

## Clinico-epidemiological study of viral infections among sexually transmitted infections in male patients at a tertiary care centre

Sathish S<sup>1,\*</sup>, Leelavathy B.<sup>2</sup>, Sacchidanand Sarvagnamurthy Aradhya<sup>3</sup>, Nataraj HV<sup>4</sup>

<sup>1</sup>Assistant Professor, Sri Devraj Urs Medical College, <sup>2</sup>Professor & HOD, <sup>4</sup>Former Professor & HOD, Bangalore Medical College & Research Institute, Department of Dermatology, <sup>3</sup>Registrar of Evaluation, Rajiv Gandhi University of Health Sciences

**\*Corresponding Author:**

Email: sathish04bmc@gmail.com

---

### Abstract

**Background:** Viral sexually transmitted infections (STI s) such as human papilloma virus (HPV) and herpes simplex virus (HSV) infections constitute an increasing proportion of the STI burden as an effective curative therapy is not available, which is in contrast to bacterial STI s where effective antibiotics are available as a curative therapy. Of particular concern is acquisition and transmission of human immunodeficiency virus (HIV) infection and its implications

**Aims and objectives:** To study the trend of viral STIs among male STI patients attending a tertiary care centre.

**Methods and Material:** It was prospective hospital based study conducted at tertiary care centre. The study included 135 male STI patients. A detailed history including sexual history, high risk behavior was taken and complete head to toe clinical examination was done. Patients were also subjected to ELISA for HIV 1&2 antibodies, VDRL, and other investigations relevant to STI s.

**Statistical analysis used:** Descriptive statistics

**Results:** A total of 135 male patients with STIs was included in the study and 64% of them had viral STIs, and rest 36% had non-viral STIs which included 56 cases of genital herpes, 25 of genital wart, 17 candidal balanoposthitis.

**Conclusions:** In our study, viral STI s were the most common STI s. Genital herpes was the most common among viral STI's followed by genital wart and mollusum contagiosum.

**Key-words:** Human Immuno deficiency virus, Genital herpes, Genital wart, mollusum contagiosum, Viral Sexually transmitted infections.

**Key Messages:** Viral STIs are emerging as the most common STIs. Genital herpes is the most common among viral STIs. Majority of them are still not aware of safe sex practices like; condom usage, single partner and implications of it like STI s & HIV. Importance of IEC activities and safe sexual practices go a long way in containing the spread of sexually transmitted infections.

---

### Introduction

Sexually transmitted infections (STIs) are a major public health problem in developing countries. In India during 1960s and 70s, bacterial infections such as syphilis, chancroid and gonorrhea were the major STIs and viral infections such as herpes simplex virus, human papilloma virus, Epstein barr virus, Cytomegalovirus, Hepatitis-B and Hepatitis-C infections were rare. The spread of HIV with subsequent behavioural change since 80s has resulted in significant alteration in epidemiological patterns of STIs, there has been a significant rise in viral infections and relative fall in incidence of bacterial infections, this may be due to increased self-reporting by patients of viral STIs, indiscriminate use of broad spectrum antibiotics, effectiveness of syndromic approach of treatment and upgradation of health services at the primary level. Recent data suggest that the genital herpes is the commonest genital ulcerative disease (GUD), and HPV infection is the most common among non-ulcerative STIs as well as most common STIs overall.<sup>1</sup> Hence the present study was undertaken to study the trend of viral STIs among male STI patients attending a tertiary care centre.

### Subjects and Methods

**Study Design:** It was a prospective study design.

**Study Setting:** Study was conducted at STD clinics of Victoria and Bowring hospitals of Bangalore Medical College and Research Institute, Bangalore, on a total of 135 male patients affected with sexually transmitted infections (STIs) who attended our STD outpatient clinic at Victoria and Bowring hospitals from May 2012 to May 2013.

**Study population:** Male patients of all age groups who presented with complaints suggestive of STI s were included in the study.

