Journal of Biology, Agriculture and Healthcare
ISSN 2224-3208 (Paper) ISSN 2225-093X (Online)
Vol.4, No.18, 2014

Prevalence of Anaemia in Pregnancy Women A Case Study of Women Attending Antenatal Clinic – Dawakin Kudu General Hospital, Kano State, Nigeria

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Abstract
This work on prevalence of anaemia in pregnancy women at Dawakin Kudu General Hospital, Kano, was carried out purposely to determine the haematocit values, and to see whether it is advisable to prescriber supplement iron and folate in the form of tablets to pregnant women. Blood samples were collected from 100 percent women attending the hospital. The blood sampes were analyzed. Questionnaires were also used, purposely to reinforce the results obtained from haematocrit method. The haematocrit values obtained show that pregnant women were not affected by previous birth, level of education to some extent and age group of pregnant women. The mean PVC falls within 25.25% - 32.75% of the total number observed. The total mean PVC is 27.02%.
Keywords: Haematocrit, blood, anaemia, pregnant women.

Introduction

Anaemia in pregnancy as a world health problem has being a serious cause for concern, that persist especially in the third world countries, where poor diet, low level of literacy and other cultural practices expose pregnant women to be danger of anaemia.

In a study conducted by Harrison K.A in 1966 in which he sampled pregnant women in the Southern Nigeria – Ibadan specifically and those from Southern India, he found out that in all the surveyed women the morality rate is proportional to the period of their pregnancy. Where those whose pregnancy is at its later stage were more vulnerable to complicate and consequently death might follow.

In a WHO quarterly report, the report shows that pregnancy is one of the common causes of anemia especially in the third world countries; this could be due to poverty as a result of war, conflict and drought.

Anaemia contributes to low birth weight and miscarriage. It is also primary cause of low immunity to both the mother and the child. This exposes them to several infections such as malaria and helminthes infestation, which leads to more anaemias, thus the vicious cycle is completed unless there is effective treatment.

The severity of anaemia in pregnancy is the product of lack of awareness due to illiteracy and famine because of drought and civil war, which ravage the fertile lands especially in Africa, and some countries of South East Asia. Natural disasters also contribute to prevalence of anaemia; this is more palpable with high population coupled with poverty. All these factors summed up together lead.

Definition of Anaemia:

According to Wetherill (1996), anaemia can be referred to as deficiency of red blood cells (RBCs), which can be caused, either too rapid loss or too slow production RBCs.

Anaemia is also defined as hemoglobin concentrated below 13.5g/dl (men), and 11.5g/dl (women), (Wetherill 1996). In addition, a person is said to be anaemic whose hematocrit value is below 36% (women), and below 42% (men), (WHO).

Definition of Pregnancy

Pregnancy is the period from conception to the expulsion of the fetus. (DeMaeyer et al, 1985). The normal period of pregnancy is 280 days or nine calendar months.

Hematological of Pregnancy

Is concerned primarily with the nutrition of the growing foetus and with the maternal adaptions directly to this

end. The youngest age at which childbirth has been reliable reported is 4 years 8 month. Lima medina of Peru who was delivered by caesarean section at a hospital in Lima at the time, attested to the event and gave their opinion that, she was about 5 years old. Pregnancy after 47 years is rare and parturition over the age of 52 has not being proved (Eastern, 1950).

Hematological Changes

An outstanding feature in pregnancy is an increase in maternal blood volume of about 30%, example from 4 litres of 5.2 litres. Its increase in presumed to be an adaption to meet the demands of an enlarged uterus with its vastly increased blood supply. The increase in total blood volume comprises of increase in both plasma and erythrocytes volume. The plasma volume being the greater so that red blood count, hemoglobin concentration, and hematocrit value tend to decrease, plasma iron (fe) level falls, but plasma Fe-binding capacity increases (Hytten, F.E & Leitch, 1964). There is greater demand for Fe during pregnancy, which the stores in the body plus a dietary intake, which is adequate in non-pregnant state cannot satisfy. If Fe intake is increased sufficiently, there is no reduction in red cell count, hematocrit value hemoglobin concentration (Eastman, NJ. 1950).

