Tropical Journal of Obstetrics & Gynaecology
ISSN-Print: 0189-5117
Online: 2543-148X
Official Publication of Society of Obstetrics & Gynaecology of Nigeria

■ Original Article

Anaemia among pregnant women at booking in Sacred Heart Catholic Hospital Obudu: A secondary level health facility in South-south Nigeria

Kahansim ML,[1] Odor C,[2] Changkat LL,[3] Nyango DD[1]

[1]*University of Jos/Jos University Teaching Hospital,* [2]*Sacred Catholic Hospital Obudu, Cross River State,* [3]*Dalhatu Araf Specialist Hospital, Lafia, Nasarawa State*

ABSTRACT

Background: Anaemia in pregnancy is a common obstetric problem in developing countries, where poverty, ignorance and disease are prevalent. It is responsible for a significant proportion of maternal and perinatal morbidity and mortality. The prevalence is believed to be higher in rural/semi urban communities, yet, few studies has determined the prevalence in secondary level health facilities which carter for most of them. **Methods:** The was a retrospective study of women who registered for antenatal care at the Sacred Health Catholic Hospital, Obudu, Cross River state, Nigeria from 1st January 2015 to 31st December 2018. Data on age, parity, gestational age at booking, packed cell volume, HIV status and rapid diagnostic test for malaria results were obtained and analyzed. **Results:** A total of 2420 women booked for antenatal care in the health facility during the period. The mean age was 28.4 ± 5.1 years and the mean parity was 1.7±1.6. About 26.5% were nulliparous, 67.3% were para 1-4 while 5.1% were para 5 and above. The mean gestational age at booking was 22.2 ±5.8 weeks. Seventy-one per cent of the women booked in the second trimester while only 8.3% booked in the first trimester. The mean packed cell volume (PCV) was 31.2 ± 3.8%. Over half (65.2%) of the women were anaemic (PCV < 33%), 0.4% had severe anaemia (PCV < 20%). Anaemia was significantly more among women that booked in the second and third trimester of pregnancy. There was no significant association between parity, age and HIV status with anaemia at booking.

Key words: anaemia, pregnancy, antenatal booking, Obudu

Corresponding Author
Mutihir JT
jtmutihir01@yahoo.co.uk

Introduction

Anaemia is a global public health problem that affects both developed and developing countries. It is more prevalent among pregnant women and young children. The global prevalence of anaemia in pregnancy is estimated at 41.8%, this translate to about 56million pregnant women worldwide. Africa accounts for the highest proportion (57.1%)

of pregnant women affected.[1,2]

Anemia in pregnancy is a common obstetric problem especially in developing countries where poverty, ignorance and disease are more prevalent among the people. Even within the country, it is believed to be more prevalent in rural and semi-urban communities where socio-economic conditions are even much worse, with attendant poor nutrition, infections and infestations.[3,4] According to the World Health Organization, anaemia in pregnancy occurs when the haemoglobin concentration is less than 11.0g/dl or Packed Cell Volume less than 33%. [5]

In developing countries like Nigeria, the cause of anemia is multifactorial and varies remarkably by geographical location, season and dietary intake which is largely affected by socio economic status. Nutritional deficiencies of folate and iron, parasitic diseases such as malaria and helminthic infestations such hookworm, haemoglobinopathies like sickle cell disease and human immune deficiency virus infection.[6] Most of the causes of anemia in pregnancy are preventable by folate and iron supplementation, antimalarial prophylaxis during pregnancy. Despite this, the prevalence of anaemia is still high in the country and most pregnant women do not book for antenatal care early enough to enable them benefit from these prophylactic measures.

Socio economic deprivation has been linked to development, severity and outcome of anemia and other medical conditions, but these are often overlooked.[7,8] The ability of women to command resources and make independent decisions about their health and healthcare also have an impact on anaemia. This also to some extent influence how early they present for antenatal care when they are pregnant so that anaemia could be detected and managed early in pregnancy.

Anemia is responsible for about 11% of maternal deaths.[3] Maternal mortality still remains high in Nigeria at 512 per 100000 live births and 1 in 34 women would die before age 50 due to pregnancy related complication.[9] The major direct causes remain haemorhage, infections, pre-eclampsia/eclampsia, obstructed labour and complications of induced abortions. Coexisting anaemia remains an important factor that could adversely influence the outcome of management of these major causes in addition to being a direct cause of maternal death in severe cases.

