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PREVALENCE OF *TRICHOMONAS VAGINALIS* AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE (ANC), MARYAM ABACHA WOMEN AND CHILDREN HOSPITAL, SOKOTO, NIGERIA

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ABSTRACT

The study was carryout to investigate the prevalence of *Trichomonas vaginalis* among pregnant women attending antenatal care (ANC) at Maryam Abacha Women and Children Hospital, Sokoto. Urine samples were collected from 200 pregnant women with their consent after receiving of ethical consideration then examined using wet mount method. The result showed that 34(17.00%) were positive with *T. vaginalis*. It was found that, ≤ 20 years age group had highest prevalence rate of 26.19% (42) followed by 21-25 years age group with 25.00% (13), then 26-30 years age group had 12.50% (40) while 31-35 years old had infection rate of 11.76% (4) and ≥ 36 years old had lowest prevalence rate of 1 (4.55%). Statistically, there was no significant association ($p>0.05$). Similarly based on the gestation period those pregnant women in first trimester were found mostly infected with prevalence rate of 30.99% (22) followed by those in second trimester 20.00% (11) while those in third trimester had lowest prevalence rate of 1.35% (1). Statistically significant association was not observed ($p>0.05$). According to locality of the pregnant women, it was reported that, those women from rural area had highest infection rate of 28.00% (25) followed by those from urban area had infection rate of 7.4% (9), however, no significant association observed based on the locality of the women ($p>0.05$). In conclusion, the need for measures to control the spread of the disease through personal hygiene and other promiscuous acts and treatment with appropriate drugs is required among the women attending antenatal care in the study area.

KEYWORDS: Prevalence, *Trichomonas vaginalis*, Women, Antenatal Care; Hospital.

INTRODUCTION

Trichomoniasis, also known as "trich" is a commonly transmitted disease caused by a flagellated protozoan called *T. vaginalis.*[1] *Trichomoniasis* is an unpleasant parasitic infection which can remain in the body of the infected person without any symptoms and undiagnosed for years and is mainly transmitted by asymptomatic carriers.[2]

Trichomoniasis infection is of public health concern due to its co-infection with other sexually transmitted infections and attendant high risk of adverse pregnancy outcomes, pelvic inflammatory diseases, and tubal infertility among other parameters.[3] Vaginal *Trichomoniasis* has been associated with HIV virus infection, especially in developing African Countries. This reproductive tract infection (RTI) is the most common STI, data on it prevalence and incidences are limited. New cases of STI are highest for *Trichomoniasis.* It encompasses a broad range of symptoms from a state.[4] *T. vaginalis* has important social, medical, and economical implications. Women who are infected during pregnancy are predisposed to premature rupture of the placental membrane, premature labor and low birth weight of infant.[5] Also linked to this ailment is cervical cancer and typical pelvic inflammatory disease and infertility.[6] The infection predisposes carries, to acquisition of other sexually transmitted diseases (STDs), Women with *Trichomoniasis* are more likely to experience complication in pregnancy as well as infertility and pelvic inflammatory disease and due to the complication of *T. Vaginalis* it has the potentials to affect reproductive system and is worldwide accepted as parasite of great public health importance.[7]

T. vaginalis infection increase susceptibility and the chance of other sexually transmitted infections such as *Bacterial vaginosis*, *Candida chlamydia*, and *Gonococci*. *T. vaginalis* has also been recognize to be found in the urinary tract, fallopian tubes, and pelvic through various diagnosis which can lead to pneumonia and bronchitis and oval lesion.[8]

In Africa, it is estimated that 2-5% of the population has the infection with *T. vaginalis.*[9] Increasing prevalence

of *Trichomoniasis* has been reported in many states of Nigeria including Oyo, Lagos, Plateau and Imo states.[10]

Despite being curable reproductive tract infections (RTIs) including sexually transmitted infections continue to be a major health problem in developing countries including Nigeria[11]; *Trichomoniasis* was often spread though vaginal, oral, or anal sex, which can also be spread through genital touching[12] and People who are infected may spread the disease even when symptoms are not present.[13] Therefore, it is pertinent to determine the prevalence of *T. vaginalis* among pregnant Women in Sokoto State.

