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SEROPREVALENCE OF *CHLAMYDIA TRCHOMATIS AMONG* HIV POSITIVE WOMEN ATTENDING UNIVERSITY OF ABUJA TEACHING HOSPITAL

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ABSTRACT

Two different populations were investigated for the seroprevalence of *Chlamydia tracomatis* infection and intravenous technique was adopted in sample collection. Group 1 consist of 60 left over samples of HIV positive women coming for CD4 count for the first time before taking antiretroviral (ARV) and group 11 consist of 60 left over samples of HIV negative women coming for voluntary counselling and testing (VCT) as control. Both groups ranged between 18 to 55 years of age. The samples were subjected to Immuno comb Chlamydia trachomatis igG test procedure and the data analysis was performed using statistical software SPSS. Out of the 60 samples of HIV positive women analysed for seroprevalance of Chlamydia trachomatis, 27 (45%) were positive and 33% (55%) were negative and out of the 60 control samples of HIV negative women analysed 26% (43%) were positive to Chlamydia trachomatis and 34 (56.7%) were negative.

KEYWORDS: Chlamydia Trachomatis, ART,Seroprevalence..

INTRODUCTION

Chlamydia trachomatis has emerged as the most common bacterial sexually transmitted pathogen (Schacher, 1999; Joyee, 2003; Stevens, 2004). *Chlamydia trachomatis* is known to cause infection of the cervix, urethra, and epididymitis in man, and conjunctivitis and pneumonia in newborn, in addition to being the causative agent of trachoma (Cates and Wasserhert, 1991; Cohen and Brunham, 1999). *Chlamydia trachomatis* infections are among the sexually transmitted disease (STDs) known to increase the risk for human immunodeficiency virus (HIV) infection (Lege, et al, 1993; Joyce, et al, 2005).

In Nigeria information on the prevalence of *Chlamydia trachomatis* in HIV positive women has only been paucity documented. In 2008 Izebe et al in Abuja reported high detection of *Chlamydia trachomatis* in patients with acquired Immune Deficiency Syndrome. In general population (that is subjects without HIV infection), detection of *Chlamydia trachomatis* is between 15-40% (Obunge, et al, 2001; Ekpenyoung personal communication). The risk of infection from person-to-person is similar to that of gonorrhoea, through sexual-intercourse or oral sex. It can also be passed to the eye by a hand moistened with infected secretions. *Chlamydia trachomatis* can be transmitted during anal intercourse causing proctitis (inflammation of the rectum). It can also be passed from mother to her new born child during birth, causing eye infection (conjunctivitis) or pneumonia. The treatment is accomplished with various antibiotics. Doxycycline, azithromycin have been shown to have equal efficacy in clinical studies (Weber and Johnson, 1995; Moore, et al, 1996; Hillis, et al,1998 Prevalence rate has reached 60% in some Africa country, Botswana is 42%, Nigeria is 5% among the low risk adult population. The prevalence in Nigeria show that North East has 5.8%, South South has 5.8%, South East has 4.2%, South West has 2.3%, North West has 2.7%, and North Central in which the Federal Capital Teritory (FCT) Abuja fall into has the highest percentage 7.0% (UNAIDS, 2004).At the end of 1998 the joint United National Programme on HIV/AIDS (UNIDS) estimated that globally there are 33.4million people living with HIV/AIDS. More than 95% of those infected live in developing countries, about 70% in Sub-Saharan African. An extensive literature review seems to suggest that Chlamydia and other inflammatory sexually transmitted disease are associated with increase susceptibility to and transmission of HIV infection. (Schachter, et al,1993; Kendrick, et al,1997;Scholes,et al,1998; Brunham, et al,1996; Glys, et al ; 1997). Recent studies in China suggest that Chlamydia *trachomatis infection* of the lower genital tract may facilitate the transmission of HIV (Stamm, 1999). Hitchock in 1999 said that invasive intracellular pathogenesis of *Chlamydia trachomatis* can cause substantial damage to the genital epithelia layer which may facilitate HIV infection. Other works suggestion may favour *Chlamydia trachomatis* infection. (Debbattisa et al, 2002).

