ORIGINAL RESEARCH PAPER
Volume - 10 | Issue - 07 | July - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

SEXUALLY TRANSMITTED INFECTIONS (STI) TRENDS AT A TERTIARY CARE HOSPITAL IN NORTH-INDIA: AN OBSERVATIONAL STUDY

Dermatology

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ABSTRACT

Sexually transmitted infections (STI's) are a global health issue. There can be serious repercussions apart from the immediate effect of the infection including increased risk of acquisition of Human Immunodeficiency Virus (HIV) infection especially with ulcerative STIS.

A retrospective study was conducted amongst the patients who attended STI (Suraksha) clinic at Government medical college ,Amritsar between June 2014 to May 2020. STIs have a tremendous impact on public health. They are responsible for a significant proportion of infertility in both the sex, morbidity, economic loss to the family, and increased susceptibility to HIV infection. STIs are a major contributor to fetal deaths, abortions, and the delivery of low birth weight babies.

It is of great significance to study their incidence periodically and region wise, and understand the changing trends in order to plan the control strategies. The present study aimed at studying the clinical profile of STIs in this part of the country over 6 years. Since many patients refrain from seeking medical advice, this study was restricted to the patients attending the hospital.

KEYWORDS

Sexually transmitted diseases, Human Immunodeficiency Virus (HIV), Changing Trends in STI's.

INTRODUCTION

Sexually transmitted infections (STIs) are a global health issue. There can be serious repercussions apart from the immediate effect of the infection including increased risk of acquisition of HIV (Human immunodeficiency virus) infection especially with ulcerative STIs.

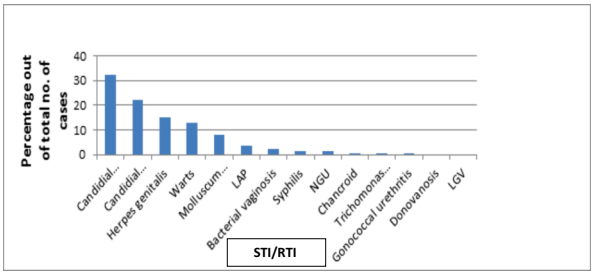
It is of great significance to study theirincidence periodically and region-wise,and understand the changing trends in order to plan the control strategies. The present study aimed at studying the clinical profile of STIs in this part of the country over 6 years. Since many patients refrain from seeking medical advice, this study was restricted to the patients attending the hospital.

MATERIALS AND METHODS

A retrospective study was conducted amongst the patients who attended STI(Suraksha) clinic at Government medical college ,Amritsar between June 2014 toMay 2020. Diagnosis was made based on history, clinical examination and relevant laboratory investigations as per requirement which included KOH examination, wet mount preparation and gram staining in all females with vaginal discharge in order to diagnose candidalvulvo-vaginitis,trichomoniasis and bacterial vaginosis respectively;tzanck smear and herpes simplex virus 1 and 2 serology in patients with suspected herpetic ulcer, gram staining for suspected chancroid and gonococcal urethritis. All the patients were advised to get HIV (human immunodeficiency virus) antibody and VDRL test from microbiology department of the hospital. TPHAtest was done in patients with reactive VDRL with titre less than 1:8. Diagnosis of HIV was confirmed by competitive ELISA and rapid tests, as recommended by the National AIDS Control Organization (NACO).

RESULTS AND OBSERVATIONS

A total of 6413 new patients attended STI(Suraksha) clinic out of which 3225(50.3%) were male and 3188(49.7%) were female .male to female ratio was1.01:1 .



