Prevalence of anemia among pregnant women visiting Western Regional Hospital, a tertiary care Centre of Western Nepal.

1Rajesh Adhikari

[1]Associate Professor, Department of obstetrics and Gynecology, pokhara PoAHS

Correspondence:
Rajesh Adhikari
Associate Professor, Department of obstetrics and Gynecology, pokhara
Email: adhikarirajesh007@hotmail.com

Article received : 10th March, 2023
Article accepted : 13th December, 2023

ABSTRACT

Introduction Anemia in pregnancy is a major health problem and an important cause of adverse feto-maternal outcome. Nutritional anemia chiefly iron deficiency anemia is common cause in the majority of pregnancy in Nepal and shares a major burden of co-morbidity in pregnancy. In addition, with the easy access to the health care facilities for antenatal check-up and adequate supply of supplements like iron and folic acid in recent years there has been some improvement in the prevalence of anemia in pregnancy. So, this study was conducted to identify the prevalence of anemia during pregnancy in recent context.
Materials and Methods: The cross sectional study included 609 pregnant patients. Random sampling method was used to enroll participants who presented to antenatal clinic for the first time during first trimester. World Health Organization (2008) criteria was used to diagnose anemia with level below 11 mg/dl considered as anemia and later classified as mild, moderate and severe anemia.
Results: A total of 609 patients wereenrolled for study. Anemia was present in 194 patients (31.85%). Majority of patients 176 (28.89%) had mild anemia followed by moderateanemia15(2.46%)andsevereanemia3(0.5%).
Conclusion: Despite the accessible health care facilities for antenatal checkup and easy access to supplemental iron and folic acid, anemia is still a significant comorbidity among the pregnant women in Pokhara. Hence, further study needs to be conducted involving including larger sample size to precisely identify the prevalence of anemia in pregnancy in Nepalese context.
KeyWords: Anemia, Hemoglobin, Pregnancy

INTRODUCTION

World Health Organization (WHO, 2008) has defined anemia in pregnancy as a hemoglobin (Hb) level below 11 g/dL.[1] Anemia in pregnancy is a major health problem during pregnancy worldwide and high prevalence of anemia is related to maternal and neonatal co morbidities and high adverse maternal outcomes.[1]According to the Demographic Health Survey of Nepal Nepal has high anemia pregnancy ratio and 2.2% pregnant women suffer with severe anemia[2]. Additionally, approximately half of all maternal deaths were related to postpartum hemorrhage with anemias.[2]

Estimated prevalence for adolescent anemia in the South-East Asia region range from 27% to 55%.[3] Reproductive age group high risk to anemia is commonly attributed to the biological demands for micro nutrients (such as iron and folic acid) associated with rapid physical growth, as well as from loss of these micro nutrients due to parasitic infestations like malaria, hookworm and pregnancy.4 Adolescence male rapidly regain adequate nutrient stores, whereas female remain vulnerable to anemia as a result of menstrual blood loss. They may therefore continue to be anemic or become more anemic because of increased micro nutrient requirements from menstruation as well as from pregnancy and lactation.[5]

After the turn of century, access to health care facilities for antenatal checkup and availability of supplements like iron and folic acid has significantly improved in Nepal with the expected outcome to decrease the prevalence of anemia during pregnancy. But, no studies has been conducted to identify the prevalence of anemia during pregnancy recently. So, this study was designed and conducted to evaluate the prevalence of anemia among pregnant mothers.

MATERIALS AND METHODS

This study was a cross sectional descriptive study conducted among the pregnant women who attended antenatal clinic of Western Regional Hospital (from March 2019 to march 2020) for first antenatal checkup during first trimester after acquiring ethical clearance from Institutional Review Committee (IRC) of Pokhara Academy of Health Sciences, Pokhara. The study was conducted after written or verbal informed consent was taken from the participants.

Adult (>18 years) pregnant participants who presented at the outpatient antenatal clinic for first hospital visit during first trimester were included in the study. Patients with co-morbidities like cardiac disease, hepatic disease, neurological disease, chronic gastrointestinal condition, endocrine disease and psychiatric condition were excluded from the study.

Non-probability; convenience sampling method was used to calculate the sample size and the sample size was calculated using following formula:

Sample size(n) = n = Z2p(1-p)/d2

Where, n = sample size,

Z = standard normal variate, 1.96 for 10% type I error

P = expected proportion in population

D= absolute error or precision= 0.1, 10% type I error

Prevalence of anemia in pregnancy reported for our region: 44%6

Hence, Sample size (n) =488.

