

Knowledge of Intestinal Parasitic Infection and Anemia among Pregnant Women Attending Antenatal Clinic in Ogun State

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Abstract:- A study was conducted at General Hospital Ijebu Igbo antenatal section to investigate the prevalence of intestinal parasitic infection and anemia in pregnant women. A questionnaire was administered to 42 pregnant women who attended the antenatal section of the clinic during the study period. Out of these 42 pregnant women, 18 (42.9%) provided both fecal and blood samples for parasitological and hematological analysis. 50% of the respondents fall within 16-25years age group, while those within 36-45years have the lowest percentage (22.2%). 50% have the knowledge of the helminth infection, out of the 9(50%) that have the knowledge, only 7(77.8%) have the knowledge of how the infection is being transmitted. Of 18 respondents, 13(72%) have the knowledge of anemia, and 5(28%) of them had no prior knowledge of it. The parasitological analysis revealed three intestinal parasite which are *Ascaris lumbricoides* (22.2%), *Enterobius vermicularis* (11.11%) and *Entamoeba histolytica* (5.56%). There were no reported cases of severe anaemic condition in this hospital based study. This suggests that the awareness level of anemia and parasitic infection is moderately high. Therefore, screening for intestinal parasites and deworming of infected pregnant women should be included in antenatal care.

Keywords:- Anemia, Blood, Infection, Intestinal Parasite, Pregnant Women.

I. INTRODUCTION

Parasitic infections are a serious public health concern globally, particularly for pregnant women. These infections can have significant adverse effects, including low pregnancy weight gain, intra-uterine growth retardation (IUGR), and ultimately, low birth weight (LBW) for the newborn (Rodríguez et al., 2006, Robert et al., 2011). Parasitic infections can lead to poor nutritional status, anemia, and impaired growth, and in some cases, may even result in congenital anomalies in newborns. Additionally, these infections can be fatal for mothers (Nurdiati et al., 2001).

With an estimated 3.8 billion people infected, 720 million clinical cases, and an estimated 135,000 fatalities related to clinical consequences each year, intestinal parasite infections represent a significant worldwide health burden

(WHO 2002). Reduced baby birth weight, intrauterine development retardation, poor birth outcomes, and maternal anemia and iron insufficiency have all been linked to intestinal parasite infections during pregnancy (WHO 2002). However, depending on the region and helminth burden, the consequences of intestinal parasites on expectant mothers may vary (Ndyomugenyi et al., 2008). Low nutritional status of patients whose staple foods, such rice, cassava, and maize, are poor sources of folate and iron, exacerbates the impact of intestinal parasite infections on anemia during pregnancy (Ayoya et al., 2006).

According to Brooker et al. (2008) and Fleming (1982), hookworm and other soil-transmitted helminthes, as well as malaria during pregnancy, are the main causes of pathological chronic loss of blood and iron in the tropics. Hemoglobin levels during pregnancy have been moderately reduced in cases of hookworm in particular (Gyorkos et al., 2011). Schistosomes and other intestinal parasites are linked to mild iron insufficiency, but usually only in cases of severe Parasiteburdens.

This study aims to investigate the prevalence of coinfection of intestinal parasites and anemia among pregnant women attending the antenatal clinic at a government-owned hospital in Ijebu Igbo.

II. MATERIALS AND METHOD

A research study was conducted in Ijebu Igbo, Ijebu-North L.G.A. of Ogun State, Nigeria. The town has hot and muggy weather due to its location in a belt of tropical rainforests. The majority of residents in the town are Yorubas, and there are relatively few non-indigenous individuals. The research population comprised pregnant women in their first to third trimesters. Only those who agreed to participate and were informed of the study's objectives were enrolled. During antenatal visits, the expectant women were asked to complete a survey. A questionnaire was given to all the expectant mothers who attended prenatal visits during the study period. Only individuals who gave both feces and blood samples were included in the study. Fresh fecal and blood samples were collected from the respondents. The pregnant women who were unable to provide blood and feces samples were excluded from participating in the study. To guarantee the sample's integrity, instruction on the correct procedures

for obtaining feces samples was given. Pregnant women were advised to obtain the fecal samples in the morning and avoid contamination with urine or dust particles. The samples were collected at their next visit and transported in tightly-sealed universal bottles with appropriate labeling to the laboratory for further analysis. The direct smear approach and concentration techniques were the diagnostic methods employed.

The direct method and formol-ether concentration techniques were employed to examine the faecal samples for intestinal parasites as described by Cheesbrough 2006. Blood samples were collected in the EDTA bottles with the help of a phlebotomist using needle and syringe (2ml or 5ml) to prevent contamination before the analysis. Heparinized capillary tube was filled with blood to about three quarter of its volume and sealed at one end with plasticin. Filled capillary tubes were placed in haematocrit centrifuge and

spun for 5 minutes. Level of blood was read using haematocrit reader (Hawksley made in England).

III. RESULT

A total of 42 pregnant women participated in this study, by responding to the questionnaire, only 18 supplied both blood and faecal specimen (42.9%). Majority of the participants falls within the age bracket 6-25 years (50%), followed by those aged 26-35 years (28%) and the least group were between age 36-45 years (22%). 44% (n=8) of the respondents have tertiary education, while 28% (n=5) had only secondary school education, with 17% (n=3) having no formal education. 22% of these women were in their first trimester, according to clinical data collected within the first month of recruitment; 50% and 28% were in their second and third trimesters, respectively (Table 1).

