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Original Research Article

An Observational Assessment of the Prevalence and Factors Associated with Anemia in Pregnancy

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Abstract

Aim: The aim of the present study was to assess the prevalence and factors associated with anemia in pregnancy at tertiary health care center in Bihar region.

Methods: The present study was a retrospective carried in the Department of Obstetrics and Gynecology, Netaji Subhas Medical College and Hospital, Bihta, Bihar, India for 10 months. Study population was ANC patients attending OPD of OBGY department. In our study, out of 390 patients, 200 patients were anemic according to hemoglobin concentration.

Results: Prevalence of anemia in our study was 52.63%. Mean age of the patients was 25.65± 3.4 years. Majority of the patients had mild anemia (52%). Moderate anemia was seen in 30% patients and severe anemia was observed in 18% of the patients. Most commonly observed clinical feature in our study was fatigue (93%) followed by dizziness (90%). Shortness of breath was complained by 75% patients. Pale skin was seen in 72% patients. Other clinical features were rapid /irregular heartbeat (62%) and chest pain (44%). Most commonly observed risk factor was vegetarian diet (92%). Obstetric factors like birth interval less than 2 years were seen in 90% patients. No consumption or inadequate consumption of IFA tablets contributed anemia in 90% patients. Worm infestation and H/O malaria was seen in 73% and 55% patients respectively. Other risk factors observed were less consumption of fruits (44%) and lower socioeconomic status (30%). Most commonly observed type of anemia was iron deficiency anemia (92%) followed by megaloblastic anemia (5%). Dimorphic anemia was seen in 3% patients.

Conclusion: Most commonly observed risk factor for development of anemia in pregnant patients was vegetarian, birth interval less than 2 years no consumption or inadequate consumption of IFA tablets, Worm infestation and H/O malaria.

Keywords: prevalence, factors associated, anemia, pregnancy, tertiary health care center, Bihar

Introduction

Anemia in pregnancy continues to be a public health concern that significantly contributes to maternal and fetal consequences. In 2011, approximately 32 million pregnant women were found to be affected by anemia worldwide, of which the highest prevalence was reported in South Asia and Central and West Africa. [1] Although low hemoglobin (Hb) is used to diagnose anemia, the definition recommended by different organizations varies considerably. The World Health Organization (WHO) defines anemia as a Hb concentration of <11 g/dL, [2] while the Centers for Disease Control and Prevention (CDC) defines anemia as Hb <11 g/dL in the first trimester and <10 g/dL in the second or third trimester. [3] The WHO further classifies anemia in pregnancy according to its severity: mild (10.0–10.9 g/dL), moderate (7–9.9 g/dL) and severe (<7 g/dL). [4] Although this has been challenged, the WHO guideline is still the most commonly used cut-off for defining pregnancy anaemia. [2]

In South Africa (SA), routine screening of all pregnant women is standard practice. Primary healthcare nurses and medical practitioners are the first contacts for pregnant women to receive maternal care, playing a significant role in identifying and treating anemia. Still, pregnancy anemia is associated with 40% of maternal mortality

[5], irrespective of the routine provision of primary care throughout pregnancy. [6] Despite its known effect on pregnancy, there is a paucity of published studies about the prevalence and risk factors that influence anemia among pregnant women in Limpopo Province (LP). Thus, the contributing risk factors are identified and addressed to develop effective interventions to combat maternal pregnancy anemia.

Iron deficiency anemia in pregnancy is a serious public health problem in many developing countries, associated with maternal and perinatal mortality, premature delivery, low birth weight, and other adverse outcomes. [7] The World Health Organization (WHO) defines anemia in pregnancy as a hemoglobin concentration below 11g/dL or hematocrit of <33%. [8] Globally more than half of all pregnant women have hemoglobin levels indicative of anaemia. [9] In industrialized countries, the prevalence of anemia among pregnant women is 15% and in developing countries, prevalence ranges between 33% and 75%. [10] According to the WHO, anemia is recognized as a public health problem if prevalence is 5.0% or higher. [8,11] Prevalence of anemia of equal or more than 40% in a population is classified as a severe public health problem.[8,11]

The aim of the present study was to assess the prevalence and factors associated with anemia in pregnancy at tertiary health care center in Bihar region.

Materials and Methods

The present study was a retrospective study carried in the Department of Obstetrics and Gynecology, Netaji Subhas Medical College and Hospital, Bihta, Bihar, India for 10 months. Study population was ANC patients attending OPD of OBGY department. In our study, out of 390 patients, 200 patients were anemic according to hemoglobin concentration.

Inclusion Criteria:

1. ANC patients of second and third trimester
2. Those who willing to participate in the study

Exclusion Criteria:

1. ANC patients in first trimester
2. Patients with sickle cell anemia
3. Patients with hematological disorders
4. Teenager pregnancy

Study was approved by ethical committee of the institute. A valid written consent was taken from the patients after explaining study to them. We studied total 190 patients during study period of 2 months. Data was collected with pretested questionnaire. Data included sociodemographic data, detailed obstetric and medical history, ANC visits and iron and folic acid supplementation, dietary habits etc. patients underwent investigations like CBC and Hemoglobin concentration. All patients were investigated in central laboratory of the institute. According to hemoglobin concentration, Anemia was considered severe when hemoglobin concentration is less than 7.0 g/dL, moderate when hemoglobin falls between 7.0 and 9.9 g/dL, and mild when hemoglobin concentration is from 10.0 to 11 g/dL. Patients were categorized into different groups. Type of anemia was diagnosed by Complete blood count and peripheral smear. Data was entered in excel sheet and analyzed with appropriate statistical tests.