Anaemia in pregnancy may adversely affect the outcome of pregnancy if not detected early and managed appropriately. In pregnancy, anaemia increases susceptibility to infections, intra uterine growth restriction, preterm delivery with resultant poor perinatal outcome. Current studies on the prevalence of anaemia in pregnancy in secondary health facilities, where the bulk of cases are expected are lacking in most parts of Nigeria. Most of the published studies are from tertiary health facilities. We believe that information about the prevalence of anaemia in a secondary health facility will provide some guide on the magnitude of the problem and ways of improving maternal health at this level of care.

Materials and Methods

This was a retrospective study of pregnant women who registered for antenatal care at the Sacred Heart Catholic Hospital Obudu, South-South Nigeria between January 2015 and December 2018. The Sacred Heart Catholic Hospital is situated at Obudu Local Government Area in the northern part of Cross River state. The Local government shares a border with Benue state in North Central Nigeria. The inhabitants are mainly subsistence farmers and petty traders. The hospital is faith-based, and provides secondary level maternity services. It is visited monthly by 3rd year residents in Obstetrics and Gynaecology mainly from Jos University Teaching Hospital in addition to twice a year visit for a period of thirty days by a Consultant Obstetrician. The antenatal booking visit holds once every week except on public holidays. During the visit, women are given health education talk, blood and urine samples are obtained for routine antenatal investigations which include, but not restricted to blood group, Venereal Disease Research Laboratory test, Packed Cell Volume, Rapid Diagnostic Test for malaria. HIV counselling and testing was also done.

The case records of patients registered for antenatal care at the hospital during the period were retrieved from the medical records unit of the hospital. Information about the age, parity, gestational age at booking, the packed cell volume at booking and HIV status and result of Rapid Diagnostic Test for malaria were obtained.

Packed cell volume (PCV) of less than 33% was classified as anaemia in pregnancy. We further subclassified women with anaemia as mild (PCV 28-32%), moderate (21-27%) and severe (= 20%) anaemia in pregnancy. The data was analyzed using SPSS version 26 (IBM SPSS inc). Values were expressed as means ± standard deviation, percentages, comparative analysis of proportions were done using chi-square test. Level of significance was set at $p < 0.05$. The medical administration of the hospital gave ethical approval for the study.

Results

A total of two thousand four hundred and twenty (2,420) women booked for antenatal care in the facility during the period under review. The mean age of the women was 28.4 ±5.1years (range 14-47 years). The median Parity was 1.0 (range 0-12). About twenty-six per cent (26.4%) of the study population were nulliparous, 67.3% were para 1-4, while 5.1% were grand multiparous (para 5 and above). The mean gestational age at booking was 22.2±5.8 weeks. Seventy-one per cent of the women booked for antenatal care in the second trimester and only 8.3% of them booked in the first trimester, Table 1. Eighty-nine of the women (3.7%) were HIV positive, seventeen of these (0.7%) were diagnosed for the first time at antenatal booking. The mean Packed Cell Volume was 31.2±3.8%. Over half of the women (65.2%) were anaemic at booking. About 50.7% had mild anaemia (PCV 28-32%), while 14.1% and 0.4% had moderate (PCV 21-27%) and severe (PCV = 20%) anaemia respectively, Table 2.

There was no association between anaemia and parity or HIV status of the study population. However, there was a trend towards more incidence of anaemia in pregnancy among younger women, this did not reach statistical significance. There was slightly higher prevalence of anaemia among women who had malaria parasitemia (based on the rapid diagnostic test) compared to women who had no malaria parasitemia at booking, Table 3.

