



Sexually Transmitted Infection Trends among Clinic Attendees of a Secondary Health Care Facility in Lagos, Nigeria: A 12-month Retrospective Review

Tinuade Adesola Ajani^{1*}, Mustapha Akanji Ajani², Chinenye Anaedobe³,
Folake Olabode⁴ and Olufunmilayo Ibijoke Ajumobi⁴

¹Department of Medical Microbiology, Babcock University Teaching Hospital, Ilishan- Remo, Ogun State, Nigeria.

²Department of Histopathology, Babcock University Teaching Hospital, Ilishan- Remo, Ogun State, Nigeria.

³Department of Medical Microbiology, University of Abuja, Abuja, Nigeria.

⁴Department of Family Medicine, General Hospital, Lagos, Nigeria.

Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/IJTDH/2018/45305

Editor(s):

(1) Dr. Triveni Krishnan, Division of Virology, National Institute of Cholera and Enteric Diseases, Kolkata, India.

Reviewers:

(1) Itodo, Sunday Ewaoche, Niger Delta University, Nigeria.

(2) Akobi Oliver Adeyemi, Federal Medical Centre, Nigeria.

Complete Peer review History: <http://www.sciencedomain.org/review-history/27686>

Original Research Article

Received 12 September 2018
Accepted 25 November 2018
Published 08 December 2018

ABSTRACT

Background: Sexually transmitted infections (STIs) constitute major health problems and can have serious reproductive health consequences. Understanding the patterns of STI and their associated risk factors in a particular region is necessary for proper planning and implementation of targeted interventions.

Aims: To determine the pattern of STI and their associated risk factors in a secondary health facility in Lagos, Nigeria.

Materials and Methods: A hospital based, retrospective study of data collected from the clinical records of 31 patients who attended STI clinic of the General Hospital, Lagos over a period of 12 months. The diagnosis was made based on history, clinical examination and microbiological investigations. Data analysis was done by SPSS version 23.

*Corresponding author: Email: solamustoo@yahoo.com;

Results: Gonococcal urethritis 8(25.8%) was the commonest STI followed by 7(22.6%) trichomoniasis, 6(19.4%) genital warts, 6(19.4%) herpes genitalis 3(9.7%) non-gonococcal urethritis and 1(3.2%) person had chancroid and was HIV positive. Majority of the patients had 26 (83.9%) multiple sex partners, 18(58.9%) never used condom and 17(54.8%) had previous history of STI. Occasional use of condom ($X^2 = 6.482$, $df = 1$, P - value = 0.039) and previous history of STI ($X^2 = 4.644$, $df = 1$, P - value =0.031) were statistically associated with Gonococcal urethritis. Dyspareunia ($X^2 = 15.708$, $df = 1$, P - value =0.000) was also statistically associated with Trichomoniasis.

Conclusion: Bacterial STI still constitute a major burden of STI in our clinic which is contrary to the recent trends of viral STI constituting a major burden of STI in some parts of the world. Poor condom usage observed from this study might be partly responsible for it. Bearing in mind by Clinicians that bacterial STI is still rampant and Condom use promotion will go a long way to reduce the burden of STI in the community.

Keywords: STI; NGU; trichomoniasis; Dyspareunia; herpes genitalis.

1. INTRODUCTION

Sexually transmitted infections (STIs) constitute major health and socio-economic problems worldwide leading to morbidity, mortality and stigmatisation [1,2]. World Health Organization estimates that there are more than 1 million STIs acquired every day [3]. Each year, there are estimated 357 million new infections with one of the four curable STIs and more than 500 million people are living with genital HSV (herpes) infection [3]. A high rate of STI has also been reported in developing countries where STI treatment is less accessible and stigmatisation is high [4,5,6].

Information regarding the profile of STI in developing countries is based mainly on syndromic management because of inadequate laboratory facilities. Though the syndromic approach has many limitations, WHO has placed emphasis on it in high-prevalence areas with inadequate laboratory facilities and trained staff [7,8].

STI increases the rate of HIV transmission and can have serious reproductive health consequences beyond the immediate impact of the infection itself [3,7,9-11].

Various risk factors identified with STI includes sex preferences, inconsistent use of condom, lifetime sex partners, present sex partners, previous history of STI and socio-economic factors [12-14].

