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Letter to the Editor

Coexistence of sexually transmitted infections (STI) with HIV among STI clinic attendees: A retrospective study from Kerala

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Sir,

Sexually transmitted infections (STIs) may increase susceptibility to HIV infection. Coexisting STI increases the transmissibility of HIV infection. HIV in turn can lead to atypical manifestations and treatment resistance of STIs.[1]

It is important to document the epidemiological trends in STIs and its clinical manifestations, especially from low-prevalent regions. In this retrospective descriptive study, we have attempted to document the clinical profile of STIs coexisting with HIV among STI clinic attendees of a tertiary referral center in South India.

After obtaining clearance from the institutional ethics committee, the case records of STI patients diagnosed at the STI clinic of a tertiary referral center from 2010 to 2017 were reviewed. Those with coexisting HIV infection were included in the study.

Records having insufficient data were excluded. Using a pre-set proforma, patient's characteristics, clinical details, and laboratory parameters were collected. Coexisting STIs were noted and response to treatment was recorded.

Data were entered in Microsoft excel and analyzed with SPSS version 18.

During the study period, 822 individuals with STI attended our center. Eighty-eight patients (10.7%) had coexisting HIV. The total number of STIs recorded in the study group was 96 with eight (9.1%) patients, manifesting combination of two STIs coexisting with HIV.

Males predominated with a male-to-female ratio of 1.4:1 (51 males and 37 females). There were no transgenders in the study group. There were no pregnant females among study subjects. Majority belonged to the 20–40 years of age group (70, 79.5%). There were 17 patients (19.3%) in the 40–60 years of age group and one patient (1.1%) in the age group of above 60.

Among males, eight persons (15.7%) were homosexuals and two (3.9%) others were bisexuals. All females were heterosexuals. Twenty-eight males (54.9%) and five (13.5%) females had multiple sex partners.

At the time of diagnosis of STI, 63/88 (71.6%) had already been diagnosed with HIV infection. Others came to know of their HIV-positive status during the evaluation for STI. Forty-nine

patients (55.7% of the total) were receiving combination antiretroviral therapy (cART) at the time of diagnosis of STI.

The most common STI coexisting with HIV was herpes genitalis (50, 52.1%), followed by syphilis (17, 17.7%), condyloma acuminata (14, 14.6%), and vulvovaginal candidiasis (12, 12.5%). Among the condyloma acuminata cases, there was one Buschke–Lowenstein tumor (1.1% of the total) [Table 1].

Recurrent herpes genitalis predominated in males (43.1%), whereas the prominent infection in females was vulvovaginal candidiasis (32.4%). All STIs except first-episode herpes genitalis and genital candidiasis predominated in males.

All nine secondary syphilis cases coexisting with HIV were documented in males. Three of the secondary syphilis cases had homosexual orientation, while one person had bisexual orientation. The other study subject with bisexual orientation manifested syphilis of unknown duration.

The eight patients who had two STIs coexisting with HIV included condyloma acuminata and recurrent herpes genitalis (three patients), condyloma acuminata and hepatitis B infection (two cases), syphilis of unknown duration and recurrent herpes genitalis (two cases), and syphilis of unknown duration and hepatitis B infection (one patient). All except one of these eight patients were male.

Table 1: STI with coexisting HIV among STI clinic attendees.

*Sexually transmitted infections	Male (%)	Female (%)
First episode herpes genitalis (18)	7 (38.9)	11 (61.1)
Recurrent herpes genitalis (32)	22 (68.8)	10 (31.3)
Secondary syphilis (9)	9 (100)	0 (0)
Syphilis of unknown duration (8)	7 (87.5)	1 (12.5)
Condyloma acuminata (14)	11 (78.6)	3 (21.4)
Vulvovaginal candidiasis (12)	-	12 (100)
Hepatitis B infection	2 (66.7)	1 (33.3)
Total number of STIs reported in study group (96)	58 (60.4)	38 (39.6)

*Total number of cases of each STI is given in brackets. Eight patients had more than one STI coexisting with HIV. STI: Sexually transmitted infections

The STIs in the 25 patients whose HIV status was detected during the evaluation for the STI were herpes genitalis (13/25, 52%), secondary syphilis (6/25, 24%), condyloma acuminata (5/25, 20%), and vulvovaginal candidiasis (1/25, 4%). Recurrent, treatment-resistant infection and history of having multiple sex partners prompted us to offer screening for HIV infection to the vulvovaginal candidiasis patient.

CD4 count at the time of diagnosis of STI was available in 66 patients [Table 2].

More than 40% patients had CD4 count >350 cells/mm^3. CD4 count <50 cells/mm^3 was recorded in herpes genitalis patients only.

Twelve of the 18 first-episode herpes genitalis cases required prolonged treatment with acyclovir (15–21 days) to attain complete relief, whereas all recurrent herpes genitalis patients responded to 5 days course of acyclovir. All six first-episode herpes genitalis cases who responded promptly to acyclovir had CD4 count >200 cells/mm^3. CD4 count was available in 9/12 patients who needed prolonged treatment with acyclovir. Only one patient had CD4 count >200 cells/mm^3. Three of the 12 patients (25%) who required prolonged treatment were receiving cART, while all the six patients who showed prompt response were on cART.

