BJ MEDICAL COLLEGE

Patterns of various Sexually Transmitted Infections (STIs) during the COVID 19 Pandemic at a tertiary health care centre in Maharashtra- A retrospective analysis.

Year : 2021 | Volume : 49 | Issue : 0 | Page :

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Date of Web Publication 10-Apr-2021

Keywords

Abstract

Introduction- The global COVID-19(Coronavirus Disease 19) pandemic has the potential to indirectly impact the transmission dynamics of sexually transmitted infections (STI). Studies have already documented reductions in “sexual distancing” and interruptions in HIV (Human Immunodeficiency Virus) /STI services, but the overall impact is unknown. Aim: To determine the burden and any change in the etiological trend among attendees of an STI clinic at a tertiary care hospital during the COVID 19 (Coronavirus Disease 19) Pandemic. Material and methods: This retrospective study analysed data retrieved from consecutive patients attending STI clinic from March 2020 to February 2021. Results- Total of 4514 patients attended the STI clinic (including those without STIs requiring counselling) comprising 2360 (52.28%) males, 2150 (47.63%) females and 4 (0.09%) transgenders. Among the 638 STI syndromes, maximum cases were of Herpetic genital ulcer with 270 (47.32%) followed by Lower abdominal pain (84, 13.17%), Vaginal discharge (73, 11.44%), Non-herpetic genital ulcer (68, 10.66%), Cervical discharge (37,5.8%), Painful scrotal swelling (33, 5.17%), Syphilis (29, 4.55%), Urethral discharge (28, 4.34%) and Inguinal bubo (16, 2.51%). We noticed a 24.68% reduction in the number of STIs during the study period compared to the previous year (March 2019 to February 2020). Conclusion- These trends of STIs can be an indirect parameter to assess the impact of lockdown on human movements. Although the health care resources are currently prioritised to address the COVID 19 pandemic, there must be no compromise in access to STI services to avoid diagnostic delay and subsequent complications.

Title- Patterns of various Sexually Transmitted Infections (STIs) during the COVID 19Pandemic at a tertiary health care centre in Maharashtra- A retrospective analysis.ABSTRACT- Introduction- The global COVID-19(Coronavirus Disease 19) pandemic has the potential to indirectly impact the transmission dynamics of sexually transmitted infections (STI). Studies have already documented reductions in sexual activity (“sexual distancing”) and interruptions in HIV (Human Immunodeficiency Virus) /STI services, but the overall impact is unknown. **Aim:** This study

was conducted to determine the burden and any change in the etiological trend among attendees of an STI clinic at a tertiary care hospital during the COVID 19 (Coronavirus Disease 19) Pandemic. **Material and methods:** This retrospective study analysed data retrieved from consecutive patients attending STI clinic from March 2020 to February 2021. **Results**- Total of 4514 patients attended the STI clinic (including those without STIs requiring counselling) comprising 2360 (52.28%) males, 2150 (47.63%) females and 4 (0.09%) transgenders. Most common age group was 25-44 years (43.11%)Among the 638 STI syndromes, maximum cases were of Herpetic genital ulcer with 270 (47.32%) followed by Lower abdominal pain (84, 13.17%),Vaginal discharge (73, 11.44%), Non-herpetic genital ulcer (68, 10.66%), Cervical discharge (37,5.8%), Painful scrotal swelling (33, 5.17%), Syphilis (29, 4.55%), Urethral discharge (28, 4.34%) and Inguinal bubo (16, 2.51%). We noticed a 24.68% reduction in the number of STIs during the study period compared to the previous year (March 2019 to February 2020). There was a 25.6% increase in the number of cases diagnosed with STI with 65.3% increase in the HIV sero-positivity in the second half of the study period (September 2020 to February 2021) compared to the first half (March 2020 to August 2020). **Conclusion-** These trends of STIs can be an indirect parameter to assess the impact of lockdown on human movements. It is not known whether this decrease in reported cases represents reduced transmission or, more likely, a decrease in testing and/or reporting. Although the health care resources are currently prioritised to address the COVID 19 pandemic, there must be no compromise in access to STI services to avoid diagnostic delay and subsequent complications.