The incidence and prevalence of a particular STI varies in different geographical areas based on available health facility, socio-economic and cultural factors [1,6,15]. Therefore there is a

need to understand the patterns of STI and their associated risk factors in the regions of a country for proper planning and implementation of targeted interventions.

The aim of this study is to review and document the pattern of STI and their associated risk factors in a secondary health facility in Lagos, Nigeria over a period of one year.

2. MATERIALS AND METHODS

Clinical case notes of all the 31 patients who attended the Sexually Transmitted Infection clinic of General Hospital, Lagos over a period of one-year January till December, 2017 was retrospectively studied. Ethical approval was received from the General Hospital Lagos with ethical approval number SUB/GHL/1288/32.

Information retrieved from the case note included detailed history, demographic data, Clinical examination and microbiologic investigation. All patients were tested for HIV by determine [Alere determine, organics LTD, Israel] and Unigold kits [Trinity Biotech PLC, Ireland]. *Neisseria gonorrhoea* was detected using microscopy of the gram stained slides and specific identification tests [16] on colonies grown on culture media. *Trichomonas vaginalis* was detected by Microscopy using wet preparation methods. Genital warts were diagnosed clinically. Candida species were isolated on Sabouraud agar from some of the female patients who presented with vaginal discharge. All patients who presented with genital ulcers were screened for syphilis using VDRL, and herpes simplex virus using ELISA [Vircell Microbiologists, Spain]. Data analysis was done by SPSS version 23 and Chi square was done as test of significance.

3. RESULTS

Out of 31 patients, 20(64.5%) were males and 11(35.5%) were females. Majority of the patients were single 21(67.7%) and 10(32.3%) were married. The age of the patients ranged from 15 to 57 years, the mean age was 29.39years. Business/ Trade were their main 18(58.1%) source of income, 16(51.6) had Secondary Education while 15(48.4%) had Tertiary Education and 23(74.2%) were from Yoruba tribe. This is shown in Table 1.

Majority of them 13(41.9%) had their last coitus within the last month of presentation, 18(58.1%) never used condom, 12(38.7%) occasionally used condom, 26(83.9%) had history of multiple sex partners and 17(54.8%) had history of previous STI. This can be seen in Table 2.

Out of the total patients, 7(22.6%) had trichomoniasis, 6(19.4%) had genital warts, 1(3.2%) had Chancroid, 6(19.4%) had herpes genitalis, 8(25.8%) had vaginal candidiasis, 2(6.5%) were VDRL reactive with no clinical features of syphilis and 1(3.2%) was HIV positive. Out of the patients who had genital

warts, 4(66.7%) were males and 2(33.3%) were females. Out of the patients with herpes genitalis, 5(83.3%) were males while 1(16.7%) were females. Urethral discharge was the presentation in 11(35.5%) of them. Out of these, 8(72.7%) had gonococcal urethritis while 3(27.3%) had non-gonococcal urethritis and 11(35.5%) patients had co-infection. The overall commonest STI was gonococcal urethritis (Table 3).

Occasional use of condom ($X^2 = 6.482$, $df = 1$, P -value = 0.039) and previous history of STI ($X^2 = 4.644$, $df = 1$, P -value = 0.031) were statistically significant with Gonococcal urethritis. Dyspareunia ($X^2 = 15.708$, $df = 1$, P -value = 0.000) was also statistically significant in patient that had trichomoniasis.

4. DISCUSSION

STI is responsible for a lot of health problems such as infertility, abortion, ectopic pregnancy, chronic pain and menstrual irregularities. Apart from health problems, the social stigma associated with STI is quite enormous especially in developing countries.