Non Pregnant	**Pregnant**				
6-15 weeks					
	After delivery	22-28wk	29-32wk	33-36	37-40wk
Red Volume (ml)	1187	1324	1478	1580	1531
Plasma volume (ml)	2405	3123	3427	3674	3342
Total volume (ml)	3592	4447	4905	5254	4873
PCV(%)	37.0	32.9	33.0	33.4	34.4

Source: Harrison, K.A 1996 Journal of Obstetric & gynecology of British

Anaemia in Pregnancy:

Women are liable to anaemia to during pregnancy because of higher requirements for iron folate and increase susceptibility to infection, of which plasmodium falcifarum is far the most important in endemic areas. Deficiencies of folate and iron, and malaria lower further immune response, and a pregnant woman enters a vicious cycle of infection, nutritional deficiency and depressed immunity. The full impact it seen when hematocrit values is less than 30%, when congestive cardiac failure may develop and without treatment mortality is around 50% (Briggs, N.D & Dunn, D.T. 1986). The consequences to the infant are more disastrous. If anemia persists through out prenant, fetal hypoxia results in compensatory placental hypertrophy, and retarded intra – uterine growth (Harrison K.A 1966; Bellingham, A.J 1974).

Classification of anaemia: Anaemia is classified into four major types:

i. **Anemia due to defective proliferation of RBC precursor**: As a result of inadequate iron, primary diseases of the bone narrow involving stem cells or later erthroid precursor or reduction in the amount of erythropoietin reaching the cell precursors. The RBCS are usually hypochromic and microcytic (Brown, B.A 1993).

ii. **Anemia due to red blood cell maturation**: This involves primarily nuclear or cytoplasmic maturation. Those involving nuclear

ii. **Anaemia due to red blood cell maturation:** This involves primarily nuclear or cytoplasmic maturation. Those involving nuclear maturation are vitamin B_{12} deficiency and folic acid deficiency. While those involving cytoplasmic maturation defect are thalasaemia syndromes and genetic and acquired defects of iron metabolism that characterizes the sideroblastic anaemia. The RBCs on examination appear macrocytic in size.

iii. **Anaemia due to blood loss:** This consist both the acute chronic loss of blood. The acute loss involves injury due to accidents, while the chronic blood loss is through gastro - intestinal tract (GIT), uterus ulcer, tumour of large bowel or uterus (Brown, B.A. 1993).

iv. **Anaemia due to haemolysis:** When life span of red cell is shortened, there is reduction in the circulation red cell mass, which lead to relative hypoxia. Haemolytic anaemia can be genetically determine haemolysis includes hemoglobin disorders, defects involving structure or metabolism of the RBC membrane. While the acquired haemolysis involves trauma, drugs, bacteria, parasites, toxins etc. (Brown, B.A. 1993).

Age	RBCs/liter	Hb g%	Hematocrit
Birth	$5.0\text{-}6.0 * 10^{12}$	14-20	45-65
1 week	Values fall wthin $3.0 * 10^{12}$	13-21	43-65
2 weeks	=	12-20	42-66
6 month – 6 weeks	$3.5\text{-}5/6 * 10^{12}$	10.5-14	33-42
Adult			
Female	$3.9\text{-}5.6 * 10^{12}$	12-16	36-47
Male	$4.5\text{-}6.5 * 10^{12}$	14-18	42-52

Source: Oski & Naima, 1972

Pathophysiology

Pregnant women at first state of anaemia do not experience much pathology, though there is reduced ability to work to ear money and to be care of children. Anaemia is not the primary cause but continuously is a contributory factor of death. Reserves are low and women are not able to withstand stress of hemorrhage or infection. About 50% of maternal death is associated with PCV less than 18% (see table 3).

