56%), still birth (1.56%) and death of baby during hospital stay (4.68%)] in case of neonate of anaemic mother whereas in non-anaemic women only 2.77% death of baby occurred during hospital stay.

Table 1: association between anemia with maternal and neonatal outcome n= 100 (n1=64, n2=36)

Maternal/neonatal outcome	Status of anemia		Chi square value
	Anaemic	Non-anaemic	
	f	f	
Maternal outcome			
Presence of infection			
Yes	23	06	4.155*
No	41	30	
Presence of pre-eclampsia			
Yes	12	1	3.880*
No	52	35	
Presence of eclampsia			
Yes	4	1	0.082
No	60	35	
Preterm delivery			
Yes	15	2	4.031*
No	49	34	
IUGR			
Present	8	2	0.583
Absent	56	34	
Operative delivery			
Yes	21	8	1.255*
No	43	28	
Post partum hemorrhage			
Yes	6	1	0.603
No	58	35	
Neonatal outcome			
Low Birth Weight			
Yes	22	5	4.905*
No	42	31	
Birth asphyxia			
Present	8	3	0.093
Absent	56	33	
Perinatal death			
Yes	5	1	0.335
No	59	35	

* Significant at 0.05 level of significance

The data presented in Table 1 shows that there is significant association of anaemia with presence of infection, pre-eclampsia and preterm delivery. The data also showed that there is significant association of anaemia with birth weight.

Discussion

The study result showed that 36% of the pregnant women were anaemic whereas 64% were non-anaemic. Among them 45% had mild and 19% had moderate anaemia. No severe anaemia cases were found among the samples during data collection period that may be either due to correction of severity of anaemia to some degree during antenatal period for developing symptoms before they reach the time of delivery or due to short study period. Anaemia was categorized accordingly and the maternal and neonatal outcome were analyzed and evaluated with standard literature. The magnitude of anaemia as estimated in the present study (64%) is consistent with the data available from the investigation done in West Bengal by Bisoi et al (67.8%)¹⁵ and the report of NFHS- 3⁴ where it was 62.6% in West Bengal.

In present study, maternal complications observed were infections (35.93%), pre-eclampsia (18.75%), eclampsia (6.25%), preterm delivery (23.43%), IUGR (12.5%), operative delivery (32.8%) post partum haemorrhage (9.37%) among anaemic women where as in non anaemic women these were 16.66 %, 2.77%, 2.77%, 5.55%, 22.22% and 2.77% respectively, which is consistent with many study findings.

Ugwuja et al¹³ observed that the women who were anaemic had significantly shorter duration of gestation (preterm delivery) and had concomitant infection like urinary tract infection, upper respiratory tract infection, surgical mode of delivery when compared to non-anaemic women.

The present findings are supported by Ghimire & Ghimire¹⁶ where anaemic women had an increased risk of pregnancy induced hypertension and postpartum hemorrhage compared to

non-anaemic women.

The study finding on IUGR (12.5%) is congruent with the investigations done by Khan¹⁷ where it was 14.3% among anaemic women. The present study shows that anaemia was significantly associated with presence of infection, preeclampsia and preterm delivery which are again supported by the findings of Laflamme et al²⁰,Ugwuja¹³. The findings differ from the result of Azime et al¹⁸ where the risk of preeclampsia and preterm delivery increased only in severe anaemia.

Khan¹⁹ has observed that the greater the severity of the anaemia during pregnancy, the greater the risk of infection, preeclampsia, preterm delivery, IUGR, PPH. and operative delivery which was not analyzed according to severity in this study.

Apart from the risk to the mother, maternal anaemia is also responsible for increased incidence of low birth weight babies, birth Asphyxia and high perinatal mortality.

The study reveals that almost one-third (34.37%) of neonate with low birth weight (< 2.5 kg.) were of anaemic mother where as in non-anaemic women it was 13.88% and there is significant association of anaemia with birth weight which is comparable with the findings of Md. Owais Ahmad¹² where the number of low birth weight infants (64%) was statistically very highly significant ($p < 0.001$) in the anaemic group of mothers than the non anaemic group (10%).

The result is contradicted by Laflamme et al²⁰ where no statistical significance was observed in birth weight suggesting that other parameters may play important roles in influencing the birth weight than the maternal haemoglobin concentration. Azime et al [18], Khan [19] and Kidanto et al⁷ have observed that the risk of LBW and stillbirth increases with the severity of the anaemia during pregnancy.

In case of neonate of anaemic mother, perinatal death was 7.81% [IUFD (1.56%), still birth (1.56%) and death of baby during hospital stay (4.68%)] whereas in non-anaemic women it was

2.77% (includes only death of baby during hospital stay) which is comparable with the findings of Lone F. W. et al [10]. The present study shows that all the still births/IUD (100%) occurred amongst anemic women only which are congruent with the investigation done by Kumar O. Pore et al¹² which show Anemia in pregnancy have a recognizable association with neonatal outcome.

Conclusion

The study has highlighted that anemia is still persisting in a major portion (64%) of parturient women which contributes to the adverse maternal and neonatal outcome even after decades of implementing anaemia control programmes. Although screening for anaemia and IFA therapy in appropriate doses for the prevention and management of anaemia in the vulnerable groups has been incorporated as an essential component of paediatric, adolescent, antenatal and postnatal care, yet the present scenario does not show that. This may be either due to failure of the programme or due to lack of quality care at any stage. More efficient antenatal practices and community partnerships must be fostered in conjunction with Government policies to further improve antenatal care. Tackling this problem alone in pregnancy will not be effective. Providing long term quality preventing care along with counseling, beginning with adolescence may improve the hemoglobin level and prevent anaemia among parturient women and thus, may prevent adverse outcome.

Recommendations

- Another study can be done to find out the contributing factors of maternal anaemia.
- A longitudinal study can be conducted to find out the consequences of maternal anaemia during antenatal, intra-natal and postnatal period of women.
- A study can be conducted to find out the quality of health care services provided to prevent maternal anaemia.

- Another similar study can be conducted with different degree of anaemic women to detect the effect of severity of anaemia on maternal and neonatal outcome.
- Experimental study can be done to assess the effectiveness of planned teaching programme on prevention of anaemia among pregnant women.

Ethical Consideration

Ethical permission of the college authority and the institutional ethical committee obtained for conducting the research study. Administrative approval was obtained from Directorate of Health Services, nursing branch, Govt. of West Bengal, MSVP, Nursing superintendent of Murshidabad Medical College and hospital, Principal, Govt. College of Nursing, medical college & hospital for conducting the study in the specific settings. Participant was explained regarding the purpose of the study. Confidentiality assured and informed written consent is taken from participant before conducting study.

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