Table 1. Socio-demographic characteristics of the respondents (N=31)

Variables	Frequency	Percentage
Age groups (in years)		
10-20	2	6.5
21-30	20	64.5
31-40	4	12.9
41-50	3	9.7
51-60	2	6.5
Sex		
Male	20	64.5
Female	11	35.5
Occupation		
Student	9	29.0
Professionals	2	6.5
Civil servant	2	6.5
Business/Trade	18	58.1
Education		
Secondary	16	51.6
Tertiary	15	48.4
Marital status		
Single	21	67.7
Married	10	32.3
Religion		
Christianity	16	51.6
Islam	15	48.4
Tribe		
Yoruba	23	74.2
Others	8	25.8

Table 2. Sexual behaviours of respondents (N =31)

Variables	Frequency	Percentage
Last coitus		
A week	9	29.0
A month	13	41.9
>a month	9	29.0
Condom use		
Always	1	3.2
Occasionally	12	38.7
No/Never	18	58.1
Type of sex		
Vaginal	30	96.8
Vaginal and anal	1	3.2
Sex partner		
Single	5	16.1
Multiple	26	83.9
Number of present sex partners		
1	16	51.6
>1	15	48.4
Alcohol		
Yes	8	25.8
No	23	74.2
Previous STI		
Yes	17	54.8
No	14	45.2

Table 3. Type of STI among the respondents (N=31)

Variables	frequency	percentage
HIV Status		
Positive	1	3.2
Negative	30	96.8
VDRL reactive		
Yes	2	6.5
No	29	93.5
Gonococcal urethritis		
Yes	8	25.8
No	23	74.2
Trichomoniasis		
Yes	7	22.6
No	24	77.4
Genital warts		
Yes	6	19.4
No	25	80.6
Herpes genitalis		
Yes	6	19.4
No	25	80.6
Non- gonococcal urethritis		
Yes	3	9.7
No	28	90.3
Vaginal candidiasis		
Yes	8	25.8
No	23	74.2
Chancroid		
Yes	1	3.2
No	30	96.8

In our study, males constituted 64.5% and females 35.5% of the patients with female to male ratio of 1:1.82. The male predominance is similar to what was documented from other studies [2,17]. This male predominance pattern might be as a result of social and cultural stigma associated with female's attendance of public STI clinic and also asymptomatic nature of the infection among females.

The mean age was 29.39 years ranging from 15 to 57 years. Majority of the patients aged between 21-30 years. The age predominance of patients was similar to that found in other studies [18,19].

The overall commonest STI was gonococcal urethritis (25.8%). This is contrary to other studies in which viral STI were the overall commonest [1,2,17,18] but the prevalence is similar to that of a previous study in a developing country [20]. A study in Africa showed that 85% of patients with male urethra discharge had Gonorrhoea while another study in Africa showed that 77.1% of women tested for STI were positive with for at least one bacterial pathogen [21,22]. These findings suggest that the prevalence of bacterial STI might still be high in some developing countries compared to the changing trends of viral STI becoming the overall commonest in developed countries.

Our study showed a relatively higher incidence of gonococcal urethritis than non- gonococcal urethritis among patients that presented with Urethral discharge. This is similar to what has been documented in other literatures [23,24]. The reason for these findings might be partly because laboratory identification of pathogens causing non- gonococcal urethritis require specialised infrastructure and equipment such as Polymerase Chain Reaction which are not cost effective and not readily assessible in the developing countries like ours.

The second commonest STI from this study was trichomoniasis followed by herpes genitalis and genital warts with the same prevalence (19.4%) then HIV (3.2%) and Chancroid (3.3%). Chancroid seems to be on the downward trend as evident from previous studies [2,18]. The low prevalence of HIV has also been reported in previous studies [17,25]. The recent downward trend of chancroid might be attributed to the stabilisation of HIV pandemics because previous studies have reported association between chancroid and HIV [26,27]. Even from our

findings, the only patient that had chancroid was also co- infected with HIV.

VDRL reactivity was seen in only two asymptomatic patients and this finding is similar to that of previous studies [2,18,28] and this suggests a decline of syphilis in recent times.

Vaginal candidiasis was the commonest cause of vaginal discharge from this study and is similar to what was found in a previous study [17,29] although some other studies found bacterial vaginosis to be the commonest [17,30].

Condom promotion is not adequate in this study, 38.7% of the patient used condom occasionally while 58.1% never used condom even though majority of them (83.9%) had history of multiple sex partners. This suggests that Education on the use of condom as one of the ways to prevent STI is not adequate.

Our findings indicate that risky sexual behaviours such as multiple sexual partners, prior history of STIs and poor condom usage are associated with several STIs.