Bar graph showing diagnosis in 6413 patients

- NGU = non gonococcalurethritis ; LGV = lymphogranuloma venereum; LAP = lower abdominal pain

	TOTAL	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Candidalvulvo-vaginitis	2079 (32.41%)	319(36.58%)	349(33.2%)	358(29.73%)	245(24.06%)	410(33.8%)	398(37.6%)
Candidalbalanoposthitis	1425 (22.2%)	225(25.8%)	278(26.5%)	311(25.83%)	212(20.8%)	228(18.8%)	171(16.1%)
Herpes genitalis	927(15.15%)	133(15.25%)	147(14.01%)	175(14.53%)	151(14.83%)	207(17.09%)	159(15.04%)
Warts	834(13%)	88(10.09%)	109(10.39%)	136(11.29%)	179(17.58%)	142(11.71%	180(17.02%)
Molluscumcontagiosum	510(7.95%)	48(5.50%)	83(7.9%)	97(8.05%)	92(9.03%)	115(9.48%)	75(7.09%)
LAP	238 (3.71%)	36(4.12%)	59(5.62%)	46(3.82%)	40(3.92%)	45(3.71%)	12(1.13%)
Bacterial vaginosis	159 (2.47%)	08(0.96%)	1(0.09%)	26(2.15%)	57(5.59%)	39(3.21%)	28(2.64%
Syphilis	89(1.38%)	9(1.03%)	14(1.33%)	7(0.58%)	14(1.37%)	19(1.56%)	26(2.45%)
NGU	84(1.30%)	4(0.45%)	7(0.66%)	38(3.15%)	23(2.25%)	6(0.49%)	6(0.56%)
Chancroid	12(0.18%)	2(0.22%)	2(0.19%)	4(0.33%)	1(0.09%)	1(0.08%)	2(0.18%)
Trichomonasvaginalis	8(0.12%)	Nil	Nil	5(0.41%)	3(0.29%)	Nil	Nil
Gonococcal urethritis	3(0.04%)	Nil	Nil	1(0.08%)	1(0.09%)	1(0.08%)	Nil
Donovanosis	Nil	Nil	Nil	Nil	Nil	Nil	Nil
LGV	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Total cases	6413	872	1049	1204	1018	1213	1057

Amongst the patients presenting with vaginal discharge ,candidalvulvo-vaginitis (32.41%; 2079 cases) was found to be most common followed by bacterial vaginosis (2.47%; 159cases) and trichomonasvaginalis (0.12%;8cases).KOH preparation was positive in 97% of the cases with candidalvulvo-vaginitis. Clue cells were observed in 91%cases of bacterial vaginosis and wet mount preparation was positive in all cases diagnosed with trichomoniasis.

STI/RTI like LAP (Lower abdominal pain) contributed to 3.17%(238) of the cases.

Amongst males ,candidalbalanoposthitis (22.2%;1425cases) was found to be the most common cause of visit to STI clinic. Among the ulcerative STIs , herpes genitalis (15.15%;927cases) was observed to be the most common cause in both males and females. Tzanck smear was positive in 65.6% of the cases.

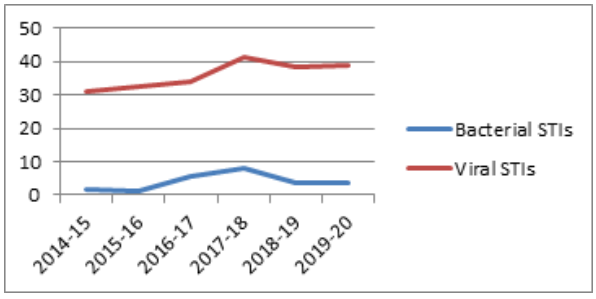
Syphilis constituted 1.38% (89 cases)of the total cases .Most of the diagnosed patients were in latent stage. VDRL titres were more than 1:8 in 68% of the cases. TPHA was done in patients with VDRL titre less than 1:8 and in these cases both VDRL and TPHA were found to be positive. Out of total patients with syphilis, 6.7%(6) cases present with primary chancre, 4.5%(4) patients presented with secondary syphilis and 88.7%(79) patients presented to us in latent stage.

Chancroidcomprised 0.18% (12) of the total cases. All patients were male.Gram stain came out to be positive in 67% of the cases.

There was no case of lymphogranulomavenereum and donovanosis during this study period.

Among the non-ulcerative STIs ,ano-genital warts were the most common (13%;834 cases) followed by molluscumcontagiousum (7.95%; 510 cases). There was an upward trend in occurrence of warts though molluscumcontagiosum did not show any change in the trend.

