A comparative study of intestinal parasitic infections among women at different reproductive stages in Makurdi, Benue State-Nigeria

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Abstract

A comparative study was carried out to determine the prevalence of intestinal parasites among women of the pre-menstrual, menstrual and post-mentrual stages in Makurdi, capital of Benue State-Nigeria. A total of 750 stools samples (250 pre-menstruals, 298 menstruals and 202 post-menstruals) were collected and examined for parasites using the formol-ether concentration technique. The overall prevalence was 56.8% with hookworm accounting for 4.8%, Ascaris lumbricoides (9.3%), Entamoeba histolytica (18.90%), Taenia sp(2.1%) and Entamoeba coli(21.6%). Females of the pre-menstrual stage had the highest prevalence rate of 72.80%. No significant association was observed between the different reproductive stages in women and prevalence of intestinal parasitic infections.

INTRODUCTION

Intesinal parasitosis is still an important public health problem in underdeveloped and developing countries. The incidence and prevalence of intestinal parasites is affected by various factors, such as personal hygiene, dietary habits, education level of the community, socio-economic conditions, climate and environmental factors. About 3.5 billion people are affected, and 450 million are ill as a result of these infections, the majority being children (Hemorrhoid.net, 2007). In tropical countries, intestinal parasitoses represent about 40% of all diseases other than malaria (Dianou et al., 2004.

Many women in developing countries, such as Nigeria go through their entire lives without ever enjoying a state of good health free of intestinal parasites. For many, life is an up-hill journey of hunger, poverty, disease and fatigue right from their pre-menstrual years. During their menstrual years, the cycle of pregnancy, lactation and disease starts and continues only to be broken for many by premature death before or after they reach menopausal years.(Omudu and Amali, 2003). Several epidemiological studies have assessed the prevalence of intestinal parasites in Nigeria, but few have focused on women at different reproductive stages. Thus, the present study was undertaken to find out the prevalence of intestinal parasites among women and its relationship with various stages of reproductive life of women.

MATERIALS AND METHODS

ECOLOGICAL AND CULTURAL OVERVIEW OF THE STUDY AREA

The study was carried out in Makurdi, capital of Benue State-Nigeria, which is a town with an altitude of 90 metres above sea level. It lies in the sand stone flood plain of River Benue and its tributaries. Its relative position in Nigeria is about the Middle Eastern half of the country and is located between latitude 7º45'W and longitude 8º32'E. The urban area is defined by a 16 Km radius with the centre at a point with geographical coordinates, latitude 07º44''''30' and 08º31''''24'. The town is divided into zones: North-Bank, Wurukum, High Level, Low Level, Wadata, Fiidi Ward and Ankpa Ward. Makurdi has a monthly temperature between 27.38ºC and 28.00ºC and may go up to a maximum temperature of 30-34ºC. The area receives between 900-1000mm of rain annually. The dry season starts in late October and usually ends by March. The rainy season which lasts from April to early October is the period of intensive agricultural activities when the indigenous people of the town mainly Tivs, Idomas, Igedes and Jukuns are engaged in farming of crops like yams, sesame, guinea corn, maize, rice and cassava which are the principal food crop and cash crop. Domestic animals such as goats, sheep, pigs and chickens are commonly found in most family compounds.

STUDY POPULATION AND LABORATORY INVESTIGATIONS

This study focused on women at different reproductive stages (pre-menstruals, menstrual and post-menstruals). A total of 750 females aged 5-70 years were randomly selected, individual consent of each adult woman that participated in the study was sought. For school children permission was sought from the school authorities and parents of the respective students were dully informed of the significance of the study before the start of the research. Each participant was given a sterile and labeled bottle for stool collection and questionnaires were also administered to obtain information on socio-demographic data and environmental factors like toilet facilities. WHO collected the data ?

Stool specimens were examined (WHERE ? by WHOM ?)for parasites eggs, cysts and larvae using formol ether concentration technique as described by Cheesbrough (2000).

Statistical Analysis: Data were analyzed by SPSS for Windows 15.0 version. Chi-squared test was performed to assess the association between ages, gender, toilet facilities, women at different reproductive stages and prevalence of intestinal parasites.

