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Short Communication

Syndromic and Aetiological Profile of Patients Attending STD Clinic during COVID-19

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ABSTRACT

Coronavirus disease 2019 (COVID-19) affected epidemiology of sexually transmitted diseases (STDs) across the world due to decreased clinic attendance and hampered delivery of services. This retrospective study was undertaken from January 2020 to December 2021 to assess epidemiological trends of patients attending STD clinic of Apex Regional STD centre in North India. Correlation between COVID-19 and STD cases was assessed and numbers of various STD cases during pandemic were compared to pre-pandemic numbers. 1653 patients were included in the study. The most common presentation was vaginal discharge, followed by genital warts and genital ulcer. Correlation between STD and COVID-19 cases was not statistically significant. Statistically significant decrease in cases of non-gonococcal urethritis and syphilis was noted. This decrease could be either due to reduced disease transmission during COVID-19 or reduced clinic attendance which needs further evaluation.

Keywords: Coronavirus disease 2019, Epidemiology, Sexually transmitted diseases

INTRODUCTION

Coronavirus disease 2019 (COVID-19) affected close to 640 million worldwide.[1] Before COVID-19, the number of new cases of sexually transmitted diseases (STDs) was increasing across the world. According to the Centers for Disease Control and Prevention (CDC), 30% increase in reported cases of chlamydia, gonorrhoea and syphilis in the United States of America (USA) was seen between 2015 and 2019.[2] A rising trend of viral STDs and syphilis was also observed during 2014–2018 in India.[3] A 20% annual increase in all mandatory notifiable STDs was seen in Spain for the past 5 years before the pandemic.[4] Fear of contracting COVID-19 and lockdown restrictions affected sexual behaviour of patients as well as their hospital visits. In a study from the USA, 54% and 84% reduction in the number of STD clinic visits was seen in the COVID-19 evolving and plateau phase, respectively.[5] 40% reduction in the total number of consultations was seen during lockdown in a study from Australia.[6] Utilisation of STD resources for COVID-19 testing, vaccination and treatment presented additional barriers for patients needing STD care and services. 45% STD health department respondents reported disruptions in laboratory testing.[7] The impact of pandemic was different on different STDs. While some researchers found a sharp decrease in all STDs after the implementation of lockdown, others found no significant decrease in syphilis and gonorrhoea reporting from pre-lockdown to lockdown phase.[8] Hence, we undertook this study to examine the effect of COVID-19 on the epidemiology of various STDs.

MATERIALS AND METHODS

This hospital-based, retrospective study was conducted from January 2020 to December 2021. Clinical and demographic details were recorded from pre-designed datasheets of the STD clinic during pandemic (2020–2021). Unpaired *t*-test and *P*-value were calculated to compare diseases during 2 years of COVID-19 and pre-COVID-19. STD cases were also correlated with COVID-19 cases and peaks using the Spearman correlation coefficient.

RESULTS

The most common age group was 21–40 years and females outnumbered males [Supplementary Table 1]. Presenting complaints and final diagnoses are in Table 1.

Overall, the most common presenting complaint was vaginal discharge accounting for 49.6% and 54% cases among females in 2020 and 2021, respectively. In males, the most common presenting complaint was redness or itching, burning sensation over the penis (balanoposthitis) in 2020 (26.5%) and genital ulcer in 2021 (29.3%). Candidiasis was the most frequently implicated aetiology of vaginal discharge (55.3%).

There was a decline in STD cases in months with very high COVID-19 cases, but the correlation was not statistically significant (Spearman's correlation coefficient - 0.2, $P = 0.327$) [Figure 1].

On comparing the various diseases pre-pandemic and during COVID-19 pandemic, there was a statistically significant decrease in the cases of non-gonococcal urethritis and syphilis [Table 2].

DISCUSSION

The COVID-19 pandemic brought great challenges to the world and the measures taken in response to the situation had consequences on the epidemiology of STDs. The fear of contracting the virus coupled with social confinement measures led to less people attending STD clinics. Berzkalns *et al.* noted that the sexual health clinic visits during

Table 1: Spectrum of presenting STD complaints and their final diagnosis.

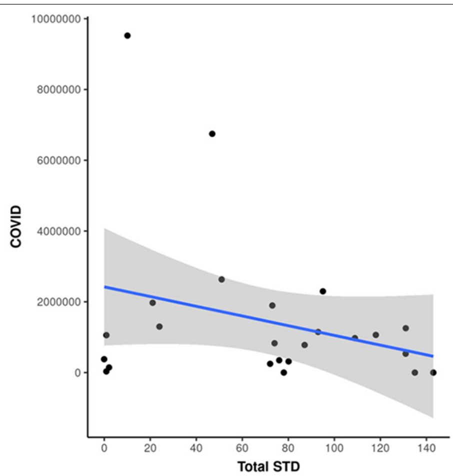
Diagnosis	2020			2021		
	Male	Female	Total	Male	Female	Total
Vaginal discharge	-	174	174	-	340	340
Candida	-	88	88	-	195	195
Trichomonas	-	5	5	-	7	7
Bacterial vaginosis	-	22	22	-	55	55
Others (*Escherichia coli, Staphylococcus aureus, Proteus*)	-	5	5	-	5	5
Gonococcal cervicitis	-	1	1	-	0	0
Non-gonococcal cervicitis	-	1	1	-	1	1
No organism isolated	-	52	52	-	77	77
Genital warts	58	44	102	99	66	165
Genital ulcer	66	25	91	122	45	167
Herpes	65	24	89	120	43	163
Chancroid	0	1	1	2	2	4
Primary syphilis	1	0	1	0	0	0
Syphilis	65	29	94	97	40	137
Primary syphilis	1	0	1	0	0	0
Secondary syphilis	8	4	12	26	10	36
Latent syphilis	56	25	81	71	30	101
Molluscum contagiosum	26	35	61	39	53	92
Balanoposthitis	68	-	68	84	-	84
Infectious (*Candida*)	18	-	18	24	-	24
Non-infectious	50	-	50	60	-	60
Urethral discharge	19	-	19	60	-	60
Gonococcal	14	-	14	52	-	52
Non-gonococcal	5	-	5	8	-	8
Total	257	351	608	416	629	1045