Table 1: Personal Data and Socio-Economic Status

Age	n=18	%(Frequency)
16-25	9	50
26-35	5	28
36-45	4	22
TOTAL	18	100
Educational Status		
JSS	2	11
SSS	5	28
Tertiary	8	44
No Formal Education	3	17
TOTAL	18	100
Occupation of women		
Trading	7	39
Civil Servant	4	22
Skilled Worker	2	11
Student	5	28
TOTAL	18	100
Trimester of Pregnancy		
First (1-3months)	4	22
Second (4-6months)	9	50
Third (7-9months)	5	28
TOTAL	18	100
Medication		
Folic acid	3.2	18
Vitamin C	7.2	40
Ferrous	4.6	25
ACT Drug	3.0	17
TOTAL	18	100
Using long lasting insecticide net		
Yes	9	50
No	5	28
At Times	4	22
TOTAL	18	100
Family Size		
2 or less	11	61
3-4	4	22
4-8	3	17
TOTAL	18	100

Table 2 shows the response of the pregnant women to the question about knowledge of parasitic infection. 9(50%) have the pre-knowledge of the parasitic infection. Among the 9 participants, only 7(77.8%) have the knowledge of how the infection is being transmitted and 2 (22.2%) have no knowledge of how it is transmitted. Out of the 9 participants who have the idea about the mode of transmission, 8(88.9%)

knows how the transmission can be prevented while 1(11.1%) do not have the knowledge about the prevention. Of 13 respondents who have the knowledge on anemia, 11 (65%) of them had prior knowledge of its symptoms, 6(46.2%) having the knowledge on its effect on mother and child while 7(53.8%) do not have any idea (Table 3).

Table 2: Knowledge of parasitic Infection among the participants

Knowledge of Helminthic Infestation		
	n=18	% (Frequency)
Yes	9	50
No	9	50
TOTAL	18	100
Knowledge on modes of its transmission		
	n=18	% (Frequency)
Yes	7	77.8
No	2	22.2
TOTAL	9	100
Knowledge of its prevention		
	n=18	% (Frequency)
Yes	8	88.9
No	1	11.1
TOTAL	9	100

Table 3: Knowledge of Anemia and its Symptoms among the Participants

Knowledge of Anemia		
	n=18	% (Frequency)
Yes	13	72
No	5	28
TOTAL	18	100
Knowledge of its Symptoms		
	n=18	% (Frequency)
Yes	11	65
No	2	35
TOTAL	13	100
Knowledge on its Effect on Mother and Child		
	n=18	% (Frequency)
Yes	6	46.2
No	7	53.8
TOTAL	13	100

Table 4 shows the overall prevalence of anemia. 30% of the participants had anemia. The overall prevalence and intensity of parasites were 22.22% for *Ascaris lumbricoides*, 11.11% for *Enterobius vermicularis* and 5.56% for

Entamoeba histolytica. Majority, 61.11%, of the respondents are free of any parasitic infections (Table 5).

Table 4: Anemia Status among the Participants

Status	n=18	%(Frequency)
Severe(below 19%)	-	-
Moderate (19-26%)	3	16.67
Mild (27-29%)	3	16.67
Normal (30% and above)	12	66.66
TOTAL	18	100

Table 5: Prevalence of Intestinal Parasite

Infestation Parasite	n=18	%(Frequency)
<i>Ascaris lumbricoides</i>	4	22.22
<i>Enterobius vermicularis</i>	2	11.11
<i>Entamoeba histolytica</i>	1	5.56
None	11	61.11
TOTAL	18	100

IV. DISCUSSION

According to estimates from the World Health Organization (WHO, 1996), iron deficiency is the primary cause of anemia in most pregnant women in underdeveloped nations. But defining and diagnosing iron deficiency has proven difficult, particularly when anemia has multiple contributing factors. Humans are known to be predisposed to hookworm infection by a number of factors, including poverty, ignorance, geophagy, promiscuous defecation, poor personal hygiene, and unsanitary environments (Larry and Janory, 1996).

According to this study, there are relatively few women (16.67%) who have mild to moderate anemia. This is likely because the study was conducted in a hospital setting, where women who come for antenatal care are generally better informed and aware of their health. According to the study's findings, all pregnant women with mild anemia (16.67%) during the second and third trimesters use iron supplements, which may be related to their educational background. Compared to Costal Kenya, where 71% of pregnant women were anemic (McClure et al., 2014), the present prevalence of anemia in this study is reduced. Due to factors like poverty, poor diet, dirty drinking water, increased risk and frequency of pregnancy and breastfeeding, and limited access to healthcare, anemia is more common in developing nations (WHO, 2011).

The study also discovered that women with greater levels of education were better informed on the causes, spread, and defenses against parasite infestation. The data shows that, of the women who had accurate knowledge of parasite infection, 9(50%) did not have any parasites of any kind in their feces (table 5). This implies that women may be tangentially protected against intestinal parasite infestations if they were informed and aware of the effects of intestinal parasites. Because more people are aware of the causes and symptoms of intestinal parasite infections, the prevalence in this study is lower.

V. CONCLUSION

Pregnant women visiting antenatal care were asked about the incidence of intestinal parasitic infection and anemia. Based on the study's findings, it can be inferred that fewer pregnant women had parasitic infections because of their higher educational position. Due to the use of iron supplements in the second and third trimesters of pregnancy, there are also fewer cases of anemia among expectant mothers.

RECOMMENDATION

It is recommended that all pregnant women who visit prenatal clinics be screened for intestinal parasites. Prenatal care should involve deworming along with correction and anemia prophylaxis. Every prenatal visit should include health education about the causes of anemia, with a focus on intestinal parasite infestation, including how it spreads and how to prevent it.

Also, it is recommended that health promotion and disease prevention campaigns on anemia and parasite infections should be organized at place of contact with pregnant women and women of reproductive age group.

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