In the second state of anaemia, pregnant women are in danger of dying of hypoxic heart failure especially during the stress of delivery. About 20% of pregnancy related deaths were contributed by anaemia in southern India and southern Nigeria and other countries where medical care is inadequate (see table 3).

Maternal anaemia leads to fetal hypoxia with placental hypertrophy. This compensatory hyperplasia of the placenta is inadequate, and there is fetal growth retardation. When Hb is less than 70g/1 or PCV below 18% and the anaemia is not treated up to the time of delivery there can be up to 30% fetal loss or very low birth weight (Pearson Guthrie, 1982).

Anaemia and work capacity:

Compensatory mechanism ensures that oxygenation of the tissue is inadequate at rest while is kept above 18%, but subjects will quickly become breathless on exertion. The performance of near maximal work (Harvard step test) shows a direct correlation to Hb concentration and earning capacity of anaemic rural workers is reduced seriously. Pregnant women in rural areas often do not present themselves for treatment until they have reached this stage when any heavy manual work is impossible.

Iron deficiency anaemia (IDM) per se, limits physical exertion as depletion of iron – containing enzyme a – glycophosphate dehydrogenase impairs glycolysis and results in excessive production of lactic acid.

Anaemia affects the whole family through inability to care for children, loss of earnings or reduction of food production. The economy of the village suffers from dimination of the area of the ground under cultivation. The national economy is affected by overall low productivity. The socio economic consequences of the high prevalence of anaemia in rural tropical communities are enormous (Harrison, K.A 1966).

Table 3: Effect of Anaemia Maternal Mortality Fetal Loss (1966 - 67)

Hematocrit %	Number of Mothers	Death Rate%	Total No. of Single Preg.	Fetal Loss%
10	47	10.2	39	33.3
11-13	116	1.7	89	9.0
14-18	156	1.9	113	9.7
19-25	245	0.4	118	3.2

Source: Harrison, K.A 1966: Journal of Obstetrics and gynecology of the British commonwealth

Clinical Manifestations of Anaemia

i. Lethargy (general body weakness)
ii. Pallor of mucous membrane of the mouth
iii. Persistent headache
iv. Pedal edema
v. Pica (unusual dietary craving)
vi. Dyspnea
vii. Jaundice

viii. Tarchycadia (rapid pulse)
ix. Systolic flow murmur at the apex of the heart
x. Angular stomatitis (inflammation of buccal membrane)

Diagnoses
This depends on the type of anaemia present

- **Iron deficiency anaemia (IDA):** the blood film under microscopy appear hypochromic and micro cells, there is low hematocrit values and fall in RB cell count.
- **Megaloblastic anaemia:** this consists of vitamin B_{12} and folic acid deficiencies. The blood cells on microscopy appear as macrocytic cells which are oval, and serum vitamin B_{12} and folate are low while serum iron and ferritin is normal or raised.
- **Hemolytic anaemia:** this includes infection due to malaria, on microscopy; the blood cells appear deformed and occupied by the parasites.
- **Blood loss:** the hematocrit value falls quite low, depending on the degree of blood loss.

Management:
First research into the prevalence of anaemia in pregnancy is made to ascertain the degree of its seriousness. Then recommendations are made as to the initial treatment required. Pre packet tablet (iron and folic acid) are prepared, so that only those resistant to therapy are referred to primary care clinics for more elaborate care.

In communities where iron deficiency is common, Ferrous Sulphate, 200mg twice or thrice taken daily is prescribed throughout pregnancy for at least six weeks after delivery. If folic acid deficiency is endemic, folic acid tablet 5mg daily is recommended and is effective in reducing incidence of anaemia. If P falcifarum is abundant and is holo – endemic, many women will have hemolytic type of anaemia. A single therapeutic oral dose of choloquine 600mg followed by proguanil 100mg/day or pyrimethamine 25mg/wk throughout pregnancy period will control pre-existing parasitaemia and hemolysis.

An anthelmics pre-existing parasitaemia and hemolysis.