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Further analysis also revealed that *Chlamydia trachomatis* positivity was significantly higher in the HIV positive cases than in the HIV negative cases (Joyee, et al, 2005)

MATERIALS AND METHODS

Study Population

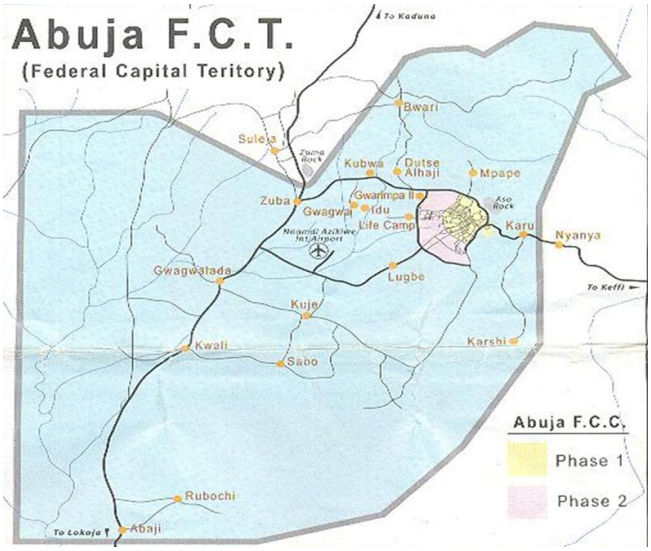

Figure 1: Map of FCT Abuja

The Study was performed from February 2009- October 2009 at Government-approved Antiretroviral Treatment (ART) facility (IHVN LABORATORY) at the University of Teaching Hospital, FCT Abuja. At the moment of the study North Central is having the highest percentage of HIV positive in Nigeria. Two different populations were investigated for the seroprevalence *Chlamydia trachomatis* infection. Group 1 consists of 60 left over samples of HIV positive women coming for CD4count for the first time before taking antiretroviral (ARV). Group 11 consist of 60 left over samples of HIV negative women coming for voluntary counseling and testing (VCT) as control. Both group ranged between 18 to 55years of age. The CD4count of HIV seropositive samples was determined.

Sample collection and processing: Five milliliters blood was drawn by venipuncture dispensed into EDTA Container and processed into plasma by room temperature centrifugation. The samples processed were subjected to immuno comb *Chlamydia trachomatis* IgG Test procedure.

Serological Test

Immunocomb Chlamydia IgG Test: Detection of ant-*Chlamydia trachomatis* IgG was done by a solid-phase EIA using immunocomb Chlamydia IgG kit manufacture by ogenics (Isreal). The immunocomb Chlamydia IgG kit is a rapid test it employs broadly cross-reacting L2 serotype genus-specific antigens for identification and quantification of anti *Chlamydia trachomatis* IgG antibody. The EIA was performed and interpreted in accordance with manufacturer's instructions.

RESULT

Out of the 60 test samples of HIV positive women analysed for seroprevalence of *Chlamydia trachomatis* in the FCT, 27(45%) was *Chlamydia trachomatis* positive and 33(55%) was negative. (Table 1). Out of the 60 control samples of HIV negative women samples analysed 26(43.3%) was *Chlamydia trachomatis* positive and 34(56.7%) was *Chlamydia trachomatis* negative (Table 2). The age group distribution showed that out of the 27 that were positive among the test samples 25-29years (44.4%) have the highest prevalence of *Chlamydia trachomatis* infection, followed by age group 30-34years while age group 40 and above was found to have the lowest prevalence (7.4%) (Table 3).However out of the 26 that were positive among the control samples age group <25 and age group 30-34years was found to have the highest prevalence (26.9%), age group 40 and above was found to have the lowest prevalence (11.5%) (Table4). The CD4 count group with the highest detection of both *Chlamydia trachomatis* positive and *Chlamydia trachomatis* negative was 0-150cells/µl. (Table 6)

Table 1. Cross Tabulation of the Prevalence of *Chlamydia Trachomatis* in HIV

Group	*Chlamydia trachomatis* Positive	*Chlamydia trachomatis* Negative	Total	Percentage
HIV Positive (test)	27	33	60	45.0%
HIV Negative (control)	26	34	60	43.3%

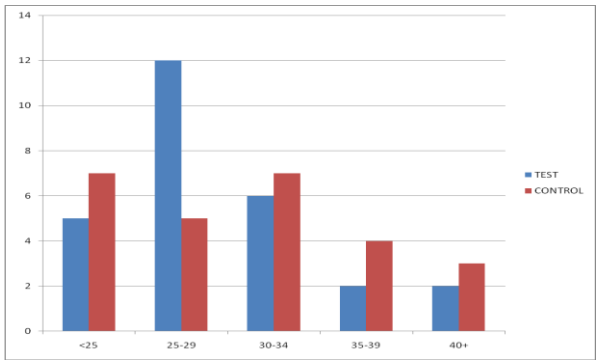

Figure 1. Age Group Distribution of Test (HIV Positive) and Control (HIV Negative)

