

THE PREVALENCE OF INFECTIOUS VAGINITIS AND RISK ASSOCIATED AMONG WOMEN OF REPRODUCTIVE AGE IN NIGERIA

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ABSTRACT

Vaginal infection sign is found to cause extreme anxiousness as well as distress to women, affecting heavily on their sexual and also social lives. Women with Infectious vaginitis may notice Itching, burning, redness or soreness of the genitals; Discomfort with urination; A change in their vaginal discharge (i.e., thin discharge or increased volume) that can be clear, white, yellowish, or greenish with an unusual fishy smell, feeling stigmatised, experiencing lowered self-confidence and infertility. The aim of this study is to examine the prevalence of infectious vaginitis among women of reproductive age in Nigeria using open access on internet publications. This was done through searching on the prevalence of vagina infection or sexual transmitted disease. Using this method, many scholarly works on the prevalence of vaginitis were found upon which the findings was deduced. It was found that the prevalence of vaginitis infection is relatively higher in sexually active women from the age of 11-45. The parasite resides in the female's lower genital tract and the male urethra and prostate. It was found that there was shortage of effective treatment of this disease particularly in local area. The high cost of treatment was identified as a bottleneck for the treatment of the infection. Considering the high prevalence of infectious vaginitis in Nigeria, it was recommends among others that The healthcare centre in all the local government should be well equipped intense of drugs that can effectively treat this disease. The stakeholder, government and non-governmental organization should subsidise the treatment drugs. This could encourage the victim in patronizing the medical health facilities.

Keywords: Prevalence, Infectious Vaginitis, Women, Reproductive age, Nigeria.

1. INTRODUCTION

Sexually Transmitted Diseases (STDs) being transmitted by sex through different ways are amongst the commonest communicable diseases globally with more than 1 million new infection daily (Mielczarek, Blaszkowska 2016). The burden of STDs largely occurs in developing countries (Raimi & Ochayi, 2017); with the most vulnerable, disproportionately affected by other health and social economic issues. In Nigeria, STDs are among the major causes of Disability (WHO, 2014). Parasitic STDs include trichomoniasis, amoebiosis and giardiasis. Infection with Sexually Transmitted Parasitic Diseases (STPDs) has resulted in debilitation or anatomic deformities that make sex impossible as a result of direct damage to the male and female reproductive organs including impairing fertility via the inhibition of gamete production. This is indeed worrisome.

The World Health Organization (2014) estimates that nearly 90% of infections occur among people living in rural area. Infectious vaginitis in the entire African region are estimated to be 42.8million and 85% women of reproductive age in Nigeria experience infectious vaginitis (Tafan, 2020). It has been observed that if the infection is symptomatic, women may report a change in vaginal discharge, inter-menstrual bleeding or vaginal blood loss during or after sexual contact. Other symptoms that can occur are vaginal itching, dysuria and abdominal pain. Also, upper reproductive tract disease syndromes can occur, including pelvic inflammatory disease (PID).

Infectious vaginitis is positively associated with increased risk for preterm delivery, pelvic inflammatory disease, invasive cervical and prostatic cancer, and a higher susceptibility to HIV transmission (Akaid, Dietrich, Laher, et al., (2018).The infection in women includes a broad range of symptoms, ranging from severe vaginal inflammation accompanied by a frothy malodorous discharge and dyspareunia to an asymptomatic carrier state, which affects up to 50% of cases. The protozoan induces a local inflammation exerting a cytopathic effect on vaginal cells, mediated by pore forming proteins (Cotch, Pastorek, Nugent, et al 2017). Most *T. vaginalis* isolates establish a symbiotic relationship with the bacterium *Mycoplasma hominis*, which influences the protozoan metabolism and up-regulates local inflammation (Cotch, Pastorek, Nugent, et al 2017). Diagnosis of vaginitis is usually based on direct microscopic examination of wet mount preparations and/or on cultivation on specific media. Microscopic examination is inexpensive and rapid, but it is characterized by low sensitivity, and strongly depends on operator's experience and on protozoa viability (Cotch, Pastorek, Nugent, et al (2017).