An anthelimics (alcopar) in a single dose of 5g may be given in early pregnancy in areas where heavy hookworm infestation is common. Pregnancy women with hematocrit value of less than 24% need hospital care.

Blood transfusion: in severe anaemia, which threatens maternal life or which does not respond to treatment may be required. Packed red cells must be used 500ml given slowly within 4hours (rate not exceeding 40 drops per minute) with frusemide 40mg.

It is advisable to raise the maternal PCV to 18% and maintain it there by repeated transfusion until iron and/or folic prove effective. If PCV falls bellow 14%, an exchange transfusion uses the ideal treatment. In summary get PCV not less than 32% before labour starts: this ensures a good uterine blood supply, which should:

- Prevent severe post partum hemorrhage.
- Ensure good uterine contraction in all stags of labour.
- Provides adequate fetal nutrition and enables normal involution of uterus.

Prevention
First, the common pattern o anaemia in the community is identified; this enables the implementation of appropriate prevention and treatment.

Maternal – child health centre should be established with the objectives including prevention of anaemia in pregnancy. Most causes of neonatal jaundice can be avoided by antenatal care which reduces the frequency of low birth weight, birth trauma and sepsis.

Oxidant drugs should be avoided during pregnancy, likewise medical advise should be sought prior taking any antibiotics. In addition, vitamin supplement like iron sulphate, vitamin B complex and folic acid should be taken daily as prophylaxis.

On national/international level, malaria eradication and hookworm infestation control should dully be implemented, so that any possible way of cause is stopped.

Aim of Study

The aim of this work is to determine the hematocrit vaues of pregnant women attending Dawakin Kudu general hospital's antenatal clinic to see whether it is advisable or necessary or necessary to prescribe supplement iron and folate in the forms of tablets to them. This is because of the fact that the iron, vitamin B_{12} and folate requirements during pregnancy are higher than normal due to the allowance made for the growing fetus. It is hoped that his will curtail the prevalence of anaemia during pregnancy.

Materials and Methods

Study Area

Dawakin town is the headquarter of Dawakin Kudu Local Government, which is situated in the Kano central senatorial district of Kano State. The town is about 28km away from Kano metropolis and is located off Zaria road with moderately dense population peculiar to towns as seat of government.

Dawaki town is rural settlement, with majority of the populace living averagely and practice subsistence farming. Because of the proximity of the town to the Hadejia-Jam'are irrigated river basin that passes through the villages at the southern part of the town, majority of the dwellers embrace and all year round farming.

The fact that the town serves as the centre of local government administration; it has an appreciable number of civil servants that are educated. This raises the level of awareness of the populace. The town enjoys enjoy pipe borne water supply as well as electricity supply albeit it is erratic.

Materials and Methods

Sample Collection

Blood samples were collected from 100percent women attending the antenatal clinic of Dawakin Kudu General Hospital. Capillary tubes were used for blood collection that contains anticoagulant heparin inside, gloves for protection of hands, cotton wool for dabbing punctured skin and methylated spirit for cleaning the skin area to be punctured.

Establishment of free flows of food to minimize dilution with tissue fluid; the tubes were gently inverted for mixing. The samples were stored in a refrigerator and kept for further usage.

Blood Analysis

The blood sample is then centrifuged in hematocrit machine and left to spin for five minutes. After the time elapsed, the tubes were removed and are placed in hematocrit reader for the estimation of packed cell volume.

Questionnaire

The questionnaire was used in the data collection, regarding this research from two sources. These are the pregnant women tested as well as from the married men sampled within the vicinity of Dawaki Town of Dawakin Kudu Local Government. The data collected are: name, age, past medical history, period of pregnancy (trimester) , occupation of husband, number of children born, clinical features of anaemia, as well as level of education.

The aim of this questionnaire in the data collection is to reinforce the results obtained from the haematocrit and method used in the study of prevalence of anaemia in pregnancy; it also enables us to obtain information that will furnish us on the prevalence of anaemia pregnancy in the overall populace of the dwellers of the area under study.

