

Original Research Article

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Socio-demographic, Clinical and Microbiological Study of Sexually Transmitted Infections in a Tertiary Care Hospital of South India

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ABSTRACT

Keywords

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Sexually Transmitted Infections (STIs) are a major public health challenge in India. In addition to the physical and psychological consequences of STIs, these diseases also exact a tremendous economic toll. To study the socio-demographic, clinical and microbiological characteristics among patients attending the STI clinic of a tertiary care hospital of South India from January 2014 to March 2016 (26 months). A retrospective analysis was done by obtaining data from the predesigned STI case records. The majority of patients were females (63.8%) and belonged to young age group and upper lower socioeconomic class. The most common STI was mixed infection (35.7%) seen most commonly in females (vaginal / cervical discharge syndrome), followed by candidiasis (30.7%), herpes genitalis (12.6%), condylomata acuminata (6.5%). Mixed infections were most frequently caused by Trichomoniasis (83.1%), Candidiasis (73.2%), Bacterial vaginosis (50.7%) and Non gonococcal cervicitis/ urethritis (30.98%). Prevention programs, active screening strategies and better access to STI diagnosis and treatment services are necessary to reduce the incidence and the burden of STIs.

Introduction

STIs are major global and national health priorities. They have devastating impact on the health of women and infants. Unnoticed and untreated STIs can lead to Pelvic Inflammatory Disease (PID) in women, infertility in both sexes, ectopic pregnancy, problems during pregnancy such as abortions, fetal deaths, low birth weight babies and health problems for the unborn baby. Infection with high-risk HPV if undetected and untreated can cause cervical

cancer (STDs and Pregnancy, 2008; Aral *et al.*, 2006). STIs also increase the risk for transmission of the human immunodeficiency virus (HIV) (Cohen, 2012; Lewis, 2012).

To ensure country-level planning and effective local implementation of STI services, reliable and consistent epidemiologic information is required about the distribution of STI cases, rate and trends

of newly acquired infections, and STI prevalence in specific population groups.

Methods

In this retrospective study conducted at a tertiary care hospital of South India, the predesigned STI case records of all patients attending STI clinic during a 26 months period (January 2014 to March 2016) were analyzed. A detailed history was taken; socio-demographic data (including the age, sex, occupation, marital status, and education), complaints and their duration, past STI symptoms, history of sexual behavior and history of a similar illness in the sexual partner were recorded on printed proformas. After clinical examination, urethral swab from males, and vaginal & cervical swabs were collected from females and subjected to examination after Gram's staining, Wet mount, KOH mount and Tzanck smear. All patients were tested for HIV by ELISA after due consent. In patients with clinical suspicion of syphilis, serology for Venereal Disease Research Laboratory test (VDRL) was done. The diagnosis was made based on clinical history, examination, and laboratory investigations. The following results were noted.

Results and Discussion

Out of the total 199 patients included in the study, 63.8% (127/199) were females, 36.2% (72/199) were males with female to male ratio being 1.8:1 (Table 1).

The majority of patients belonged to the age group 21-30 years - 40.7% (81/199), followed by the 31-40 years - 27.15% (54/199). In the <21 years age group, all were females except for one male patient (Table 1).

In our study, 55.3% of patients had completed middle school education and 24.6% were illiterates (Table 2). We found

that 55.3% belonged to upper lower class according to modified Kuppaswamy's Socio-economic scale (Table 2).

Out of the total, 90.5% (180/199) were married and 9.5% (19/199) were unmarried (Table 3). Of those married twelve were widowed and six were either living separately from their spouses or were divorced. 21% of patients practiced risky sexual behaviour, 15% of all males had been exposed to commercial sex workers. 7% of all females gave history of spouse practicing risky sexual behaviour. Condoms reduce the risk of acquiring STIs but condom use is inconsistent, noted in 4% of male patients (Table 4).

The most common STI was mixed infection (35.7%) seen most commonly in females presenting with vaginal / cervical discharge syndrome, followed by candidiasis (30.7%), herpes genitalis (12.6%), condylomata acuminata (6.5%), molluscum contagiosum (3.5%), bacterial vaginosis (2%), trichomoniasis (2%), non-gonococcal cervicitis (1%), gonococcal urethritis (1%), genital ulcer disease non-herpetic (1%) in decreasing order. Venereophobia was noted in 4% of patients, who were all males (Table 5).

The vast majority of these patients with multiple STIs were females (88.7%). Trichomoniasis (83.1%), Candidiasis (73.2%), Bacterial vaginosis (50.7%) and Non gonococcal cervicitis / urethritis (30.98%) were most frequently associated with multiple STIs (Table 6). VDRL testing was done in 27 patients with clinical suspicion of syphilis, out of whom none were reactive. Out of the total 199 patients, 10.5% (21/199) were found to be HIV positive, in which 38% (8/21) were males and 62% (13/21) were females. In our study, females outnumbered the males in the ratio

of 1.8:1. Male preponderance has been reported by some authors. (Ray *et al.*, 2006; Narayanan, 2005) However, more females

accessing the STI clinics has been noted by others (Ganju, 2012; Goel *et al.*, 2012).