It has been established that vaginal infections particularly Trichomoniasis are a global health problem for women. Vaginitis is the inflammation and infection of vaginal commonly encountered in clinical medicine. Infectious vaginalis as one of such disease is a flagellated protozoan parasite found in the human vagina and urethra. Infectious

vaginalis is responsible for trichomoniasis, the number one non-viral sexually transmitted disease known worldwide (Mielczarek, Blaszkowska 2016). It is also the cause of Trichomonad vaginitis in women (Marquardt et al., 2003) and non-gonococcal, non-chlamydial urethritis in men (Kreiger et al., 1995). Infectious vaginitis causes considerable discomfort and mental distress (Marquardt et al., 2003). Although both men and women are infected, it causes disease almost exclusively in women, while men remain asymptomatic (Marquardt et al., 2003); however some women have been found to be asymptomatic (Valandkhani, 2004). Among women, there are up to 250 to 350 million new cases of trichomonad vaginitis annually, world-wide (WHO, 2014). It is one of the most common curable STDs that infect the urogenital tract of sexually active women and men causing significant vaginal and cervical ulceration (Orji, 2015). The aim of this study is to examine the prevalence of infectious vaginitis among women of reproductive age in Nigeria using open access on internet publications. This was done through search on the prevalence of vagina infection or sexual transmitted disease. Using this method, many scholarly works on the prevalence of vaginitis were found upon which the findings was deduced.

2. METHODOLOGY

Diagnosis of Trichomonas Vaginalis

Diagnostic methods available for infectious vaginitis are wet mount preparation, staining methods, culture in laboratory medium, and molecular methods. Historically, detection of the parasite is made possible by examination of urine and High Vaginal Swab (HVS) in a drop of saline or Trichomonas diluents for the characteristic wobbling and rotating motion. Amadi and Nwagbo (2017) reported that either urine sample or vaginal swab is insufficient for proper diagnosis of Infectious vaginitis infection and have suggested that for better results both urine and vaginal swab should be used. Diagnosis of Infectious vaginitis has relied mostly on wet mount demonstration and staining of the parasite in the laboratory with success rate of between 20 and 80%. A combination of cultural method with microscopic wet mount demonstration is now the acceptable procedure for effective diagnosis. New molecular diagnostic tests with improved sensitivity have been developed in response to the increasing recognition by stakeholders of the importance of this wide-spread STI. Thus the detection of *T. vaginalis*, including rapid antigen detection and nucleic acid amplification tests, has significantly improved the quality of diagnostics for trichomoniasis, particularly in women (Gberikon, Aguoku & Yandev, 2015). In America, Guillermo et al. (2017) reported 97% sensitivity for molecular amplification diagnostic methods, as against 70 and 36% sensitivities for culture and wet preparations respectively. Also, studies of genetic typing of the parasites have been reported to be more sensitive than other methods. However, in Nigeria there is no report of the application molecular diagnosis tools on vaginitis infection, which may influence the prevalence data as presently reported from less reliable tests (Gberikon, Aguoku & Yandev, 2015).

Symptoms of Infectious vaginitis

Amadi and Nwagbo (2017) identified that women with Infectious vaginitis may notice: Itching, burning, redness or soreness of the genitals; Discomfort with urination; A change in their vaginal discharge (i.e., thin discharge or increased volume) that can be clear, white, yellowish, or greenish with an unusual fishy smell. Phuong, Vu, Ngoc, Daniele, Paola, and Pier (2019) said that about 70% of people with trich don't have symptoms. In others, the signs might not show up until days or weeks after infection. Women with Infectious vaginitis may have: Vaginal fluid that smells bad and is greenish or yellowish, Genital itching, burning, redness, or soreness, Pain when they pee or have sex, The need to pee more often, Bleeding after sex.

Prevalence of infectious vaginitis

Phuong, Vu, Ngoc, Daniele, Paola, and Pier (2019) under took a study on Prevalence of infectious vaginalis infection in symptomatic and asymptomatic women in Central Vietnam found a consistently higher prevalence of vaginal infection in symptomatic patients (19.3%). Similarly, Dewi, Dubbink, Sander, Remco and Servaas (2018) carried out a study on Prevalence of infectious and protozoan load in South African women: a cross-sectional study. They found that the Prevalence of vaginal Infectious vaginitis was 20% (95% CI 17.0% to 23.4%) and rectal 1.2% (95% CI 0.6% to 2.4%). Most women (66%) with a vaginal infection were asymptomatic. They reported that the symptoms of vaginal infection were reported by 196 (34%) of the women. Of these, 38 had Infectious vaginitis infection meaning 38/113 (34%) of the women with *T. vaginalis* reported symptoms. Of the 462 women without Infectious vaginalis, 158 reported symptoms of infection (34%).