Precautions

The precautions taken in order to ensure accuracy and reliability of the experiment include:

1. Any clotted or haemolysed blood sample is rejected
2. The capillary tubes containing the sample are filled up to two third with venous blood to which anti-coagulant has been added.
3. The collected samples were immediately centrifuged to avoid clotting on storage.
4. While estimating the PCV, capillary tubes were placed inside the groove in the haematocrit reader with its sealed base directly on the line so as to reduce error reading.

Results and Analysis

Result

Table 4 shows the result of the whole research work including the age group, level of education, pregnancy

period (trimester), haematocrit values (PCV), and number of births of the pregnant women surveyed.

The relationship between the pregnancy period and haematocrit values is given in table 5. The pregnancy period ranges between 2-9 months (1st , 2nd and 3rd timesters). Table 3 shows the relationship between the age group and haematocrit values. The age ranges from 15 – 40 years. Also the relationship between the number of births and result of the haematocrit values obtained are given in table 7. The number of births ranges from 0 – 10 births.

The summary of the whole results is given in table 8 in which the mean was found for all the parameters recorded. The result of the response obtained from the questionnaire is reproduced in table 9, and the number of response in relation to the clinical features of anaemia is provided in a tabular form. The interpretation of result of the relations age group and number of child births is given in fig. 1, and age group and pregnancy period in fig. 2.

Table 4: Age groups, pregnancy period (trimester), number of childbirths, level of education, and haematocrit (PCV) value.

Age Group in Years		Trimester 1st 2nd 3rd		Child Birth 0-2	3-10	Education Any	None	PCV% <32	>32
15-25 (70)	11	56	3	56	14	28	42	48	22
26-35 (24)	8	12	4	11	6	6	18	12	12
36-40 (6)	1	5	0	1	0	0	6	4	2
100	20	73	7	68	34	34	66	64	36

Table 5: Mean Haematocrit per trimester

Pregnancy Period (trimester)	Haematocrit %
First	32.75
Second	26.84
Third	25.25

Table 6: Mean Haematocrit values per age group

Age Group	Haematocrit %
15-25	26.08
26-37	30.10
36-40	29.67

Table 7: Mean Haematocrit values per number of births

Birth Frequency	Haematocrit %
0-2	27.32
3-10	30.16

Table 8: Summary of result with mean haematocrit values

Result Parameters	Mean
Age (years)	22.3
Number of child birth (birth frequency)	2.44
Pregnancy period (month)	4.56
Haematocrit value (0%)	27.02

Table 9: Result of response obtained from questionnaires

Clinical Feature of Anaemia	Number of Response/Clinical Feature
Lethargy	98
Headache	81
Sore tongue	53
Jaundice	32
Emaciation	42
Oral thrush	58
Pallor of the mouth mucosa	69
Koilonychias (spoon nail)	21