Results

Table 1: Baseline characteristics and distribution of patients according to severity of anemia

Prevalence	**N**	**%**
Total	380	
Anemia	200	52.63
Mean age ±SD	25.65± 3.4 years	
Severity of anemia	**N**	**%**
Mild	104	52
Moderate	60	30
Severe	36	18

Prevalence of anemia in our study was 52.63%. Mean age of the patients was 25.65± 3.4 years. Majority of the patients had mild anemia (52%). Moderate anemia was seen in 30% patients and severe anemia was observed in 18% of the patients.

Table 2: Distribution of anemic patients according to clinical features

Clinical features	**N**	**%**
Fatigue	186	93
Dizziness	180	90
Shortness of breath	150	75
Rapid/ irregular heartbeat	134	62
Pale skin	144	72
Chest pain	88	44

Most commonly observed clinical feature in our study was fatigue (93%) followed by dizziness (90%). Shortness of breath was complained by 75% patients. Pale skin was seen in 72% patients. Other clinical features were rapid /irregular heartbeat (62%) and chest pain (44%).

Table 3: Risk factors

Risk factors	N	%
Vegetarian diet	184	92
Birth interval less than 2 years	180	90
Worm infestation	146	73
No consumption of IFA tablets	180	90
H/O malaria	110	55
Less consumption of fruits	88	44
SES	60	30

Most commonly observed risk factor was vegetarian diet (92%). Obstetric factors like birth interval less than 2 years were seen in 90% patients. No consumption or inadequate consumption of IFA tablets contributed anemia in 90% patients. Worm infestation and H/O malaria was seen in 73% and 55% patients respectively. Other risk factors observed were less consumption of fruits (44%) and lower socioeconomic status (30%).

Table 4: Distribution of anemic patients according to type of anemia

Type of anemia	N	Percentage
Iron deficiency anemia	184	92
Megaloblastic	10	5
Dimorphic	6	3

Most commonly observed type of anemia was iron deficiency anemia (92%) followed by megaloblastic anemia (5%). Dimorphic anemia was seen in 3% patients.

Discussion

Anemia is one of the most common nutritional deficiency diseases observed globally and affects more than a quarter of the world's population (WHO/CDC, 2008). Globally, anemia affects 1.62 billion people (25%), among which 56 million are pregnant women. [12,13] It is estimated that 41.8% of pregnant women worldwide are anemic. In developing countries, the prevalence of anemia during pregnancy is 60.0% and about 7.0% of the women are severely anaemic. [14] Anemia during pregnancy is considered severe when hemoglobin concentration is less than 7.0 g/dl, moderate when the hemoglobin concentration is 7.0 to 9.9 g/dl, and mild when hemoglobin concentration is 10.0 to 10.9 g/dl. [15,16]

Prevalence of anemia in our study was 52.63%. Mean age of the patients was 25.65± 3.4 years. Majority of the patients had mild anemia (52%). Moderate anemia was seen in 30% patients and severe anemia was observed in 18% of the patients. The prevalence of anemia ranges from 33% to 89% among pregnant women and is more than women from 60% among adolescent girls with wide variations in different regions of the country. [17] The study shows that Pregnant women in rural Maharashtra, one of the developed states of India registered a prevalence of anemia 56.4%. [18,19] Most commonly observed clinical feature in our study was fatigue (93%) followed by dizziness (90%). Shortness of breath was complained by 75% patients. Pale skin was seen in 72% patients. Other clinical features were rapid /irregular heartbeat (62%) and chest pain (44%). Most commonly observed risk factor was vegetarian diet (92%). Obstetric factors like birth interval less than 2 years were seen in 90% patients. No consumption or inadequate consumption of IFA tablets contributed anaemia in 90% patients. Worm infestation and H/O malaria was seen in 73% and 55% patients respectively. Other risk factors observed were less consumption of fruits (44%) and lower socioeconomic status (30%). In a study by Kassa Git [20] was found that primigravida women are 61% less likely than multigravida women to develop anemia during pregnancy, which could be a consequence of depletion of iron reserves owing to repeated pregnancies.

Most commonly observed type of anemias was iron deficiency anemia (92%) followed by megaloblastic anemia (5%). Dimorphic anemia was seen in 3% patients. Similar to our study previous studies found that the risk of developing anemia was significantly more among pregnant women who did not take iron and folic acid supplements compared to those who took these supplements. [21-23] Lack of iron supplementation is among the most significant risk factors for developing anemia during pregnancy. Growth of the fetus, the uterus, the placenta,

increased RBC mass and many other changes taking place in a pregnant mother that require many nutrients, especially iron and folic acid.

Conclusion

Most commonly observed risk factor for development of anemia in pregnant patients was vegetarian, birth interval less than 2 years no consumption or inadequate consumption of IFA tablets, Worm infestation and H/O malaria.

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