Wide excision was the treatment offered to Buschke–Lowenstein tumor. Eight of the remaining 13 (61.5%) condyloma acuminata cases failed to show response to chemical cautery with podophyllin or trichloroacetic acid; however, all of these resistant cases responded to cryotherapy. CD4 count at presentation was available in 6/8 treatment-resistant cases and all the six had CD4 counts <350 cells/mm^3 (69, 108, 151, 209, 221, and 262 cells/mm^3). CD4 count at presentation was available for 4/5 patients who responded to chemical cautery and all the four had CD4 count >350 cells/mm^3.

Neurosyphilis and cardiovascular syphilis were ruled out in patients with syphilis. All patients were treated with doxycycline. Sixteen out of 18 (88.9%) patients showed adequate response to treatment at 3 months review but did

Table 2: CD4 count at the time of diagnosis of sexually transmitted infection.

CD4 count	Herpes genitalis		Secondary syphilis (%)	SUD (%)	Condyloma acuminata (%)	Vulvovaginal candidiasis (%)	Total (%)
	First episode herpes (%)	Recurrent herpes (%)					
<50 cells/mm^3	2 (13.3)	5 (29.4)	0 (0)	0 (0)	0 (0)	0 (0)	7 (10.6)
50-200 cells/mm^3	6 (40)	3 (17.6)	1 (11.1)	0 (0)	4 (36.4)	0 (0)	14 (21.2)
201-350 cells/mm^3	3 (20)	3 (17.6)	2 (22.2)	0 (0)	3 (27.3)	5 (50)	16 (24.2)
>350 cells/mm^3	4 (26.7)	6 (35.3)	6 (66.7)	4 (100)	4 (36.4)	5 (50)	29 (43.9)
Total	15 (100)	17 (100)	9 (100)	4 (100)	11 (100)	10 (100)	66 (100)
Average CD4 count obseved for each STI	290.1	251	416.5	513.8	263.5	302.7	313.5

SUD: Syphilis of unknown duration, STI: Sexually transmitted infections

not return for subsequent follow-ups. Two patients (one with secondary syphilis and one with syphilis of unknown duration) were lost to follow-up.

All 12 vulvovaginal candidiasis patients showed lack of response to topical clotrimazole cream and single dose of 150 mg fluconazole but responded to treatment regimen for recurrent vulvovaginal candidiasis (fluconazole 150 mg on days 1, 4, and 7 and weekly thereafter for 6 months).

Male preponderance and predilection for sexually active age group as observed by us were consistent with literature.[2] Proportion of STI patients manifesting coexisting HIV as noted by us were lower than the reported frequency in one previous study (10.7% in our study vs. 22.8% in previous study).[3] More than 70% of the cases having previous diagnosis of HIV infection were comparable to the observation of Castro and Alcaide and highlighted the importance of re-education regarding safe sex practices among people living with HIV.[2]

Herpes genitalis being the most common STI in this study was in concordance with previous data.[1] This assumes importance as ulcerative STIs, especially herpes genitalis, increase risk of acquiring and transmitting HIV infection.[1] Our observation of vulvovaginal candidiasis being the most common STI coexisting with HIV infection in females was comparable to two previous Indian studies.[4,5] However, contrary to these two studies, there were no cases of vaginal or urethral discharge by gonococci, non-gonococcal agents, and *Trichomonas vaginalis*.[4,5] Excluding vulvovaginal candidiasis, first-episode herpes genitalis being the only STI that predominated in females could be owing to the high frequency of subclinical or less severe infection in males.

All secondary syphilis cases being males and 5/17 (29.4%) syphilis cases having homo/bisexual orientation (in comparison to the 11.4% [10/88] documented in total number of cases) were in concordance with studies from other parts of the world that have reported rise in syphilis among males having sex with males.[6]

Ten of the 12 (83.3%) vulvovaginal candidiasis cases recorded in patients receiving cART could be owing to the practice of those attending the ART clinic regularly for medicines opting to attend the nearby STI clinic in the same institution for the symptoms while those not on cART preferring peripheral centers for vaginal discharge which is a common infection in general population as well.

Inadequate treatment response has been reported by others when STIs coexist with HIV infection which was consistent with our findings for first-episode herpes genitalis, condyloma acuminata, and vulvovaginal candidiasis.[1] We observed association between high CD4 count and better treatment response in condyloma acuminata and first-episode herpes genitalis. Irrespective of CD4 count, all recurrent herpes cases responded to treatment promptly, whereas all except six of first episode herpes genitalis cases required prolonged treatment. Prompt response to antiviral treatment is documented for recurrent herpes genitalis than in primary cases, and longer duration treatment is recommended for primary herpes genitalis even in immunocompetent. Both reduced viral load and better immune response mounted by memory T-cells (though depleted in HIV coinfected) in recurrent infection might have contributed to the better response to treatment.

Limitations of the study were retrospective nature and nonavailability of CD4 count at the time of diagnosis of STI in 22/88 (25%) cases.

Despite these limitations, we were able to document the clinical profile of STIs coexisting with HIV among STI clinic attendees of a tertiary care center.

CONCLUSION

Significant percentage of STI patients manifesting coexisting HIV underscores the importance of increasing awareness about safe sex practices.

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Conflicts of interest

There are no conflicts of interest.

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