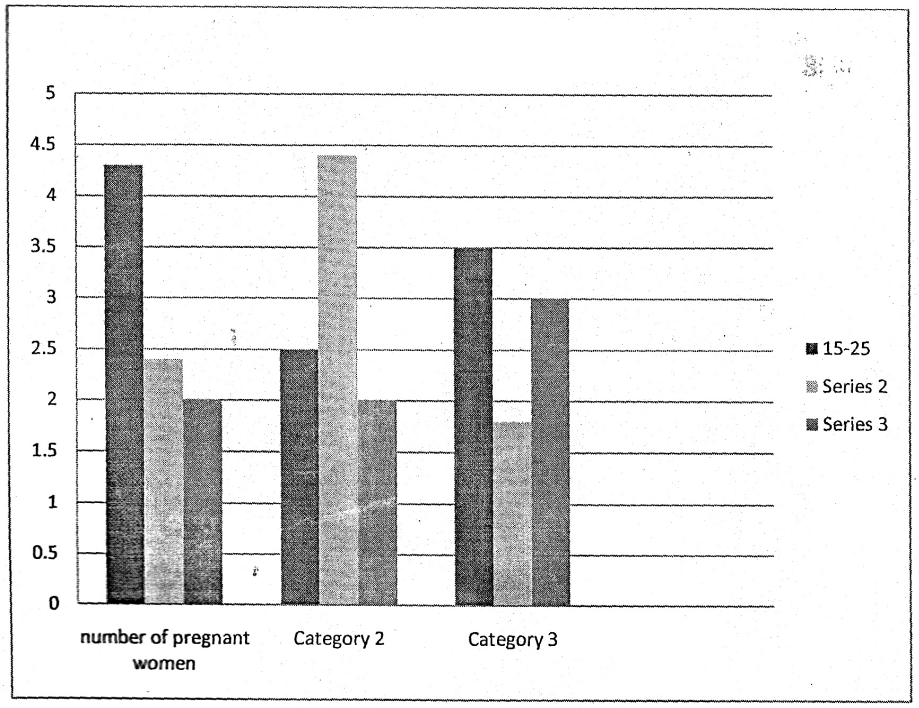

Figure 1: Age group number of childish relationship

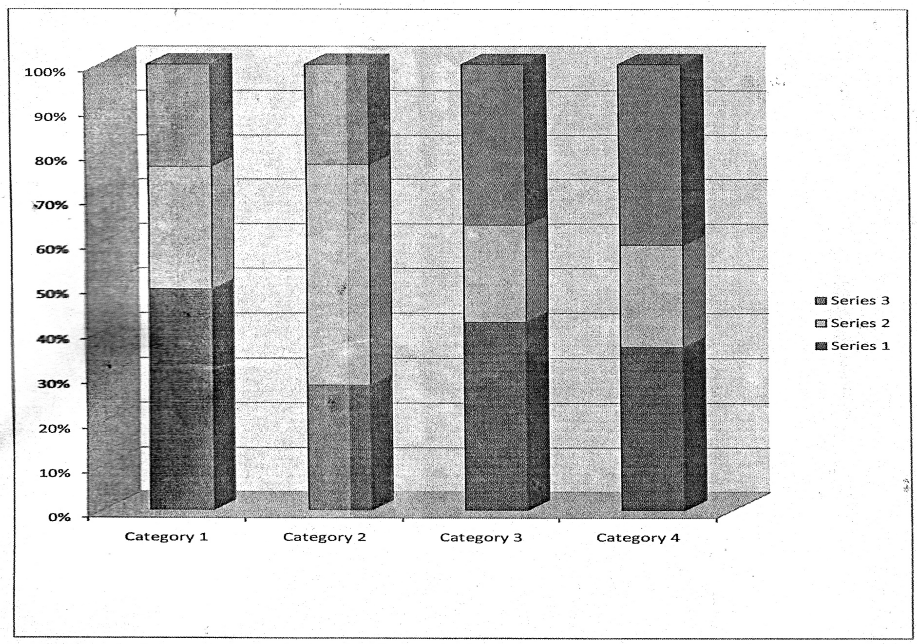

Figure 2: Age group – Pregnancy period relations

Discussion

In the research carried out the haematocrit values (PCV estimation) of the pregnant women surveyed mostly falls below and in a few cases slightly within the normal range of 34-47% as determined previously of the total (100), 64 were below 32%, while remaining 36 have within and/ or above 32%.

This is an indication of how serious anemia is prevalent during pregnancy, especially in rural setting like Dawakin Kudu. This could be attributed to multi faceted factors such as parasite infestation, of high incidence are malaria, which is endemic and helminthes. All these incidence are malaria, which is endemic and helminthes. All these together with pregnancy exacerbate the iron stores in the body, which chronically leads to anemia.
The few pregnant women surveyed how have concentrations of PCV well within normal might be as a result of

their good eating habits, normal well balance diet intake and due to level of education and possession of adequate iron stores (hytten, F.E. & leich, i. 1964).