Table.1 Age and Sex distribution of Sexually Transmitted Infection patients (n = 199)

Age in years	No. Of STI patients		Total	Percent
	Male	Female		
12-20	1	17	18	9.05
21-30	23	58	81	40.7
31-40	29	25	54	27.15
41-50	8	19	27	13.6
>50	11	8	19	9.5

Table.2 Sociodemographic Status of Sexually Transmitted Infection Patients (n = 199)

Status	No. Patients (n=199)	Percent
Education		
Illiterate	49	24.6
Primary school	22	11.05
Middle school	18	9.05
Secondary school	66	33.2
Graduate	44	22.1
Socioeconomic status*		
Upper middle class	28	14.1
Lower middle class	50	25.1
Upper lower class	110	55.3
Lower class	11	5.5
Occupation		
House wife	80	40.2
Labourer	32	16.1
Trader	20	10.05
Government employee	17	8.54
Clerk	15	7.53
Farmer	7	3.5
Mechanic, tailor, barber, painter	8	4.02
Student	8	4.02
Auto/truck driver	6	3.02
Retired	6	3.02

*According to modified Kuppaswamy's socioeconomic scale.

Table.3 Marital Status of Sexually Transmitted Disease Patients (n = 199)

Marital status	Male	Female	Total	Percent
Married	60	120	180	90.5
Unmarried	12	7	19	9.5

Table.4 Sexual behaviour in sexually transmitted infection patients (n = 199)

Sexual Behaviour	Male	Female
Contact with commercial sex workers (CSWs)	30	0
Contact with known person	0	5
Use of barrier contraception	8	0
Spouse with premarital and extramarital exposures	0	14
Bisexual contact	3	0

Table.5 Pattern of sexually transmitted infections (n = 199)

STI	No. female patients	No. male patients	Total (%)
Candidiasis (Vulva Vaginal Candidiasis in female and candidal balanoposthitis in male)	29	32	61 (30.7%)
Herpes genitalis	10	15	25 (12.6%)
Condylomata acuminata	8	5	13 (6.5%)
Molluscum contagiosum	6	1	7 (3.5%)
Trichomoniasis	4		4 (2%)
Bacterial vaginosis (BV)	4		4 (2%)
Non-gonococcal urethritis/cervicitis	2		2 (1%)
Gonococcal urethritis	1	1	2 (1%)
Genital ulcer disease non-herpetic		2	2 (1%)
Mixed infections	63	8	71 (35.7%)
Venereophobia		8	8 (4%)

Table.6 Frequency of different sexually transmitted infections in the multiple infections group

Mixed Infection (n=71)	Frequency	Percentage
Trichomoniasis	59	83.1
Candidiasis	52	73.2
Bacterial vaginosis	36	50.7
Non gonococcal cervicitis/urethritis	22	30.98
Genital ulcer disease-Herpetic	11	15.5
Gonococcal urethritis	2	2.8
Molluscum contagiosum	2	2.8
Lymphogranuloma venereum	1	1.4

In the present study, highest number of patients (40.7%) was seen in the age group of 21-30 years. This is also the predominant age group observed to be having STI in other Indian studies (Devi *et al.*, 2009; Saikia *et al.*, 2009; Jain *et al.*, 2008). 55.3% of all our patients had completed middle school education and 55.3% belonged to upper lower class according to modified Kuppuswamy's Socio-economic scale. Similar findings were reported by Saikia L *et al.*, 2009.

In the present study, proportion of STIs was significantly higher in housewives (40.2%), followed by labourers (16.1%) and traders (10.05%).

The majority of our patients were married (90.5%). 16.7% of the total males, while only 5.5% of total number of females were unmarried.

Sexual behaviour among STI patients in our study is similar to that reported by Singh *et al.* (2008).

In our study, 35.7% of the patients had more than one concurrent STIs. Similar observation has been made by Choudhry S *et al.*, (13) study. Trichomoniasis (83.1%), Candidiasis (73.2%), Bacterial vaginosis (50.7%) and Non gonococcal cervicitis / urethritis (30.98%) were most frequently associated with multiple STIs. These findings are contrary to the report of Choudhry S *et al.* (2010).

In the present study, the prevalence of HIV among STI patients was 10.5% (females - 62%, males - 38%) with female to male ratio being 1.6:1. There was a wide variation for seropositivity for HIV among STI patients, 8.21% in Zamzachin *et al.*, (2003) study, 9.62% in Jaiswal *et al.*, (2002) study, 17.2% in Saikia *et al.*, (2009) study, and 10.3% in Choudhry *et al.*, (2010) study.

The burden of disease caused by STI and HIV on a nation, varies widely, both within and between different countries. Prompt administration of effective therapy for STIs reduces transmission of HIV by reducing the duration of a biological cofactor for HIV transmission, which can lead to decreased infectiousness in an HIV positive person or decreased susceptibility in an HIV negative person. By continuous surveillance of STI cases, changing trends can be traced, leading to identification of highly affected groups. This helps in redesigning preventive strategies, with the goal of finding the most effective way to reach these highly affected population groups.

Imparting sex education in high schools, lower socio-economic groups is recommended. Information, Education and Counselling (IEC) techniques on safe sex, condom usage, restriction to single partner, targeting the high risk groups such as commercial sex workers, recognition of early symptoms of STIs will further decrease the risk of STI transmission.

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