RESULTS

An overall prevalence of intestinal prevalence was 56.80% out 750 samples examined. Women at pre-menstruals recorded a prevalence rate of 72.80%, followed by the post-menstruals 63.90%. The least infection rate was observed among women at menstrual stage 36.60%. The following intestinal were encountered with hookworm (4.8%), Entamoeba histolytica (18.90%), Ascaris lumbricoides (9.3%), Taenia sp (2.1%) and Entamoeba coli (21.60%). No significant differences were observed among the different reproductive stages in women and intestinal parasites (X2=12.03;P>0.05).(Table 1)

Figure 1

Table 1: Prevalence of intestinal parasites among women at different reproductive stages

Reproductive	infection (%)					Total	
Stage	Hookworm	*Ascariasis*	*E.ntameba*	*E.coli*	*Taenia sp*	Examined	Positive(%)
Pre-menstrual	13(5.20)	43(17.20)	55(22.00)	71(28.40)	0(0.00)	250	182(72.80)
Menstrual	16(5.40)	9(3.00)	40(13.40)	39(13.20)	11(3.70)	298	115(38.60)
Post-menstrual	7(3.50)	18(8.90)	47(23.30)	52(25.70)	5(2.1)	202	129(63.90)
Total	36(4.80)	70(9.30)	47(18.90)	162(21.60)	16(2.10)	750	426(56.80)

(X^2=12.03; P>0.05)

>The prevalence of parasites by age showed that the age group (0-10) years recorded the highest infection with 75.60% followed by the age group (>71) years, 71.90%. The least prevalence was observed in the (31-40) years age group with 31.60%. There was no significant difference in the prevalence of intestinal parasites among age.(X2= 7.13, P>0.05). A summary of the results is given in Table 2.

Figure 2

Table 2: Age- related prevalence

Age	prevalence(%)	
(Years)	Examined	Infected
(0-10)	193	146(75.60)
(11-20)	98	63(64.30)
(21-30)	61	32(52.50)
(31-40)	79	25(31.60)
(41-50)	73	33(45.20)
(51-60)	65	21(32.30)
(61-70)	85	37(43.50)
(>70)	96	69(71.90)
Total	**750**	**426(56.80)**

(X^2=7.13 ; P>0.05)

>>With regards to the type of toilet facilities used at home (Table 3), the highest infection rate was observed among those using pit latrines with 66.20% followed by those defaecating in the nearby bushes, 64.70%.The least prevalence was observed among those using water cistern (52.10%) . The differences were not statistically significant between the different reproductive stages in females and types of toilet facilities (X2=9.20; P>0.05)

Figure 3

Table 3: Prevalence in relation to toilet facilities at home

Type of	Pre-menstrual		Menstrual		Post-menstrual		Total	
Toilet facilities	exam	inf(%)	exam	inf(%)	exam	inf(%)	**exam**	**inf(%)**
Pit latrines	42	30(71.40)	75	36(48.00)	108	83(76.90)	**225**	**149(66.20)**
Watern cistern	165	127(77.00)	223	79(35.40)	92	44(47.80)	**480**	**250(52.10)**
Behind house	28	16(57.10)	0	0(0.00)	0	0(0.00)	**28**	**16(57.10)**
Bush	15	9(60.00)	0	0(0.00)	2	2(100.00)	**17**	**11(64.70)**
Total	**250**	**182(72.80)**	**298**	**115(38.59)**	**202**	**129(63.86)**	**750**	**426(56.80)**

(X^2= 9.20 ; P>0.05)

DISCUSSION

This study provides the first estimate of intestinal parasitic infections among females at different reproductive stages in Makurdi. The highest prevalence observed among females of the pre-menstrual and post-menstrual stages could be attributed to the poor hygienic sense and reduced ability of body care. However, the low infection rate encountered among the menstrual or child-bearing females might be due to the fact that they are often more enlightened and economically stable than females of the pre-menstrual and post-menstrual stages. This disagrees with the findings of Luong(2002) who noted that the pre-school age, adolescent girls and women of child bearing age tend to have the highest proportion of worm infections. The study also contrasts the reports of Idowu et al.(2005) who stipulated that child care activities are linked with intestinal parasitic infections among children bearing women.

The highest infection reported among those using pit latrines could be due to the poor hygienic maintenance of the pit latrines in the households; this can easily enhance the transmission and distribution of these parasites through house flies and cockroaches. The prevalence observed among those defaecating in nearby bushes and behind houses could be due to the state of poor environmental sanitation around these houses. Moreover the habits that those females exhibit may also exposed them concomitantly to new infection as they defaecate and leave papers, leaves and other material used for cleanliness in the immediate environment. All these go along with the poor socio-economic status of the households that can not make them to afford good toilet facilities. This goes along with the findings of Okon and Oku (2001).

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