**Study Duration:** 1 year (May 2012 to May 2013).

**Sample Size:** A study conducted by Rizwan SA et al, the commonest self-reported STI symptom was burning micturition (34.9%),<sup>2</sup> this was taken to calculate sample size with the absolute precision at 8%, alpha 5% with design effect of 1, the sample size derived was 135 which was calculated using the OpenEpi (Version 3.03).

**Sampling Method:** A convenient sampling method was used to collect data.

**Data Collection:** The study was conducted after taking ethical clearance from the Institutional Ethics Committee, Bangalore Medical College and Research Institute, Bangalore. After taking informed written consent from the study participants, the data was

collected from those who were willing to participate in the study by using predesigned patient information proforma. The proforma included details about sociodemographic factors (age, occupation, residence, education, marital status), clinical history (presenting illness, history of STIs similar or other illness in the past, sexual history including high risk behaviours like multiple sex partners, homosexuality, sexual practices like oral and anal sex, use of condoms) and examination of the patient (head to toe examination) which was used to arrive at a clinical diagnosis. To confirm the diagnosis, investigations such as ELISA for HIV 1&2 antibodies and VDRL for all the patients, Gram's staining for *H. ducreyi*, Tzanck smear for herpes simplex virus, Wet mount for protozoans, KOH mount for candida, Dark field microscopy for treponemes, Bubo aspiration and smear for lymphogranuloma venereum were done, serology for Hepatitis B & C were not done as most of the patients were not affordable.

## Results

Out of 135 patients, most of them were in the reproductive age group (Table 1). Among the study population, 72.5% were married and 27.5% were unmarried and 28.9% were HIV positive and 71.1% were HIV negative. Most of them had secondary education (Table 2) and majority of them were working in private sector (Table 3).

The predominant type of sexual intercourse was vaginal in 129 (95.6%), remaining 4 (2.9%) and 2 (1.5%) of them were having anal intercourse and oral intercourse respectively. Condom usage rate was 33% that is 45 of them had used condoms and 90 had not used.

Among the total number of cases, majority of them had viral STIs (Table 4). Among the total cases, 87 (64.4%) had viral infections, 25 (18.5%) had bacterial infections, 17 (12.6%) had fungal infections and the remaining 6 (4.4%) patients were presented with mixed STIs.

Among the 87 viral STIs, 24 were found to be HIV positive (27.6%) and 63 were HIV negative (72.4%). Out of the 24 HIV positives, 14 (58.33%) had genital herpes, 7 (29.16%) had genital warts and 3 (12.5%) had molluscum contagiosum. Out of the 63 HIV negatives, 42 (66.66%) had genital herpes, 18 (28.57%) had genital warts and 3 (4.7%) molluscum contagiosum.

**Table 1: Distribution of patients based on age group**

Age group	Number n=135	Percentage
15-25	22	16.30
26-35	53	39.25
36-45	35	25.92
46-55	17	12.60
>55	08	05.93

**Table 2: Educational status of the patients**

Educational status	Number n=135	Percentage
Illiterates	35	25.90
primary education	24	17.80
secondary education	42	31.10
pre-university education	16	11.85
Graduation	18	13.33

**Table 3: Occupational status of the patients**

Occupational status	Number n=135	Percentage
Unemployed	24	17.80
Coolie	08	05.90
Drivers	19	14.07
Industries	06	04.44
Farming	07	05.20
Security	05	03.70
Private sector	61	45.20
Public sector	05	03.70

**Table 4: Distribution of STIs among study population**

Type of STI	Number n=135	Percentage
Genital Herpes	56	41.50
Genital Wart	25	18.50
Candidal Balanoposthitis	17	12.60
Syphilis	08	05.90
Molluscum Contagiosum	06	04.44
Mixed Infections	06	04.44
Gonococcal Urethritis	07	05.20
Chancroid	07	05.20
Non-Gonococcal Urethritis	03	02.20

## Discussion

In our study 110/135 patients were between 15-45 years, that is most of them 81.4% were in the reproductive age group. Mean age group is 36.36 years which is comparable with the study by Sabyasachi et al 30.60 years.<sup>3</sup> The reason for such a high prevalence in this age group is due to increased sexual activity and they are prone to high risk behaviours like multiple sex partners, homosexuality, un-protected sex, drug & alcohol abuse.