Discussion

The finding of our study clearly shows a high prevalence of anaemia of 65.2% at booking among our antenatal women, prevalence was higher than those observed in studies from tertiary institutions in Enugu, South Eastern Nigeria, (41.9%) and Lagos, South Western Nigeria (35.3%), Benin City, South-South Nigeria (20.7%) and Sokoto.[10,3,11,12] A study from a tertiary hospital in Abakiliki, South East Nigeria where most of the obstetric population were said to be rural dwellers and a secondary health facility in South-Western Nigeria both reported a high prevalence close to ours of 58%.[13,14] Similarly, a study in a primary health care setting in South- South Nigeria reported a closer prevalence of 62.6% 15 . A study in Azare, a rural setting in North- East Nigeria however recorded a higher prevalence of 71.3% 16. Results from a hospital similar to ours (faith based secondary level hospital) in Benin City 17 reported a prevalence of anaemia at booking of 32.2%, other than differences in prevalence, the institution is also a secondary level facility located in an urban area, unlike ours. This shows that rural and semi urban communities where there is high level of poverty, ignorance and illiteracy among women of reproductive age have the highest burden of anaemia in pregnancy. This is because these factors are related to the rate of malnutrition, malaria and helminthic infestation and other socio-economic deprivation which are commonly associated with anaemia. This was confirmed in a study in Ethiopia which shows a significant association of anaemia in pregnancy with rural residence.[18]

Our finding also shows that most of the women present with mild anaemia, similar to what has been observed by other researchers within Nigeria.[3,10,19,20] Physiological hemodilution in pregnancy may be partly responsible for some cases of

mild anaemia observed, since most of our patients booked in the second and third trimester. The late booking also means that they missed the iron and folate supplementation routinely given to pregnant women to supplement iron and folate requirements.

Our study shows a prevalence of severe anaemia of 0.4%, unlike in Benin, South-south Nigeria and Shagamu in South west Nigeria where values of 2.8% 11 and 0.7% 21 respectively were reported. They reported a high prevalence of severe anaemia among sickle cell disease and immunocompromised patients. We did not identify sickle disease patient in our records, it is possible that diagnosed cases may have been referred to tertiary hospital because of the high risk associated with these pregnancies. We assume most of the cases of compromised immunity in the studies reported were due to HIV infection. Our study, however, did not show any significant association between HIV seropositivity and anaemia at booking. A study at Azare, North-East Nigeria reported similar finding.[22] This may be because most of our HIV positive patients are those who have been on anti-retroviral treatment where they are being monitored and anaemia might have been corrected prior to conception. The relatively small number of HIV positive patients in our study may also have been responsible. Our finding differs from that reported in South East Nigeria where they reported a significant relationship between HIV sero-positivity and high prevalence of anaemia in pregnancy 10. The study showed no significant association of anaemia in pregnancy with malaria parasitemia by rapid diagnostic test, although slightly higher proportion of women who had malaria parasitemia were anaemic. Malaria is a known risk factor for anaemia in pregnancy in our environment, a study in Lagos showed that anaemia in pregnancy was more among women who had recent febrile illness and booked in the third trimester, and those who took only haematinics compared to those who took both antimalarials and haematinics3. The small number of women who were positive may be responsible for this finding. Some of the women could have had treatment for symptomatic malaria prior to presentation for antenatal booking.

We did not find any significant association between anaemia at booking and parity of the study population, studies in south west Nigeria reported high prevalence of anemia among nulliparous than multiparous women.[3,20] This seems to be at variance with studies from Azare and Nnewi where they reported higher prevalence of anaemia among grand multiparous women.[16,22] Cultural and socio-economic differences in the study populations may partly be responsible for the inconsistent results.

This study shows that anaemia at antenatal booking was more related with booking in the second or third trimester of pregnancy than in the first trimester. Similar findings were reported in others parts of the country.[3,10,13,19] The physiological expansion in plasma volume coupled with increasing fetal demand, pre-existing iron deficiency and absent or inadequate antenatal care may all be contributory to high incidence of anaemia in late trimesters of pregnancy.[23]

Conclusion

Although the prevalence of anaemia in pregnancy remains high in Nigeria, secondary level health institutions like ours with limited manpower bear a much higher burden. It is recommended that health promotion and disease prevention strategies should be intensified in rural and semi urban communities to reduce this burden and improve maternal health.