Assuming a 10% nonresponse rate a design effect of 2, a total sample size of 542 pregnant women is required.

Anemia was defined using World Health Organization (2008) criteria.1Patients with hemoglobin level below 11 g/dL was diagnosed as anemia. Hemoglobin level from 9-10.9 g/dL, 7-8.9 g/dL and less than 7g/dL were further classified as

mild, moderate and severe anemia.

Data were initially recorded in Microsoft excel 2020 and statistical analysis was performed using SPSS v25.0 and a p-value < 0.05 was considered statistically significant.

RESULTS

Total of 609 cases were enrolled in the study. The prevalence of anemia was 194 (31.85%). Various demographic characteristics of the participants are presented below:

Table 1: Demographic Variables (n=609 Anemia=194)

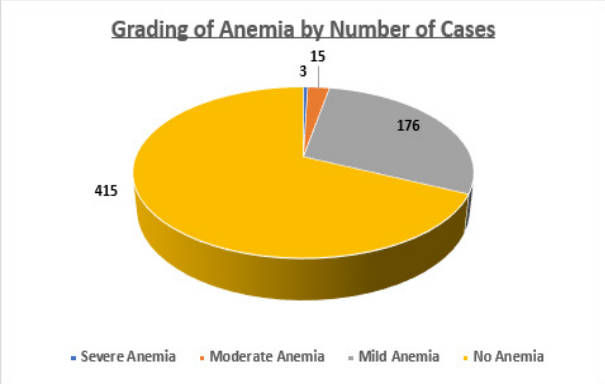
		Total Patients (n) (%)	Anemia (n) (%)
Age in Years	18-19	66 (10,84%)	41 (6.73%)
	20-29	456 (74,88%)	134 (22%)
	30-39	87 (14.29%)	19 (3.12%)
Parity	0	362 (59.44%)	112 (18.39%)
	1	210 (34.48%)	65 (10.67%)
	2	35 (5.75%)	16 (2.63%)
	3	1 (0.16%)	0 (0%)
	4	1 (0.16%)	1 (0.16%)
Ethnicity	Brahmin/ Chettri	267 (43.84%)	75 (12.32%)
	Janajati	194 (31.86%)	46 (7.55%)
	Dalit	134 (22%)	63 (10.34%)
	Others	14 (2,3%)	10 (1.64%)
Literacy	Educated	557 (91.46%)	185 (30.38%)
	Non educated	52 (8.54%)	9 (1.48%)
Religion	Hindu	563 (92.45%)	186 (30.54%)
	Buddhist	19 (3.12%)	6 (0.99%)
	Muslim	2 (0.33%)	0 (0%)
	Others	25 (4.11%)	2 (0.33%)

Table 2: Blood hemoglobin level (Hb)

Baseline	Average(Range) (n=609)	Average(Range) (n=194)
Hb (g/dl)	11.0(6.0-14.1)	9.2 (6.0-10.9)

The average hemoglobin level was 11g/dl ranging from 6 to 14 g/dl among 609 patients and among anemic patient the average hemoglobin was 9.2g/dl ranging from 6 to 10.9 g/dl

Table 3: WHO classification of Anemia (n=609)



Among 609 cases, 176 had mild anemia with Hb less than 11g/dl, 15 had moderate anemia with Hb between 7 to 10.9g/dl, 3 cases had severe anemia with Hb less than 7g/d land 415 had no anemia with Hb mor than 11g/dl so prevalence of anemia was 31.85 %.

DISCUSSION

The World Health Assembly, 2012 approved an action plan and global targets for maternal and child health nutrition including infants, with a commitment to decrease the prevalence of anemia among women of reproductive age to half by 2025.[7]

The study was done to know the impact of a wide range of socio-demographic, nutritional, reproductive and behavioral factors on the prevalence of anemia among women of reproductive age in western regional hospital .Women who were using a hormonal contraceptive method, overweight/obese and who smokes cigarette/tobacco were less likely to be anemic in some studies.[8]These findings give a gross estimate of anemia among women of reproductive age in western Nepal and could serve as a landmark to evaluate the national nutrition programs.[8]

Our study found that 31.85% of reproductive age group pregnant mothers were anemic .The prevalence of anemia revealed by this study is lower than both the national average (35.1%), and the world average (32.8%). On the other hand, some cross-sectional studies showed that the relatively low prevalence of anemia among younger women

(aged 13–35 years) in Nepal. This study shows lower prevalence, this could be due to the selection of random cases without symptoms of anemia living in Gandaki province and is not endemic areas for malaria and hookworm infestation.[10] In addition, the lower prevalence may be due to increase access to the healthcare facilities and increased awareness of use of supplements before and during pregnancy.