Most of them were married about 73%, in other studies like one study by Jain et al<sup>4</sup> only 50% of men were married, and another study by Saikia et al<sup>5</sup> 55.5% of them were married indicating higher incidence of pre-marital exposure compared to our study.

Most of them were educated till higher secondary education about 58.1%, in another study by Burzin et al<sup>6</sup> patients having high school level education accounted

for 36.7% cases which is much less compared to our study.

Condom usage rate in our study is 33%. A survey on condom usage revealed that, 58% of the surveyed males used condom, which was higher compared to our study.<sup>7</sup>

Most of them about 97% were heterosexuals and 3 were homosexuals.

In our study 64% of them had viral STI s, and rest 36% had non-viral STI s. In another study by Vora et al<sup>8</sup> at Gujarat in 2011, viral infections accounted for 62.2% of cases and 37.8% cases were non-viral which is comparable with our study.

Out of the 87 viral STI s genital herpes was the most common infection accounting for 64.3%, genital wart accounted for 28.7% and remaining 7% were mollusum contagiosum. In another study conducted by Sarkar et al,<sup>9</sup> also showed similar observations; overall commonest STI was genital herpes followed by genital wart.

Out of the 87 viral STI s 24 were HIV positives (27.5%), 63 were HIV negatives. In another study HIV prevalence among STI s was 8.12% which is very low compared to our study.<sup>10</sup>

## Conclusion

In our study, viral STIs were the most common STIs. Genital herpes was the most common among viral STI's followed by genital wart and mollusum contagiosum. The trend of STI s are changing in the recent years from bacterial towards viral infections, the reason may be because of increased use of broad spectrum antibiotics and no proper curative therapy for the viral infections and also the chronicity and latency of the viral infections.

## References

1. Jain V K, Dayal S, Aggarwal K, Jain S. Changing trends of sexually transmitted diseases at Rohtak. *Indian J Sex Transm Dis* 2008;29:23-5.
2. Abdulkader RS, Kant S, Rai SK, Goswami K, Misra P. Prevalence and determinants of sexually transmitted infections (STIs) among male migrant factory workers in Haryana, North India. *Indian J Public Heal*. 2015;59(1):30-6.
3. Banerjee S, Halder S, Halder A. Trend of sexually transmitted infections in HIV seropositive and seronegative males: A comparative study at a tertiary care hospital of North East India. *Indian J Dermatol* 2011;56:239-41.
4. Jain V K, Dayal S, Aggarwal K, Jain S. Changing trends of sexually transmitted diseases at Rohtak. *Indian J Sex Transm Dis* 2008;29:23-5.
5. Saikia L, Nath R, Deuori T, Mahanta J. Sexually transmitted diseases in Assam: An experience in a tertiary care referral hospital. *Indian J Dermatol Venereol Leprol* 2009;75:329.
6. Burzin KK, Parmar K S, Rao M V, Bilimoria F E. Profile of sexually transmitted diseases in pediatric patients. *Indian J Sex Transm Dis* 2007;28:76-8.
7. Majra J P. Correct and consistent use of condoms. *Indian J Sex Transm Dis* 2009;30:53.
8. Vora R, Anjaneyan G, Doctor C, Gupta R. Clinico-epidemiological study of sexually transmitted infections in males at a rural-based tertiary care center. *Indian J Sex Transm Dis* 2011;32:86-9.
9. Sarkar S, Shrimal A, Das J, Choudhury S R. 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;3:206-9.
10. Zamzachin G, Singh N B, Devi T B. STD trends in regional institute of medical sciences, Manipur. *Indian J Dermatol Venereol Leprol* 2003;69:151-3.