On the other hand, most of the pregnant women have low haematocrit value as shown in table 4, where the total PCV falls below 32% with 64 of the subjects surveyed falling into this group. This could be attributed to their iron stores, which is being depleted by the pregnancy. Curiously, the PCV value of those subjects who have number of childbirth within 3-10 showed a relatively higher result than those found in 0-2 number of childbirth group. These reason could be attributed to good eating habit and socio-economic status of their husbands.

Most of the pregnant women surveyed with lower PCV values are within their second and third trimester. This is in the with the fact that women who are at their later stage of pregnancy attend antenatal clinic, which coincidently falls within 2^{nd} and 3^{rd} trimesters (see table 4).

The haematocrit values were not found to have any relationship with age group of the pregnant women surveyed, because the subjects in the age group 15-25years relatively the lowest mean PCV value the lowest mean PCV value 26.08%, while the age group of 26-35years, have the relatively highest mean PCV values of 30.10% as shown in table 6.

This might be due to the difference in their nutritional status, differences in pregnancy period etc. as shown in table 5. As was discussed that later pregnancy periods (i.e 2^{nd} and 3^{rd} trimesters) decrease PCV values, because of increased demand for the growing foetus. In this instance the PCV values steadily decrease with maturity of pregnancy from 1^{st} – 3^{rd} trimester (Eastman, N.J.1950.

The number of births in this research showed an insignificant effect on the lowered haematocrit values as shown in table 7. This indicates that the number birth is less importance in determining haematocrit values as an influence in pregnancy. Although repeated pregnancies at frequent intervals exhausts the mother's iron stores, because they do not have time to replenish the stores before the next pregnancy, in this case however, because of good eating habit, and consumption of balanced diet as well as proper iron and folate absorption and proper iron recycling which all lead to their improved PCV values (Eastman, N.J1950).

The collected from the sampling response gotten from the questionnaire produced, out of 100 responses, all indicate that one or more of the clinical features of anemia (be it general and/or specific) are common features to all pregnant women who dwell in thevicinty of Dawakin kudu (table 9).

The most common clinical feature that are bedeviling pregnant women surveyed are lethargy (98), headache (81), paleness of the mouth mucosa (69, and oral thrush (58). These clinical features are regarded as part and parcel of pregnancy, as put in by the respondents. Because they believed that they are intertwined with regular inconveniencies experienced by the pregnant women. However, it is noteworthy that all these clinical features are indicators of the presence of anemia which is brought about by the increased demand from the growing fetus, in addition to lack of balanced diet intake. All these combined, result in the chronic manifestations of anemia which is of immense danger to the foetal development as well as to the mother's health (brown, B.A 1993).

This shows that anaemia in pregnancy is a common phenomenon in the overall populace of Dawakin kudu local government area as a rural community. This could could be attributed to low level of education of the pregnant women surveyed as shown in table 4. This factors their understanding of the implication of pregnancy, likewise their ability to prevent themselves from possible threat of aneia (DeMaeyer, E.M & Adiels-Tegman, M. 1985)

Lower PCV as compared with the rest of the groups in spite of their relatively few ages, could be attributed to the fact that most of them have one or more child; this can be explained in the fact that in a rural setting, early marriage is widely practiced as is customary, especially where the bulk of girls are not enrolled into enrolled into schools, which has the benefit of raising the age at which a girl is given for marriage. Also pregnancy in girls' 15-16yearas of age is common and lot has pregnancies together with its implications. The risks of high parity are added to those of juvenile or teenage pregnancy, whence all added up to higher prevalence of anemia in this group (Fleming, F.A 1991).

The explanation is also strengthened by the results obtained during this research work as shown in table 4 where among 15-25 age group, 48 out total number of 70, have PCV less than 32% while remaining 22 have PCV within or above 32%. This can be interpreted as; great numbers of them are anemia albeit with varying degree-from mild to severely anaemic (Bellingham, A.J 1974).