Keywords- COVID 19, Human Immunodeficiency Virus, Pandemic, Sexually Transmitted Infections.**Introduction-** Sexually transmitted infections figure prominently in dermatologic clinical practice and research. Certain groups of individuals are considered to be at highest risk for acquiring STI, comprising predominantly sexually active youth and persons indulging in promiscuous behaviour. The COVID 19 (Coronavirus disease 19) pandemic and the subsequent lockdown led to considerable restrictions in the day-to-day activities, which also reflected a change in the trends of reported Sexually Transmitted Infections (STIs). Behavioural responses to COVID-19 have included major reductions in social contacts that also entailed reductions in sexual activity ("sexual distancing"). (1,2,3) In addition, the pandemic has interrupted the provision of clinical services for HIV/STIs. One important question to be addressed is how these two variables — distancing that could decrease HIV/STI transmission, and service interruption that could increase transmission — will impact the overall incidence of HIV and STIs immediately during and in the post-COVID era. **Materials and methods-** A retrospective analysis of data retrieved from the clinical records of patients attending the STI clinic over a period a year (March 2020– February 2021) was carried out at Sassoon General Hospitals, Pune, Maharashtra, India.All individuals above the age of 18 years presenting at the STI clinic were considered eligible and their data was compiled for this analysis. A syndromic case management approach based on National Aids Control Organization (NACO) guidelines was used for the classification and treatment of the patients. According to institutional protocol, all patients presenting with genital ulcer disease are subjected to thorough clinical examination followed by investigations like dark ground illumination, Tzanck smear, Gram stain, culture, VDRL test (Venereal Disease Research Laboratory) and ELISA for HIV. In cases where an etiological diagnosis cannot be reached, syndromic management is offered. Partner tracing and counselling is routinely performed for all patients as part of NACO protocol. Parameters noted were age, gender, marital status, type of STI syndrome and HIV sero-status. As it was a retrospective study, approval from Institutional Ethics Committee was not required. However, strict confidentiality regarding patient identity was maintainedData analysis was performed using Microsoft Excel version 2019. Qualitative data variables were expressed as frequency and percentage. **Results-**Total of 4514 patients attended the STI clinic during the period of a year from March 2020 to February 2021. This included individuals without STIs who sought counselling and others who were referred with STIs. Of them, 2360 (52.28%) were males, 2150 (47.63%) females and 4 (0.09%) were transgender (Table 1, Graph 1) Most common attendees to the STI clinic belonged to the age group of 25-44 years (43.11%) (Table 2, Graph 2)Among the 638 syndromes presenting to the STI clinic, maximum cases were of Herpetic genital ulcer (270, 42.32%) followed by Lower abdominal pain (84, 13.17%). The other syndromes which presented in descending order of frequency were Vaginal discharge (73,11.44%), Non-herpetic genital ulcer (68, 10.66%), Cervical discharge (37, 5.8%), Painful scrotal swelling (33, 5.17%), Syphilis 29, (4.55%),