This study is not without limitations. There is a low clinic attendance as evidenced by patients over the 1-year period studied. This low clinic attendance may be attributed to the stigma associated with STIs in our country.

5. CONCLUSION

In conclusion, bacterial STI still constitute the major burden of our STI clinic and this is contrary to the recent trends of viral STI constituting the major burden in other parts of the world. Some identified sexual behaviours that are associated with STIs can be reduced with adequate health intervention such as education on condom usage and easy access to health care by patients and provision of health care by trained professionals. There should be a high index of suspicion for bacterial causes of STI by clinicians.

CONSENT

It is not applicable.

ETHICAL APPROVAL

Ethical approval was received from the General Hospital Lagos with ethical approval number SUB/GHL/1288/32.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Shilpee C, Ramachandran VG, Shukla D, Bhattacharya SN, Narendra SM. Pattern of sexually transmitted infections and performance of syndromic management against etiological diagnosis in patients attending the sexually transmitted infection clinic of a tertiary care hospital. *Indian J Sex Transm Dis.* 2010;31(2):104–108.
2. Sarkar S, Shrima A, Das J, Choudhury SR. Pattern of sexually transmitted infections: A profile from a sexually transmitted infections clinic of a tertiary care hospital of Eastern India. *Ann Med Health Sci Res.* 2013;3(2):206–209.
3. World Health Organisation. Sexually transmitted infections (STIs). World Health Organisation Fact Sheets; 2016.
4. Arah SO, Over M, Manhart L, Holmes KK. Sexually transmitted infections. In: Jamison DT, Mosley WH, editors. *Disease control priorities in developing countries health policy responses to epidemiological state.* Washington DC: World Bank. 2006;2:653-689.
5. Adler M. Sexually transmitted diseases control in developing countries. *Genitourin Med.* 1996;72:83-88.
6. Kenyon C, Buyze J, Colebunders R. Classification of incidence and prevalence of certain sexually transmitted infections by world regions. *Intl. J. infect. Dis.* 2014;18: 73-83.
7. Shilpi S, Siddhi T, Vijay P, Deepak KM, Puneet B. Study of patterns of sexually transmitted diseases using a syndromic approach in the era of human immunodeficiency virus from a tertiary care hospital of the Northern India. *Indian J Sex Transm Dis.* 2015;36(2):158–161.
8. Dallabetta GA, Gerbase AC, Holmes KK. Problems, solutions and challenges in syndromic management of sexually transmitted diseases. *Sex Transm Infect.* 1998;74:1–11.
9. Marks M, Kako H, Butcher R, Laura R, Puiahi E, Pitakaka R, Sokana O, Kilua G, Roth A, Solomon O, Solomon AW, Mabey DC. Prevalence of sexually transmitted infections in female clinic attendees in Honiara, Solomon Islands. *BMJ Open.* 2015;5(4):e007276.
10. Melissa KM, Denise DM, Christopher JH, Cynthia JM, Rangaraj S, Sharon GH. Prevalence of Three sexually transmitted infections in a pediatric emergency department. *Pediatr Emerg. Care.* 2015; 31(2):107-112.
11. Piot P, Laga M. Genital ulcers, other sexually transmitted diseases, and the sexual transmission of HIV. *BMJ.* 1989; 298:623–624.
12. Shipitsyna E. Sexual behaviours, knowledge and attitudes regarding safe sex, and prevalence of non-viral sexually transmitted infections among attendees of youth clinics in St. Petersburg, Russia. *J. of the European Academy of Dermatology and Venerology.* 2013;27(1):75-84.
13. Aung WW, Thant M, Wai KT, Aye MM, Ei PW, Myint T, Thidar M. Sexually transmitted infections among male highway coach drivers in Myanmar. *Southeast Asian J Trop Med Public Health.* 2013;44(3):436-47.
14. Masako O, Tatsuya S, Hideko K, Sonia P S, Saman Z, Masahiro K. Demographic and behavioral characteristics of non-sex worker females attending sexually transmitted disease clinics in Japan: A nationwide case-control study. *BMC Public Health.* 2010;10:e10615.
15. Nwadike VU, Olusanya O, Anaedobe GC, Iche K, Kingsley CO. Patterns of sexually transmitted infections in patients presenting in special treatment clinic in Ibadan south western Nigeria. *Pan African Medical Journal.* 2015;21:e222.
16. Lai-King N, Irene E. The laboratory diagnosis of *Neisseria gonorrhoeae*. *Can J Infect Dis Med Microbiol.* 2005;16(1): 15–25.
17. Iffat H, Parvaiz A, Shagufta R, Farah S, Imran M, Yasmeen J, Syed M, Nuzhatun Ni, Qazi M. Pattern of sexually transmitted infections in a Muslim majority region of North India. *Indian J Sex Transm Dis.* 2015;36(1):30–34.
18. Devi SA, Vetrichevvel TP, Pise GA, Thappa DM. Pattern of sexually transmitted infections in a tertiary care centre at Puducherry. *Indian J Dermatol.* 2009;54:347–349.
19. Chatterjee M, Ramadasan P. Profile of sexually transmitted diseases in and around Jabapur, MP. *Indian J. Sex Trasm Dis.* 2004;25(1):13-17.