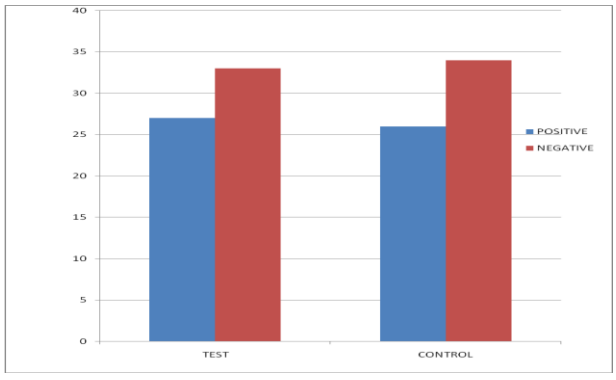

Figure 2. Frequency distribution of chlamydia trachomatis by test (HIV positive) and control (HIV negative)

DISCUSSION

The presence of IgG antibodies to *Chlamydia trachomatis* in the sera of the HIV positive women and the negative women as observed in this may be indicative of past Chlamydia infection. The detection rate in HIV positive women (45%) is slightly lower than 54.2% in Indian (Joyee, et al, 2005) as in table 1and the 43.3% detection rate in HIV Negative women was slightly higher than 15 – 40% reported in Nigeria (Obunge, et *al*, 2001) as show in table 2.

Table 1 analyses revealed that the high prevalence of *Chlamydia trachomatis* IgG antibodies in test samples (HIV positive women) is not significantly higher than that of the control samples (HIV negative women) 27/60, 45% vs 26/60, 43.3%. $p > 0.05$. which suggested previous exposure therefore is on likely that HIV induce a higher prevalence of *Chlamydia trachomatis* infection, but rather *Chlamydia trachomatis* infection facilitate the transmission of HIV which is in other with Brunhem et al, 1996, Glys, et al, 1997, who reported that *Chlamydia trachomatis* infection increases the risk of HIV transmission and acquisition. Likewise Hitcheock, in 1999 reported that the invasive intracellular pathogenesis of *Chlamydia trachomatis* can cause substantial damage to the genital epithelia layer which may facilitate HIV infection. Another reported that sexually transmitted pathogens, including non ulcerative agent such as *Chlamydia trachomatis* may serve as biological cofactor for human immunodeficiency virus, (HIV) sero conversion. (Grosskurth et al, 1995. lage et al, 1993. plumar et al, 1991) but differ from Spinillo et al, 1994) who reported that the prevalence of sero positive women was 18.3% (21 of 115) a rate significantly higher than in both negative and unknown HIV status (18 of 326, $p = 0.001$). With these data, it is suggested that the prevalence of HIV reported in the North central (UNAIDS, 2004) could be as a result of the high prevalence of *Chlamydia trachomatis* reported in Abuja (Izebe, et al, 2008).

Figure 1 show that the detection of *Chlamydia trachomatis* in HIV positive women was higher among age group 25 – 29 years (44.4%) followed by age group 30 -34 years which are age group that are sexually active but a bit differed from 31 -45 years, followed by 16 – 30years reported by Izebe, et al, 2008.The detection rate of *Chlamydia trachomatis* in HIV negative women was higher among age group < 25 and 30 – 34 years (Table 5) which was in agreement with the report of Burstein, et al, 1998, which are sexually active age.

CONCLUSION AND RECOMENDATIONS

The detection of the anti *Chlamydia trachomatis* in sera of HIV positive women and HIV negative women attending ART facility (IHVN Laboratory) at the University of Abuja Teaching Hospital FCT Abuja, provides rationale for possible inclusion of routine screening for anti *Chlamydia trachomatis* antibodies and anti Chlamydia agent among women attending antenatal clinic, in STD clinic and among HIV positive women and possibly have a policy for effective management of *Chlamydia trachomatis* in effort to prevent HIV infection and to improve reproductive and sexual health. The findings presented here highlight the need for more research into Chlamydia in other parts of North central.

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