Urethral discharge (28, 4.34%) and Inguinal bubo (16, 2.51%) (Table 3, Graph 3)Among 337 females who were diagnosed and treated according to syndromic management, 114(33.83%) patients had Herpetic Genital ulcer disease, 84(24.92%) had lower abdominal pain, 73(21.66%) had Vaginal discharge, 37(10.98%) had cervical discharge, 22(6.54%) had non-herpetic genital ulcer disease and 7(2.07%) had Syphilis (Graph 4). Among males, 156(51.83%) had herpetic genital ulcer, 46(15.28%) had non-herpetic genital ulcer, 33(10.96%) had painful scrotal swelling, 28(9.32%) had urethral discharge, 22(7.30%) were diagnosed with syphilis and 16(5.31%) had inguinal bubo (Graph 5). All were treated with respective colour coded kits as per NACO (National AIDS Control Organization) guidelines.Out of the patients attending the STI clinic, 272 were diagnosed and treated for STIs in the first half of the study period (March 2020 to August 2020) compared to the second half (September 2020 to February 2021), wherein 366 cases were diagnosed, which shows a 25.6% surge in the cases (Graph 6). Among the patients attending the STI clinic, there was a sharp increase of 65.3% in the number of cases diagnosed with HIV infection in the second half of the study period (Graph 7). Comparing the data with the previous year (March 2019 to February 2020) there was a consistent decrease in the number of patients attending the STI clinic with herpetic and non-herpetic genital ulcer disease. But there was an increase in the number of cases with vaginal discharge, cervical discharge, lower abdominal pain, inguinal bubo, painful scrotal swelling and urethritis. (Graph 8)**Discussion-** A community-based prevalence study conducted by the Indian Council of Medical Research (ICMR) has reported that over 6% of the adult population suffers from an episode of STI every year. According to World Health Organization (WHO), more than 1 million sexually transmitted infections (STIs) are acquired every day worldwide. 4,5Coronavirus disease (COVID-19) is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). COVID-19 was first described in December 2019 in China and rapidly escalated into a global pandemic.6 The first case of COVID-19 infection in India was reported in Kerala on January 27, 2020 7 while the first confirmed case in Maharashtra was documented on 9 March 2020 in Pune. 8 The exponential increase in cases led the government to impose restrictions on travel and social gatherings which curbed down the human interactions to a great extent. In the current retrospective analysis, we attempted to observe the effect of the ongoing COVID 19 pandemic and subsequent lockdown on the trends of STI at a tertiary care centre situated at Pune, one of the hotspots, which would give us an insight into trends of STIs reported during this unprecedented period. Common symptoms of COVID-19 include influenza-like illness with upper respiratory tract signs and symptoms (fever, myalgia, malaise, cough, sore throat, rhinitis); less common are gastrointestinal symptoms. Although severe cases present with dyspnoea, leading to hospitalization and ventilation and high risk of mortality (particularly in those with comorbidities), most cases are mild (>80%) with a subset of infected asymptomatic individuals able to transmit the disease.9,10 Transmission of COVID-19 occurs through respiratory droplets.11 However, greater than 50% of infected individuals may be afebrile and median incubation period of fever onset is 5.7 days.12Since the beginning of the pandemic in India, and according to the epidemiological situation, the government took measures to reduce COVID-19 transmission. The main actions, at first, were social distancing and hygienic-sanitary measures. However, when community transmission was declared, population mobility was interrupted by stopping transportation and increasing social and physical distancing which might have led to the reduced opportunities for casual sexual encounters. In addition to social and sanitary measures, in localities with high transmission rates, quarantine/lockdown measures were established, and ambulatory and external consultation services were limited to emergencies which would have limited the accessibility of patients to STI clinics leading to their reduced diagnosis. On 23 March 2020, the Government of India ordered a nationwide lockdown for 21 days, limiting movement of the entire 1.38 billion (138 crore) population as a preventive measure against the COVID 19 pandemic. On 30 May, it was announced that lockdown restrictions were to be lifted from then onwards, while the ongoing lockdown was extended till 30 June for only the containment zones (including some areas with high case-load of COVID 19 in Pune)Syndromic management pertains to the approach of identification and treatment of STIs based on the organisms most commonly responsible for each “syndrome”, which is a combination of the symptoms reported by the individual and signs observed by the health care provider. The management of seven major STI syndromes (Genital ulcer disease, Vaginal discharge, Urethritis, Lower abdominal pain, Inguinal bubo, Scrotal swelling, neonatal eye discharge) is incorporated in the NACO guidelines. They describe the clinical syndrome, specific STI under the syndrome and the