2.1 MATERIALS AND METHODS

2.2 Study Area

The Sokoto metropolis, the capital city of Sokoto state, is located at latitude 13^0 04'N and longitud 4^0 14'E in the North West geopolitical zone of Nigeria. The area of Sokoto State is characterized by a Sahel savanna climate with annual average temperature of 30^0C. The climate show along dry season of 7-8 Months i.e. from October to April and short wet season of 4-5 Months. I.e. from May to September. The rainy season is characterized by showery rainfall, sometime with destructive storms, especially at the beginning of the season. The average annual density is between 500 and 750mm from the north to south. From October to February, the climate is usually described as cold dry season, between late February and late May, it is usually described as hot dry season and between late May and October hot wet season.[14]

Maryam Abacha Women and Children Hospital, Sokoto is located along Sultan Bello road Sokoto. The women and Children health care clinic was constructed in the year 1997, and commissioned by her Excellency the wife of the President, Maryam Sani Abacha, the hospital was commissioned by her to cater for the problem being faced by women and children which include Vesico Vagina Fistula known as VVF the hospital is conducting surgery for such cases successfully, since its inception (Establishment). It has over 300 bed vacancy with the following wards: A and B ward, VVF ward, Pediatric ward, and Amenity.

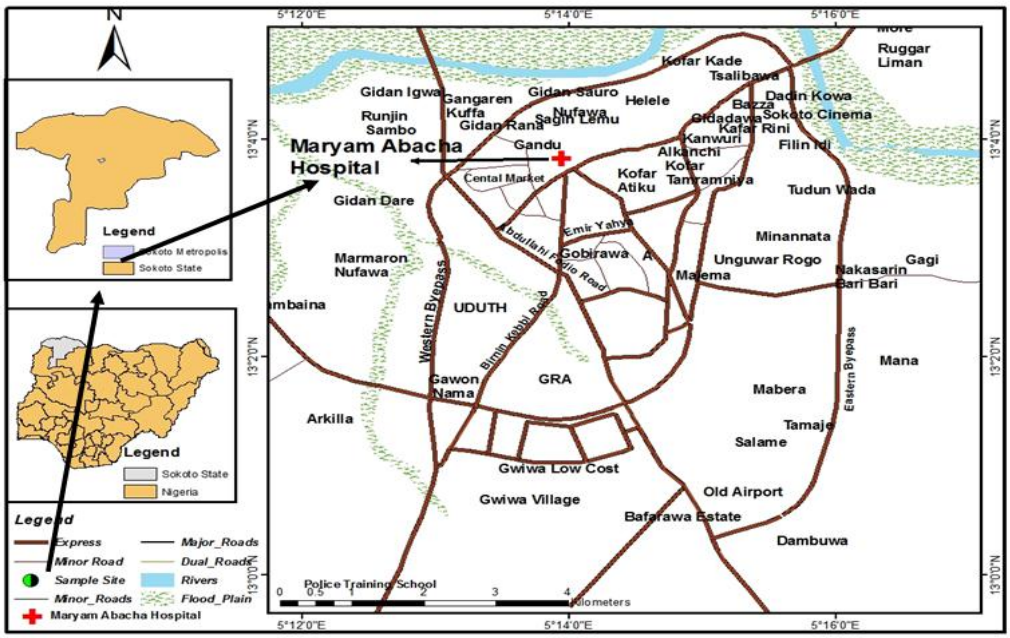

Figure 1: The Study Area (Department of Geography UDUS, 2018).

2.2 Study population

A total of 200 patients were recruited for this study. The study population consisted of 200 pregnant women attending antenatal care (ANC) at Maryam Abacha Women and Children Hospital Sokoto, Sokoto State Nigeria, The age ranged from 16 to 45 years. A structured questionnaire was administered to obtain demographic characteristics (such as age, marital status, level of education, occupation, localities, and gestational age) from each pregnant woman.

2.3 Ethical clearance

The hospital health ethical research committee of Maryam Abacha Women and Children Hospital, Sokoto gave ethical clearance on 1st August 2018 for this research work. Informed consent was sought and obtained from the subjects.

2.4 Samples collection

Urine samples were collected from 200 pregnant women at different age groups in to a sterile container containing 10% formalin. All the samples were conveyed to the microbiology unit of Maryam Abacha Women and

Children Hospital, Sokoto for examination of the presence of *Trichomonas vaginalis.*

2.5 Sample examination

The method used was the wet mount analysis. Urine samples were first poured in to a test tube and spun at 3000 rpm for 5 minutes using centrifuge machine, the supernatant was discarded and a drop of urine sediment and normal saline was put on clean grease free microscope slide, and then covered with cover-slip. All slides were examined under light microscope with the aid of low power (X10) eyepiece and (X40) objective lens. The protozoa were easily identified in positive samples by their characteristic oval shape and their flagella.[15]

2.7 Statistical analysis

Statistical analyses for the data obtained were carried out using the Chi-square using Statistical package for the social science (SPSS) to determine the significant association in the prevalence of infection among pregnant women at Maryam Abacha Women and Children Hospital Sokoto, according to locality, age and gestation period.