References

1. DeBenoist B, McLean E, Egll I, Cogswell M. Worldwide Prevalence of Anaemia 1993-2005: WHO Global Database on Anaemia, World Health Organization, 2008.
2. McLean E, Cogswell M, Egli I, Wojdyla D, DeBenoist B, "Worldwide prevalence of anaemia, WHO Vitamin and Mineral Nutrition Information System, 19932005,"Public Health Nutrition, vol.12, no.4, pp.444454, 2009.
3. Anorlu RI, Oluwole AA, Audu OO. Socio-demographic factors in anaemia in pregnancy at booking in Lagos Nigeria. Journal of Obstetrics and Gynaecology. 2006; 268: 773-776. http://dx.doi.org/10.1080/01443610600963846
4. Iman TJ, Yahaya A. Pack cell volume of pregnant women attending Dawakin Kudu general hospital, Kano State. Nigeria. Int. Jor. P. App. Scs. 2008;2(2): 4650.
5. Omigbodun AO. Recent trends in the management of anaemia in pregnancy. Trop J ObstetGynecol 2004; 21:1-3.
6. Vanderjagt DJ, Brock HS, Melah GS, El-Nafaty AU, Crossey MJ, Glew RH. Nutritional Factors Associated with Anaemia in Pregnant Women in Northern Nigeria. J Health PopulNutr. 2007; 25(1): 7581. PMid:17615906, MCid:3013266
7. Lee M, Truma JI. Anaemia, Acute. eMedicine Journal [serial online]. 2001 [cited 2007 September 05]; 2(11). Available from: http://www.emedicine.com
8. Akanmu AS, Abudu OO, Akinsete I. Influence of Socio-Economic status on haemoglobin and haematocrit levels during pregnancy in Lagos Nigeria. The Nigerian Postgrad. Med J. 1998;5(3): 131-135.
9. National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF.
10. Dim CC, Onah HE. The prevalence of anemia among pregnant women at booking in Enugu, South Eastern Nigeria. MedGenMed2007;9:11.
11. Ogbeide O, Wagbatsoma V, Orhue A. Anaemia in pregnancy. East Afr Med J 1994;71:671-3.
12. Buhari H, Imoru M, Erhabor O. Anaemia in Pregnant women of Sokoto Residents in North Western Nigeria. J Blood DisordTransfus 2016; 7:5 DOI: 10.4172/2155-9864.1000366
13. Owolabi MO, Owolabi AO, Olaolorun DA. Socio-demographic factors in anemia in pregnancy in south-western Nigeria. S Afr Fam Pract 2012; 54 (3): 222-227.
14. Onoh RC, Lawani PO, Nkwo PO, Onoh T, Ajah LO. Predictors of anaemia in pregnancy among pregnant women accessing antenatal care in a poor resource setting in South Eastern Nigeria. Sahel Med J 2015; 18 : 182-7
15. Ndukwu GU, Dienye PO. Prevalence and socio-demeographic factors associated with anaemia in pregnancy in a primary health centre in Rivers State, Nigeria. Afr J Prm Health Care Fam Med. 2012;4(1) Art. No 328, 7pages. http://dx.doi.org/10.4102/phcfm.v4i328
16. Dattijo LM, Daru PH, Umar NI. International Journal of Tropical Disease & Health. 2016;11 (1): 1-9. DOI: 10.9734/IJTDH/2016/20791
17. Ikeanyi EM, Ibrahim AI. Does antenatal care attendance prevent anemia in pregnancy at term? Niger J ClinPract 2015; 18 (3): 323-7
18. FikirAsrie. Prevalence of anemia and its associated factors among pregnant women receiving antenatal care at Aymiba Health Center, northwest Ethiopia. Journal of Blood Medicine 2017; 8:35-40. Downloaded from http:// www.dovepress.com/by 5.188216.85
19. Idowu OA, Mafiana CF, Sotiloye A. Anema in pregnancy. A survey of pregnant women in Abeokuta Nigeria. Afr Health Sci2005; 5:295-9.
20. Aimakhu CO, Olayemi O. Maternal haematocrit and pregnancy outcome in Nigerian women. West Afr J Med 2003;22:18-21.
21. Lamina MA, Sorunmu TO. Prevalence of anemia in pregnant women attending antenatal clinic in a Nigerian University Teaching Hospital. Niger Med Pract2003;44:39-42.
22. Ezugwu EC, Mbah BO, Chigbu CO, Onah HE. Anaemia in pregnancy: A public health Problem in Enugu South-east Nigeria. J ObstetGynaecol. 2013;33:451-454.
23. Munasinghe S, van den Broek N. Anaemia in pregnancy In Malawi-A review. Malawi Medical Journal. 2006;18(4):160-174.