causative organisms of the STI syndrome. The recommended treatments (called 'kits") are designed to be effective for all the pathogens likely to cause the identified syndrome. We found a sharp fall in the number of STIs while comparing the overall current data (March 2020 to February 2021) with the yearly data for the previous 2 years recorded before the first case of COVID 19 in Pune (March 2018 to February 2020). We also observed a steep decline in the number of STIs diagnosed in the initial phase which might be due to the reduced visits of the patients to STI clinics as a result of the lockdown imposed by the government. This in turn might be a reflection of the underreporting of the cases or an actual reduction in the transmission of the STIs itself due to the nationwide lockdown. We noted a 25.6% increase in the number of STIs diagnosed and treated in the second half of the study period (September 2020 to March 2021) which coincided with gradual relaxation and removal of lockdown restrictions.Comparing the data with the previous year (March 2019 to February 2020), the trends of STIs were almost same with Herpetic genital ulcer being the most common STI presenting to us. There was an increase in Vaginal discharge, Lower abdominal pain, and urethritis during the study period. There were 33 cases of painful scrotal swelling and 16 cases of Inguinal bubo, which were not reported in the previous year. One of the studies conducted by Samuel et al. projected the detrimental effects of clinical service interruption on HIV and STI incidence. It demonstrated the critical importance of maintaining sexual health services amidst the COVID-19 pandemic response. This model evaluated clinical services for which there was already evidence of interruption. In some jurisdictions, health department staff assigned to HIV/STI partner services were redeployed for COVID contact tracing. Interruption of ART care for persons living with HIV had the largest impact on projected excess HIV incidence in their model. We too observed an upsurge in the HIV sero-positivity rate among STI patients presenting in the second half of our study period. Minimizing service interruption will require innovative approaches to ensure access to clinical services and overcome common barriers to care during the COVID pandemic, including travel limitations and gaps in health insurance. These approaches will remain important even as sexual health services return to pre-COVID capacity in a staggered manner and long-lasting impacts on health care access affect re-engagement in services.13**Limitations-** The major limitation of the present study was the retrospective design, due to which some key parameters like proportion of pregnant females, sexual orientation of the cases and the composition of STIs in this group of attendees could not be analysed owing to missing data. We found major lacunae in the maintenance of records, with no format to keep track of the follow-up of treated patients, specifically with respect to the response to treatment administered.**Conclusion-**Common sense suggests that social isolation and the closure of leisure venues may significantly reduce the opportunity for casual sexual encounters. Even though resources from health systems are often redirected in response to an outbreak of mammoth proportions like the COVID 19 pandemic, crucial healthcare services should remain accessible during public health emergencies. Therefore, whenever possible teledermatology should be optimally utilised. Moreover, patients should be encouraged to seek STI screening, because risky behaviours do not seem to decrease during the pandemic. Last but not least, a delay in diagnosis could result in sequelae and complications, which are largely avoidable.**References-**

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Tables and Graphs-Table 1- Gender wise distribution of cases attending the STI clinic during each month. **Graph 1- Gender wise distribution of cases attending the STI clinic during the study period. Table 2- Age wise distribution of cases attending the STI clinic during each month of the study period.Graph 2- Age wise distribution of patients attending the STI clinicTable 3- Distribution of Syndromic diagnosis (March 2020 to February 2021).**Graph 3- Syndrome-wise diagnosis (March 2020 to February 2021)**Graph 4- Syndromic diagnosis among women during the study period Graph 5– Syndromic diagnosis among men during the study periodGraph 6- Comparative record of STIs through March 2018 to February 2021Graph 7- Number of patients with HIV sero-positivity among STI clinic attendeesGraph 8 – Comparative trends of STIs in pre COVID 19 lockdown and post COVID 19 lockdown periods**