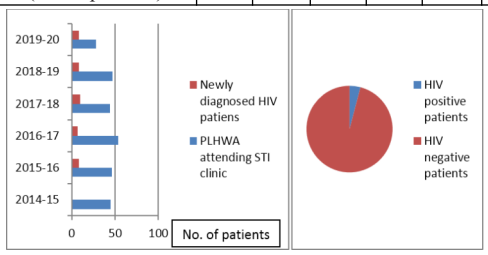
NGU(non gonococcal urethritis)(1.3%) was more common than gonococcal urethritis (0.04%).Gram stain was positive in all cases of gonorrhoea.



- **Line diagram representing bacterial and viral STIs over the years**

In our study , PLWHA (people living with HIV and AIDS) constituted 4.1% of the total attendees. Newly diagnosed HIV patients constituted 0.65%.

	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
PLWHA (no. of patients)	45	46	54	44	47	28
Newly diagnosed HIV patients (no. of patients)	1	8	7	10	8	8



DISCUSSION

Sexually transmitted infections (STIs) are a global health problem of great magnitude. The pattern of STIs differs from country to country and from region to region, especially in large countries such as India.

STIs have a tremendous impact on public health. They are responsible for a significant proportion of infertility in both the sexes , morbidity, economic loss to the family, and increased susceptibility to HIV infection. STIs are a major contributor to fetal deaths, abortions, and the delivery of low birth weight babies.

In our study, the most common age group attending Suraksha clinic was 25-44 years as seen in previous studies.[1-4,6-9,11]Male preponderance has been noted in previous studies but number of male (50.3%;3225 cases) and female (49.7%;3188 cases) attendees was almost same in this study which can be attributed to increased awareness amongst the female patients with time.

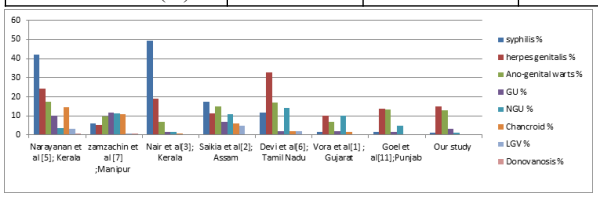
In our study,candidalvulvo-vaginitis was the most common cause of vaginal discharge followed by bacterial vaginosis and trichomoniasis. Comparison with other studies is shown in the following table. In the study by venugopal et al, only patients presenting with vaginal discharge were studied and other STIs were excluded from the study.

Incidence of candidalvulvo-vaginitis remained almost same throughout the study period. Incidence of bacterial vaginosis showed a rise. No specific trend was observed in trichomoniasis and comparatively few cases were seen(0.12%;8).

Cause of vaginal discharge	zamzachin et al [7] ;Manipur (1996-2000)	Nair et al[3]; Kerala (1996-2005)	Vora et al[1]; Gujarat (2008-2015)	Venugopal et al[10]; Tamil Nadu (2012-2014)	Goel et al[11];Punjab (2013-2017)	Our study (2014-2020)
Candidalvulvo-vaginitis (%)	2.6	32	32.7	22	14.4	32.4
Bacterial vaginosis (%)	0.6	0.3	8	27	2.08	2.4
Trichomoniasis (%)	2.3	2	7.6	25	0.64	0.1

Following table shows comparison of STI prevalence between our study and various other studies during different time period.

STI	Narayanan et al [5]; Kerala (1990-2000)	zamzachin et al [7] ;Manipur (1996-2000)	Nair et al[3]; Kerala (1996-2005)	Saikia et al[2] ; Assam (2002-2005)	Devi et al[6]; Tamil Nadu (2004-2006)	Vora et al[1]; Gujarat (2008-2015)	Goel et al[11]; Punjab (2013-2017)	Our study (2014-2020)
Syphilis(%)	42.1	6.2	49.3	17.2	11.6	1.5	1.4	1.3
Herpes genitalis(%)	24.4	5.2	18.9	11.3	32.8	10.1	13.6	15.1
Ano-genital warts	17.5	9.6	6.9	15	17.1	6.7	13.2	13
GU	10.1	11.8	1.5	7	1.8	1.9	1.4	3
NGU	3.5	11.2	1.7	10.8	14.1	10.1	4.8	1.3
Chancroid	14.5	10.8	0.6	5.9	1.8	1.5	0.3	0.1
LGV	3	0.6	0.5	4.8	1.8	0.1	0.4	nil
Donovanosis (%)	0.8	0.8	-	-	-	0.2	-	-