Also, Maha et al (2017) undertook a study on bacterial vaginosis, vulvovaginal candidiasis and Trichomonal vaginitis among reproductive-aged women seeking primary healthcare in Sana'a city, Yemen found that infections were prevalent among 37.6% of reproductive-aged women, where BV was the most prevalent (27.2%). VVC was significantly higher among symptomatic women and significantly associated with itching ($P = 0.005$).

Wondemagegn, Mulat, Yohannes and Bayeh (2015) undertook a study on Common causes of vaginal infections and antibiotic susceptibility of aerobic bacterial isolates in women of reproductive age attending at Felegehiwot referral Hospital, Ethiopia: a cross sectional study. They found that overall, 63 (15.6 %) women in reproductive age had vaginal infections. The prevalence of vaginal infection was 41 (16.1 %) in asymptomatic women. The prevalence of vaginal infection was higher in non-pregnant 37 (17.3 %) than pregnant women 26 (13.3 %) ($P = 0.03$). The most common identified vaginal infections were candidiasis (8.3 %) and Trichomoniasis (2.1 %). However, the most common cause of abnormal vaginal discharge was BV (2.8 %). The most prevalent sexually transmitted infection was *T. vaginalis* 8 (2 %). The proportion of candidiasis was 24 (9.2 %) in asymptomatic women and 20 (9.3 %) in pregnant women. Eleven non pregnant women had BV (5.6 %). However, one pregnant woman had BV (0.5 %). The difference was also significant ($p = 0.02$). BV was noticed in 6 symptomatic women (4.1 %). The proportion of infectious vaginalis was 6 (2.3 %) in asymptomatic women and 5 (2.6 %) in non-pregnant women. Group B Streptococcus colonization was found in 5 women (1.2 %) whereas number of gonorrhoea was isolated in 4 women (1 %) of reproductive age. All gonorrhoeae were isolated from asymptomatic women and all groups B Streptococcus were isolated from non-pregnant women. Candidiasis was detected in 14 (13.1 %) women from 30–39 years of age. BV was found in 5 women in the age range of 40–49 years (8.8 %). However, the proportion of trichomoniasis was 5 (2.3 %) in women of age from 20–29 years. Candidiasis and trichomoniasis were noticed in 30 (9.6 %) and 8 (25 %) of married women, respectively. Candidiasis was found in 7 (17.1 %) of non- Orthodox religion followers. The difference was also significant ($P < 0.05$). However, all BV cases were detected only from Orthodox religion followers. The proportion of BV was higher in women from rural than urban residents ($P < 0.05$). Moreover, the proportion of BV was higher in women who had farmer educational status than their counter parts ($P < 0.05$). Women who were illiterate and read and write only had nearly 8 (5 %) positivity for BV. The proportion of candidiasis was higher in women who had asexual partner for the last 12 months than those had not ($P < 0.05$). BV was detected in 5 women who had history of abortion (6.1 %) and in 6 women who had lower abdominal pain (5.1 %). Overall, more vaginal infections were found in asymptomatic women than women who had different symptoms of vaginitis. Wondemagegn, Mulat, Yohannes and Bayeh (2015) also found that in women, TV affects more frequently between 20 and 40 years old and is quite rare before puberty and postmenopausal age.

Also, Cíntia, Andréia, Sabrina, Guilherme, Sibele, and Marcos (2016) reported that there were no statistically significant differences regarding all the socio-economic variables. However, considering the absolute values and only in the positive group, the prevalence was higher in the age group of 18-39 years; the group of single/divorced/widowed; those women living in the periphery of the county; those reporting a family income of one minimum wage or less, and in those who had not completed the elementary education.