20. Wi T, Mesola V, Manalastas R, Tuazon C, Mugrditchian DS, Perine P, Ghee A, Holmes KK, Whittington WL. Syndromic approach to detection of gonococcal and chlamydial infections among female sex workers in two Philippine cities. *European PMC*. 1998;74(1):118-122.
21. Mhlongo S, Magooa P, Müller EE, Nel N, Radebe F, Wasserman E, Lewis DA. Etiology and STI/HIV coinfections among patients with urethral and vaginal discharge syndromes in South Africa. *Sex Trasm Dis*. 2010;37(9):566-570.
22. Augustina AS, Ellis O, Denis DY, Samson PS, Nana Y, John HA, Portia BO, Thomas A. Bacterial etiology of sexually transmitted infections at a STI clinic in Ghana; use of multiplex real time PCR. *Ghana Med J*. 2016;50(3):142-142.
23. Krishna R, Manju B, Gupta SM, Niti K, Poonam P, Muralidhar S, Joginder K. Changing trends in sexually transmitted infections at a Regional STD Centre in north India. *Indian J Med Res*. 2006;124: 5559-56.
24. Jain VK, Dayal S, Aggarwal K, Jain S. Changing trends of sexually transmitted diseases at Rohtak. *Indian J Sex Transm Dis*. 2008;29:23-25.
25. Mir MA, Ahmad PM, Siddeque MA, Sofi FA, Ahmad SN, Dar MR. Clinical and demographic profile of HIV/AIDS patients diagnosed at a tertiary care centre in Kashmir. *J Pak Med Assoc*. 2010;60:428–431.
26. Nelson K, Eiumtrakul S, Celentano D, Maclean I, Ronald A, Suprasert S, Hoover DR, Kuntolbutra S, Zenilman JM. The association of herpes simplex virus type 2 (HSV-2), *Haemophilus ducreyi*, and syphilis with HIV infection in young men in northern Thailand. *Journal of Acquired Immune Deficiency Syndrome*. 1997; 16(4):293-300.
27. Dada AJ, Ajayi AO, Diamond LQ, Thomas C, Blattner WA, Briggarr RJ. A serosurvey of *Haemophilus ducreyi*, syphilis, and herpes simplex virus type 2 and their association with human immunodeficiency virus among female sex workers in Lagos, Nigeria. *Sexually Transmitted Diseases*. 1998;25(5):237-242.
28. Fonck Karoline, Kidula Nancy, Kirui Patrick, Ndinya-Achola Jeconiah. Pattern of sexually transmitted diseases and risk factors among women attending an STD referral clinic in Nairobi, Kenya. *Sex Transm Dis*. 2000;27(7):417-423.
29. Nair SP. A study of the changing trends in the pattern of sexually transmitted infections in the state of Kerala. *Indian J Sex Transm Dis*. 2012;33:64–65.
30. Puri KJ, Madan A, Bajaj K. Incidence of various causes of vaginal discharge among sexually active females in age group 20-40 years. *Indian J Dermatol Venereol Leprol*. 2003;69:122–125.

© 2018 Ajani et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://www.sciencedomain.org/review-history/27686>