Previous studies of Demography of Health and Survey data on women of reproductive age, showed relatively lower prevalence of anemia in Nepal (34.4%) as comparison the higher prevalence in Pakistan (51.1%)[11]and Bangladesh(41.3%)thereby demonstrating a wide variation in the prevalence of anemia within similar regional settings of South-Asian countries.[12]However, the difference in the prevalence could be due to the different geographical, cultural, dietary factors and preventive measures adopted in these countries. High prevalence of anemia among women of developing countries reflect their social and biological vulnerability and morbidity/mortality both within the household and society.[13] In countries like Nepal the major drivers of nutritional deficiency including nutrition-related anemia include poverty as well as one's social position but this study shows low prevalence as compare to national and global prevalence rate which could be due to improvement in nutritional and educational standard of Gandaki province.[14] Globally, the prevalence of anemia fell by 12% between 1995 and 2011indicating the possibility of its prevention and management.[15]

In South-Asian region, a decreasing trend in the prevalence of anemia among women of reproductive age was observed between 1995 and 2011; however, the prevalence among pregnant women was almost remains same .This could be due to higher demand of iron and nutritional substance during pregnancy as compare to non-pregnant.

CONCLUSION

Despite the accessible health care facilities for antenatal checkup and easy access to supplemental iron and folic acid, anemia is still a significant comorbidity among the pregnant women in Pokhara. Hence, further study needs to be conducted involving including larger sample size to precisely identify the prevalence of anemia in pregnancy in Nepalese context.

REFERENCES

1. World Health Organization . Anemia classification .WHO. 2008.
2. National Demographic and Health Survey. NDHS. 2016.
3. World Health Organization. Adolescent nutrition: a review of the situation in selected South-East Asian countries. New Delhi: World Health Organization Regional Office for South-East Asia; 2006. Contract No.: SEA-NUT-163. 2006.
4. de Benoist B, McLean E, Egli I, Cogswell M. Worldwide prevalence of anaemia 1993–2005, WHO Global Database on Anaemia. Geneva: World Health Organization & Center for Disease Control and Prevention; 2008.
5. Prentice AM. Nutrition challenges and issues of relevance to adolescents in low- and middle-income countries. In: Bhutta ZA, Makrides M, Prentice AM, editors. Health and nutrition in adolescents and young women: preparing for the next generation. Nestle Nutrition Institute Workshop Series. 2015.
6. World Health Organization. 2015. The global prevalence of 549 anaemia in 2011. World Health Organization. 550 https://apps.who.int/iris/handle/10665/177094 (2020.07.18)
7. Gautam S, Min H, Kim H, Jeong HS. Determining factors for the prevalence of anemia in women of reproductive age in Nepal: Evidence from recent national survey data. PLoS One. 2019; 14(6):e0217832.
8. World Health Organization . Anemia Prevalence . GENEVA. WHO. 2011 and 2019.
9. World Bank. Prevalence of anemia among reproductive age women. 2019.
10. 10. Chandyo RK, Strand TA, Ulvik RJ, Adhikari RK, Ulak M, Dixit H, et al. Prevalence of iron deficiency and anemia among healthy women of reproductive age in Bhaktapur, Nepal. Eur J Clin Nutr. 2007; 61(2):262–9.
11. Harding KL, Aguayo VM, Namirembe G, Webb P. Determinants of anemia among women and

children in Nepal and Pakistan: An analysis of recent national survey data. Matern Child Nutr. 2018; 14:e12617.

12. Kamruzzaman M, Rabbani MG, Saw A, Sayem MA, Hossain MG. Differentials in the prevalence of anemia among non-pregnant, ever-married women in Bangladesh: Multilevel logistic regression analysis of data from the 2011 Bangladesh Demographic and Health Survey. BMC Womens Health [Internet]. 2015; 15:120.

13. Bentley ME, Griffiths PL. The burden of anemia among women in India. Eur J Clin Nutr. 2003; 57(1):52–60.

14. 14. Chalise B, Aryal KK, Mehta RK, Dhimal M, Sapkota F, Mehata S, et al. Prevalence and correlates of anemia among adolescents in Nepal: Findings from a nationally representative cross-sectional survey. PLoS One. 2018; 13(12):e0208878.

15. 15. World Health Organization. Global nutrition targets 2025: anemia policy brief . Geneva : WHO.2014.