Prevalence of infectious vaginalis in Nigeria

Author	State/Location	participants	No. Tested	Prevalence(%)	Sample Used
Nweze & Mouneke (2014)	Ebonyi	HIV/AIDS patients	970	36.6	Urine
Amardi et al (2013)	Abia	Women	600	18.7	Urine, HVS
Ulogu et al (2017)	Anambra	Women	1440	21.57	Urine, HVS
Achiono (2018)	Imo	Adult Women	1241	10.2	HVS
Pondie et al (2017)	Bayelsa	Females patients	1240	6.8	HVS, ECS
Ekanem et al (2014)	Akwa-Ibom	Female	556	44.5	HVS, ECS
Olaniram et al (2017)	Osun	Female patients	310	8.1	HVS, ECS, US
Etuketu et al (2015)	Lagos	Pregnant women	200	74.4	HVS
Avidime et al (2017)	Kaduna	Pregnant women	120	19.2	HVS, Blood
Hamafyesto (2017)	Borno	Female IDPs	200	20.5	HVS
Gberikon, Aguoku & Yandev	Benue	Females	200	10.5	HVS, Urine

(2015)	patients					
Okoh, Igbaaka (2017)	Benu	Male female patients	and	400	12	Urine
Raimi & O Ochayi(2017)	FCT, Abuja	Male female patients	and	286	15	Blood, HVS, Urine, Urethral swabs, Urethral discharge

Source: internet, 2022

The prevalence of Infectious vaginitis infection is relatively higher in sexually active women Ochoionu (2018). In males, vaginitis infection is generally trivial or asymptomatic. Asymptomatic carriers can serve as vectors for the disease, making it important to treat male partners. The parasite resides in the female's lower genital tract and the male urethra and prostate.

Reports from Nigeria suggest that, trichomoniasis could be higher in urban areas than in the rural communities (Gberikon, Aguoru, Yandev, 2015). For example, in a study carried out by, a higher prevalence of vaginitis was documented for subjects that resided in urban areas (57.70%) than those that lived in rural communities (39.16%). Also, prevalence was highest amongst the sexually active group of age 11-45 years old (Okoh , Igbaaka , 2018)

The prevalence of vaginitis infection is relatively higher in sexually active women (Ekanem et al, 2014). In males, vaginitis infection is generally trivial or asymptomatic. Asymptomatic carriers can serve as vectors for the disease, making it important to treat male partners. The parasite resides in the female's lower genital tract and the male urethra and prostate. Reports from Nigeria suggest that, trichomoniasis could be higher in urban areas than in the rural communities (Etuketu et al 2015). For example, in a study carried out by Ochoionu (2018), a higher prevalence of vaginitis was documented for subjects that resided in urban areas (57.70%) than those that lived in rural communities (39.16%). Also, prevalence was highest amongst the sexually active group of age 11-45 years old (Ochoionu 2018). Amongst pregnant women, vaginalis is generally high (Etuketu et al (2015). In Zaria, pregnant women between ages 16 to 25 were reported to be T. vaginalis positive with prevalence of 53.57% Etuketu et al (2015). In Lagos, South-West, Nigeria, T. vaginalis prevalence of 1.8% was recorded for pregnant women between 21 to 30 years old. Similarly, in Abeokuta, South-West Nigeria, pregnant women between the age 20 and 30 had prevalence of 21.3%. Meanwhile in Anambra, South-East Nigeria, nonpregnant women had higher rate of infection (17.8%) than pregnant ones (16.7%) (Ekanem et al, 2014). Furthermore, a study in Maiduguri showed a high rate of 20.8% infection among non-pregnant women (Hamafyesto, 2017).

In relation to marital status, a prevalence of 2.9% was recorded among Lagos married women compared to 0.4% prevalence in unmarried women (Amardi et al, 2013). Amadi and Nwagbo (2017) reported 19.72% for single women in Abia, South-East, Nigeria with 21.6% and 11% among Abeokuta and Maiduguri married women respectively (Hamafyesto, 2017). Data have shown that HIV could escalate infection with T. vaginalis. Isiaka-Lawal et al.(2018) observed that the prevalence of infectious vaginalis was higher in HIV infected women than their uninfected counterparts in north-central Nigeria, while in Lagos, a prevalence of 35.8% were noted in HIV positives. Available data had revealed an increased risk of infectious vaginalis in persons with poor personal hygiene and low socio-economic status (Amardi et al (2013). Levels of education have been linked to prevalence rate. For instance, non-formal educated women had an infection rate of 22.3% while tertiary educated women had only 1.0%. Also, Usanga et al. (2017) reported that women with primary school education had 6.4% prevalence rate. In addition, poverty, unemployment, violence against women and children (Ekanem et al, 2014), and young age could raise the risk associated with acquiring infectious vaginitis (Ekanem et al, 2014).