Amongst the ulcerative STIs , herpes genitalis (15.15%) was found to be the most common cause. Percentage of patients with herpes genitalis ranged from 2.3% to 32.8% in various studies across India.[1-3,5-9]

Syphilis has shown a declining trend over the years (1.3%).[1,3,4,5-7] In our study there was increase in number of syphilis patients during the year 2019-2020.

The occurrence of gonococcal and NGU ranged from 1.8% to 12.1% [1-7] and 3.5% to 14.1% [1-7] respectively, in various studies across India. In our study occurrence of GU was lower than studies conducted by narayan et al[5] ,Saikia et al[2]and zamzachin et al[7] but higher than other studies. Occurrence of NGU was lower as compared to other studies.

Occurrence of genital warts ranged from 3.9% to 27.3% [1,3-8] and that of MC from 0.9% to 2.9% in various studies across India[6-9] .In the present study, incidence of genital warts(13%) was comparable to other studies but that of MC (7.95%) was found to be higher. There was an upward trend in occurrence of warts though no specific pattern was observed in molluscumcontagiosum.

Over the years, bacterial STIs (chancroid,gonorrhoea, LGV, bacterialvaginosis) have shown a decreasing trend whereas contribution of viral STIs persists and is increasing in community.

There was a downward trend in PLWHA attending our STI clinic.

Following table compares our study with another study conducted in North India over a period of 15 years from 1990 -2002 where division was made into 3 groups of 4 years and one group of 2 years. [12]

STI	Ray et al[12];New Delhi (1990-1993)	Ray et al[12];New Delhi (1994-1997)	Ray et al[12] ;New Delhi (1998-2001)	Ray et al[12];New Delhi (2002-2004)	Our study (2014-2020)
syphilis	15.8	24	26.8	24.2	1.38
Herpes genitalis	5.7	14.6	19.4	22.4	15.15
Warts	5.8	11	10.5	18.1	13
GU	13.7	13.3	19.4	15.4	0.04
NGU	4.6	5.2	6.6	2.8	1.30
Chancroid	12.6	11.8	9.4	5.4	0.18
LGV	3.4	1.3	0.6	0.2	NIL
Donovanosis	3.9	2.4	1.1	0.2	NIL
Candida vulvo-vaginitis	21.7	9.7	4.4	8.6	32.4
Bacterial vaginosis	5.7	2.6	1.1	1.4	2.4
Trichomoniasis	7.1	4.1	0.8	1.2	0.1

Similar study was conducted in our department between april 2007 to march 2014 to study pattern and prevalence of STI at Suraksha clinic[10]

Following table highlights the comparison between the previous and present study at our institution.

STI	Previous study (%) (2007 april - 2014 march)	Present study (%) (2014 june – 2020 may
Syphilis	2.06	1.38
Genital warts	10.61	13
Herpes genitalis	21.75	15.15
Chancroid	1.10	0.18
Donovanosis	0.07	NIL
LGV	0.17	NIL
GU	0.33	0.04
NGU	2.37	1.30

HIV positivity among STI clinic attendees ranged from 0.6% to 37.6% in various studies conducted across India[1-5] which was consistent with our study. It is important to know HIV status of the STI patients as both conditions help in transmission of the other.

CONCLUSION

A relative decrease has been observed in bacterial STIs with viral STIs remaining the same or showing slight increase. More number of similar studies are needed in various regions across India to compare the present scenario in different states. Such studies in various regions can help us understand the present scenario thus guiding us in modifying the existing strategies and interventions for the control of STIs.

Acknowledgment

The authors gratefully acknowledge Mrs Baljeetkaur, STI counselor, for her constant effort and support in collecting and providing the data.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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