3.0. RESULT

3.1 Prevalence of *T. vaginalis* base on the age group of the women attending ANC of the study area

The result of this study on the incidence of *Trichomonas vaginalis* in the study area showed that 34 (17%) were found positive. The result of prevalence according to age groups indicated that, age group ≤ 20years had highest prevalence rate of 26.19% (11), followed by age group 21-25 years 25% (13) while aged group 26-30 years had 12.5% (5) while 31-35 had prevalence rate of 11.76% (4) and age group 36-40 years had the lowest prevalence of 4.55% (1). Table 1. Statistically, there was no significant association for the prevalence rate of *T. vaginalis* infection base on the age group P>0.05.

Table 1: Prevalence of *Trichomoniasis* among the Various Age group base on the age group of the women attending ANC of the study area.

Age	Number Examined	No. Positive	Percentage (%)	P-Value
≤ 20	42	11	26.19	11.070
21-25	52	13	25.00	
26-30	40	5	12.50	
31-35	34	4	11.76	
36-40	22	1	4.55	
> 40	10	0	0.00	
Total	200	34	17.00	

3.2 Prevalence of *T. vaginalis* according to gestation period

Similarly, result on the prevalence of *Vaginalis* based on the gestation period indicted that, those women with gestation period at 1st trimester had the highest incidence of 30.99% (22), followed by those in 2nd trimester with 20.00% (11) while women with 3rd trimester had the lowest incidence of 1.35% (1). Table 2. Statistically, there was no significant association for the prevalence rate based on the gestation period of the pregnancy P>0.05.

Table 2: Prevalence of *T. vaginalis* according to gestation period of the pregnancy.

Gestation period	Number Examined	Number positive	Percentage (%)	P-value
1st trimester	71	22	30.99	5.991
2nd Trimester	55	11	20.00	
3rd Trimester	74	1	1.35	
Total	200	34	17.00	

3.3 Prevalence of *T. vaginalis* based on locality of the pregnant women

Prevalence of *T. vaginalis* infection based on locality of the pregnant women indicated that, those pregnant women from rural area had the highest prevalence rate of 28% (25) while those from urban area had 7.4% (9). Table 3. However, no significant association among the pregnant according to their localities. P > 0.05.

Table 3: Prevalence of *T. vaginalis* based on locality.

Locality	Number Examined	Number positive	Percentage (%)	P-value
Rural Area	89	25	28.1	3.841
Urban Area	121	9	7.4	
Total	200	34	17.0	

DISCUSSION

The prevalence rate 17.0% observed among the pregnant women attending ANC of Maryam Abacha women and children general hospital was in the same range with that of Obiukwu *et al.*[16], who observed a prevalence of 16.3% among 300 females studied at Umunze Community in Orumba Local Government Area of Anambra State, Nigeria. It is also higher than the observations of Nzila *et al.*[17], who Observed *T. vaginalis* prevalence of 3.3% among the women of Kwampe Community of Plateau State of Nigeria. Similarly the finding is lower than that of Ulogu *et al.*[18], who observed a Prevalence of 21.53% among the women in Nnewi community in the same Local Government Area of Ekwulumili Community.

The high prevalence of *T. vaginalis* (26.19%) was observed among the age group of 16-20 years in this study, because *Trichomoniasis* is the sexually transmitted infection commonly associated with patients at child-bearing ages since this ages are more sexually active.[19] Furthermore, the highest rate of infection in young ages (16-25 years) could be attributed with the marriage status at females, in the society this age rang is a preferable age of marriage. So the high incidence of infection occurs at these sexually active ages as reported by Miranda *et al.*[20] In addition to that some physiological factors may also be contributed to various rate of infection among women with different age groups, such as pH of vagina, secretion of estrogen and progesterone hormones for maintaining the pH of the vagina through the birthing age as well as abortion and frequency of pregnancy and immunodeficiency of the body defense after menstruation period. At this reproductive age the estrogen hormone level is higher than other ages and vaginal environment become more suitable for the parasite growth.[21]

Gestational period was observed to have a significant influence on the incidence of *Trichomoniasis* with those in the first trimester presenting with the highest prevalence rate. The finding in this study agrees with the previous observation made by Obiajuru and Ogbulie.[22, 23]

As evidenced by this study, the prevalence of *Trichomoniasis* was higher among women from rural areas comparing with urban residents which may be attributed to lack of knowledge about the disease and its transmission routes among rural residents as well as limited health services in rural communities. Similar reports have been presented.[24; 25; 26]

Conclusion and Recommendations

This research work showed that infection rate of *T. vaginalis* among pregnant women attending A.N.C at Maryam Abacha Women and Children Hospital, Sokoto, is dependent on age, gestation period and locality of the pregnant women.

It was recommended that, using media campaigns to educate pregnant women about risk behavior and the use of regular hygiene, educating parents about reproductive health and training medical providers in low-cost diagnosis and treatment techniques, controlling the spread of *T. vaginalis* and other STDs among pregnant women in Sokoto, Nigeria are highly needed.

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