The effect of number of childbirth in the prevalence of anemia vis-á-vis haematocrit value is of impact. In that it appears that in the age group of 15-25 with loest number of childbirth have the lowest percentage of PCV, while in the age group of 26-35years which has an averagely equal number of birth showed 1:1 ratio of those with PCV<32% and those with PCV>32%. In the case of 36-40 group, the women surveyed under this class all have given birth to 3-10 children, and the remaining 2 have >32%.

Generally, it is of interest to note that the younger women patronize/attend antenatal clinic more than the older women. Out of 100 pregnant women surveyed, 70 fall into the 15-25 age group, they have also relatively greater number of those who attend schools, either Islamiyya, primary, or secondary (there is no single women under survey recorded to have attended any tertiary institute). Expectedly, those in the 36-40 age group showed none of the pregnant women survey attend to any school listed above.

But it is surprising that the mean haematocrit value of the pregnant women with birth frequency of 3-10 childbirths is relatively higher than of those belonging to 0-2 childbirths, which are 30.16% respectively. The explanation to this irregularity can be due to an improved diet intake as well as greater experience is self management during pregnancy because the women belonging to this group of 3-10 childbirths are mostly the older ones. Thus, they are much wiser.

Summarily, the mean number of childbirths (in birth frequency) is 2.44 childbirths. The mean pregnancy women surveyed is 22.3 years. The mean pregnancy period (in month) is 4.56 (second trimester). While the mean haematocrit value of the number of pregnant women is 27.02%.

Moreover, malaria and other infections mostly helminthes increase the hazard of pregnant mothers to acquire anemia. This worsens the situation as pregnant mothers are often severely iron deficient, so that newborn from mothers have less than one iron stored in the liver (fleming, F.A 1991). Such possibilities cannot be overlooked, due to the fact that the community has settles along the river harness it and it serves as their source of living. It is also importance to know that all irrigated pieces of land are haven of helminthes like hookworms, trichuris, ancylostoma etc. because of the moisture and the manure added to the soil. As a result widespread infestation is strong possible. The relationship between this and the prevalence of anemia is that, it is a common thing that rural women participate fully in the farm work, and most of them wear no protective foot coverings (i.e shoes), which leads to an easy infestation by helminthes through foot or sin penetration. When such infested women become pregnant, the invasion of the helminthes couple with the higher demands by increased metabolism, fetal development and in striving of the body to adapted to changes all tantamount to the manifestation of anemia, and consequently low capacity to perform any physical activity, sometimes earlier, that infested pregnant women do not even a simple chore at home talk less of rendering services at farms.

All in all, anemia in pregnancy as has been deliberated upon is prevalent in Dawaki to the extent that is regarded as more or less part and parcel of any pregnancy. Although it is of interest to note prevention of anemia during pregnancy is obtainable through improved dietary intake, regular antenatal care as well as self-management. Also the treatment of anemia is affordable to all and sundry. Likewise, it is advisable to adopt the prescription of iron and folic acid supplements as a prophylaxis during pregnancy, this will enable us in taming anemia from rearing its ugly head into this precious normal physiological phenomenon (i.e. Pregnancy).

Conclusion

The evidence obtained shows that haematocrit value of the surveyed pregnant women were not affected by previous birth, level of education to some extend and age group of pregnant women.

But it I affected by duration of pregnancy, with the lowest PCV at the periods (i.e 3rd trimester). Also the response obtained through the questionnaire shows that the prevalence of anemia has been part of pregnancy in this rural area (i.e dawakin kudu). With no clear-cut line between pregnancy as a normal phenomenon, and its attending inconveniences and anemia as a disorder.

The mean PCV falls within 25.25% - 32.75% of the total number of surveyed pregnancy women. The total mean PCV is 27.02%.

The general fall in mean PCV underscore the great need for prescription of iron and folate supplements as normal regimen of prophylaxis during pregnancy at the antenatal clinic so as to curtail the prevalence of anemia in pregnancy and its intending negative effects to the mother as well as to the foetlth and its viability.

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