STD: Sexually transmitted disease

Table 2: Comparison of mean numbers of various diseases pre-COVID-19 pandemic versus during COVID-19 pandemic.

	Mean pre-COVID-19	Mean during COVID-19	% decrease/increase	*P*-value
Vaginal discharge	391	257	−34.3	0.297
Candida	148	142	−4	0.925
Trichomonas	12	6	−50	0.115
Bacterial vaginosis	66	39	−40.9	0.243
Others/No organism	165	66	−60	0.036*
Urethral discharge	65	40	−38.5	0.355
Gonococcal	38.5	33	−14.3	0.801
Non-gonococcal	26.5	7	−73.6	0.034*
Herpes	229.5	76	−66.9	0.108
Chancroid	4.5	3	−33.3	0.564
Syphilis	203	116	−42.9	0.032*
Warts	261	134	−48.7	0.065

*Significant *P*-value (<0.05). COVID-19: Coronavirus Disease 2019



Correlation	Spearman Correlation Coefficient	P Value
Total STD cases vs COVID cases	-0.2	0.327

Figure 1: Statistical correlation between coronavirus disease 2019 cases and sexually transmitted diseases (STD) cases using Spearman's coefficient formula. Black dots represent total COVID cases and STD cases and blue line indicates the corelation between these numbers.

lockdown in 2020 were 55% lower than in 2019.[9] In addition, some studies also found that the more stringent the control measures, the more the decline in reported STD cases.[10] Consequently, there was a sharp decline in gonorrhoea cases in the United Kingdom,[11] syphilis cases in Italy and USA,[12,13] gonorrhoea and syphilis cases in Greece and Spain[14,15] and HIV, hepatitis B and C, gonorrhoea and syphilis cases in China.[10] A sharp decline in STD clinic attendance and numbers of all STDs was noted in our study as well.

Diversion and reassignment of resources led to reduced hours of operation and disruptions in testing in STD clinics which hampered preventive counselling, early diagnosis and treatment. However, there was no disruption in the services of our STD clinic during the pandemic.

Lockdown restrictions on social gatherings reduced seeking of casual sexual partners and high risk sexual behaviour. Moreover, there were concerns about contracting COVID-19 infection from the partner. We did not assess the sexual behaviour and frequency in our patients but a study from Amsterdam showed a 73% reduction in the number of casual sex partners of men who have sex with men.[16] Li *et al.* observed a decrease in the number of sexual partners and sexual frequency during the lockdown period in China, especially among people with high-risk sexual behaviours.[17]

Some of the clients sought syndromic management through telemedicine consultations during this period, a practice supported by CDC recommendations.[18]

The present study was carried out to examine the epidemiological trends of patients attending STD clinic during COVID-19 pandemic and compare it with pre-pandemic period. Decline in STD clinic attendance and numbers of all STDs was noted during COVID-19 pandemic in contrast to the previous increasing trend every year. On correlating monthly STD cases with COVID-19 cases, no statistically significant trend was noted. Nationwide lockdown was announced on 24th March 2020 followed by gradual lifting of lockdown from June 1, 2020, to July 31, 2020.[19] Daily life and other services slowly became normal and the number of STD cases increased in the year 2021; however remained lower than in previous years. This is in contrast to findings from China, where after sharp decline of STD reported cases, the case numbers recovered quickly and then returned to normal.[11] A similar trend was also reported in the USA.[20]

In the study from China, after a rapid decline syphilis had rapid rebound but the recovery of gonorrhoea's case number was relatively slow.[10] In another study, there was no significant difference in cases of syphilis reporting during lockdown or post-lockdown but rebound increase in daily median chlamydia and gonorrhoea case reporting post-lockdown.[8] In our study, statistically significant reduction in the cases of non-gonococcal urethritis and syphilis compared to pre-pandemic numbers was noted. The exact mechanism leading to statistically significant decline in only few STDs still remains unanswered as contrasting findings were observed in different studies and need further evaluation.

We found only one other study from North-east India on epidemiology of STDs during COVID-19 pandemic. A decline in overall number of patients was seen but in contrast to our findings, herpetic genital ulcer was the most common STD, followed by syphilis and urethral discharge.[21]

Limitations of our study include retrospective study design and lack of polymerase chain reaction to identify causative organisms.

CONCLUSION

Decreased STD clinic attendance was noted during COVID-19. However, correlation between STD cases and COVID-19 cases was not significant. Statistically significant decline was noted in non-gonococcal urethritis and syphilis compared to pre COVID-19 numbers.

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