Effects of vaginitis on women of reproductive age

Numerous research studies found that reoccurring vaginal infection impacted negatively on females' social, personal and also work partnerships, dramatically affecting their quality of life (Mielczarek, Blaszkowska, 2016). Vaginal infection sign is found to cause extreme anxiousness as well as distress to women, affecting heavily on their sexual and also social lives (Mielczarek, Blaszkowska, 2016). Women with vaginal infection frequently experience significant stress and anxiety, self-blame and humiliation around their medical diagnosis, and are afraid of disclosing

their status to others. Individuals often report feeling stigmatised, experiencing lowered self-confidence and also problem around future sexual interaction and partnerships (Mielczarek, Blaszkowska, 2016). Infection plays an essential function in gynaecology and also the inability to conceive, affecting the ovary, womb; and the embryo as well as implantation (Meites, Gaydos , Hobbs, et al (2015). Repetitive and also long-term infections will trigger damages and also attachment of tubal mucosa, at some point leading to inability to conceive (Wallston & Wallston, 2003). Incontinence on women's self-image and some women really feel disgusted by their bodies and also deals with a consistent concern of smelling negative. Sex life is detrimentally impacted because during sex such is taken into consideration as a "dirty deal" of the woman herself. Infected women can have different symptoms consisting in yellowish-green frothy discharge, purities, dysuria, and the strawberry cervix which is recognized by punctuates haemorrhagic lesions (Riley, Cohen, Dilworth et al,2016)

Effects of infectious vaginitis on women of reproductive age in Nigeria

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Infected women can have different symptoms consisting in yellowish-green frothy discharge, purities, dysuria, and the strawberry cervix which is recognized by punctuates haemorrhagic lesions (Riley, Cohen, Dilworth et al, 2016). Infection by infectious vaginalis among women can lead to serious complications such as adverse pregnancy outcomes that appear by preterm rupture of membranes, preterm delivery, low birth-weight infants, infertility, and cervical cancer. Moreover, studies have shown an increased risk of H IV transmission among individuals infected by infectious vaginalis (Rowley, Vander, Korenromp , et al 2016; Bouchmal, Bories, &Loiseau, 2017). Parasitic STDs include trichomoniasis, has resulted in debilitation or anatomic deformities that make sex impossible as a result of direct damage to the male and female reproductive organs including impairing fertility via the inhibition of gamete production (Bouchmal, Bories, &Loiseau, 2017) .

3. CONCLUSION

The biomedical scholars such concluded that the infection is commonly spread through sexual contact with vaginal or urethral discharges of infected persons, and transmission of organisms via artificial insemination of infected cryobanked semen is also possible. Non-sexual transmission is rare but has been observed in cases involving contaminated douche nozzles, moist wash-clothes, specula, or toilet seats.

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Reports from Nigeria suggest that, infectious vaginitis could be higher in urban areas than in the rural communities. Also, prevalence was highest amongst the sexually active group of age 11-45 years old. In other words the prevalence of infectious vaginitis is relatively higher in sexually active women. In males, infectious vaginitis is generally trivial or asymptomatic. Asymptomatic carriers can serve as vectors for the disease, making it important to treat male partners. The parasite resides in the female's lower genital tract and the male urethra and prostate. It was found that there was shortage of effective treatment of this disease particularly in local area. The high cost of treatment was identified as a bottleneck for the treatment of the infection. These of course make some women utilise traditional medication for the treatment of the infection.

4. RECOMMENDATIONS

It has been established that there was significantly high prevalence of infectious vaginitis in Nigeria with devastating effect on women reproductive system. Considerably, the following recommendation was made to reduce the effect of this deadly disease:

- There should be an intensive public enlightenment program across the country by health workers, non-governmental agencies on ways of preventing infectious vaginitis among women of reproductive age in Nigeria. They should be enlightened on the right hygienic rules that could help in preventing the occurrence of the disease.
- The healthcare centre in all the local government should be well equipped intense of drugs that can effectively treat this disease.
- The stakeholder, government and non-governmental organization should subsidise the treatment drugs. This could encourage the victim in patronizing the medical health facilities.

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