STUDIES ON THE PATTERN OF VIRAL STDs IN ERA OF HIV

KAVINA BURZIN*, BILIMORIA FE**, RAO MV***

ABSTRACT
The present study was undertaken to know the pattern of various viral sexually transmitted diseases and HIV seropositivity. A total of 1145 patients having viral STDs- genital herpes, genital warts, molluscum contagiosum and Mixed VDs in which one of the STD was a viral STD comprised our study material. Majority of the patients with viral STDs were males i.e. 80.7 percent compared to 19.3 percent females.

The commonest viral STD was herpes progenitalis accounting for 61.2 percent of cases followed by condyloma acuminata in 17 percent, mixed VDs in 12.8 percent of cases and molluscum contagiosum in 9 percent of cases. The HIV seroprevalence in cases of viral STDs was 13.6 percent.

Similarly in HIV seropositive patients herpes progenitalis was the commonest viral STD accounting for 75 cases followed by Mixed VDs in 42 cases, condyloma acuminata in 23 cases and molluscum contagiosum in 16 cases. Moreover in cases of Mixed VDs out of 42 cases, 33 had herpes progenitalis as one of the viral STDs along with HIV.

KEYWORDS : Viral STDs, epidemiological synergy, HIV seropositivity

INTRODUCTION
Sexually transmitted urogenital viral infections in the recent years have shown a growing prevalence world wide1. Even in the developed countries like USA, the estimated total number of people living with a viral STD is over 65 million2. Sexually transmitted diseases in general and viral STDs in particular impose an enormous burden on morbidity and mortality both directly through their impact on reproductive and child health and indirectly through their role in facilitating the sexual transmission of HIV infection3,4.

In the era of HIV/AIDS, sexually transmitted diseases (STDs) especially viral STDs have a major role to play in facilitating the spread of HIV infection. Globally an estimated 40.3 million people are living with HIV5. In India an estimated 5.2 million people are living with HIV at the end of December 20056. Numerous epidemiological studies have pointed to the fact that both ulcerative STDs including viral STDs and non ulcerative STDs increase the risk of acquisition and transmission of HIV by 3 to 5 folds7.

The purpose of carrying out the present study is to know the pattern of various viral STDs and seroprevalence of HIV in patients with viral STDs attending the STD clinic of Civil Hospital Ahmedabad.

MATERIALS & METHODS
All patients having complaint of viral STDs were studied during the period starting from January 2002 to December 2005. Viral STDs such as genital herpes, genital warts, molluscum contagiosum and mixed infections in which one of the STDs was viral STD comprised our study material.

The patients were interviewed according to a standard proforma which mentioned the details about the demography- age, sex, education,

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occupation, marital status, socio economic status; sexual behaviour of the patients whether heterosexual, bisexual or homosexual. Details were also gathered regarding the type of partner with whom the patient had last sexual intercourse.

The patients were diagnosed clinically followed by laboratory investigations where required. Tzanck smear was performed in those patients clinically diagnosed as having herpes genitalis as STDs.

Rapid Plasma Reagin (RPR) test was carried out in all the patients to rule out concomitant syphilis using Carbogen antigen test kit (Tulip Diagnostics Pvt. Ltd, Goa).

All the patients who were clinically diagnosed as having viral STDs were subjected to HIV testing by ELISA using Enzaid's HIV 1+2 ELISA test kit (Span Diagnostics Ltd, Surat) to rule out HIV infection. The patients who were positive for HIV were confirmed again by CombAids- RS method (Recombinant and Synthetic peptide method), followed by Rapid Tridot method (J. Mitra and Co. Ltd, New Delhi).

Gender wise 522 (56.5 %) males were married as compared to 184 (83.3 %) females.

Occupation wise majority of the patients were service class (18.3 %), followed by labourers (16.7 %), housewives/housekeeping (14.5 %), skilled workers (including diamond polishers) (12.8 %), drivers (7.3 %), factory workers (6.8 %), unemployed (6.2 %), business (4 %), Army/police/security (2.7 %), students (2.3 %), farmers (2.18 %), commercial sex workers (1.66 %), prison inmates (1.5 %), fruit vendors (1.4 %) while the remaining (1.7 %) comprised of servants, cleaners and restaurant workers.

Four hundred and sixty four (50.2 %) of males gave a history of contact with a commercial female sex worker while in females 160 (72.4 %) gave history of exposure with their spouse only of which 61 females gave a history of high risk behaviour along with past or present complaint of genital lesions in their spouse (Table-1).

<table>
<thead>
<tr>
<th>Type of contact in Males</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure with commercial female sex workers</td>
<td>464 (50.22)</td>
</tr>
<tr>
<td>Exposure with known person</td>
<td>111 (12.01)</td>
</tr>
<tr>
<td>Exposure with strangers</td>
<td>97 (10.5)</td>
</tr>
<tr>
<td>Homosexual exposure (HM)</td>
<td>35 (3.79)</td>
</tr>
<tr>
<td>Bisexual exposure (HM+HT)</td>
<td>65 (7.03)</td>
</tr>
<tr>
<td>Multiple exposure (HM+HT+Eunuchs)</td>
<td>9 (0.97)</td>
</tr>
<tr>
<td>Exposure with spouse only</td>
<td>120 (13)</td>
</tr>
<tr>
<td>Strongly denies H/o exposure</td>
<td>18 (1.95)</td>
</tr>
<tr>
<td>Abuse case</td>
<td>5 (0.54)</td>
</tr>
</tbody>
</table>

Total: 924 (100)

<table>
<thead>
<tr>
<th>Type of contact in Female</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure of CF SW with client</td>
<td>19 (8.6)</td>
</tr>
<tr>
<td>Exposure with neighbour or known person</td>
<td>33 (14.93)</td>
</tr>
<tr>
<td>Exposure with spouse only</td>
<td>99 (44.8)</td>
</tr>
<tr>
<td>Exposed from infected spouse</td>
<td>61 (27.6)</td>
</tr>
<tr>
<td>Denies H/o exposure</td>
<td>6 (2.71)</td>
</tr>
<tr>
<td>Abuse Case</td>
<td>3 (1.36)</td>
</tr>
</tbody>
</table>

Total: 221 (100)

HT = Heterosexual

In the present study herpes genitalis topped the list with 701 cases accounting for 61.2 % of cases out of which 206 cases were of recurrent HP, followed by condyloma acuminata accounting for 194 (17 %) of cases, mixed VDs 147 (12.8 %) cases and molluscum contagiosum 103 (9 %) of cases (Table-2). Out of 147 cases of Mixed VDs, herpes genitalis as viral STD was reported in 122 (83%) of cases.

<table>
<thead>
<tr>
<th>Type of viral STDs</th>
<th>Male</th>
<th>Female</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herpes Progenitalis</td>
<td>560</td>
<td>141</td>
<td>701 (61.2)</td>
</tr>
<tr>
<td>Condyloma acuminata</td>
<td>167</td>
<td>27</td>
<td>194 (17)</td>
</tr>
<tr>
<td>Molluscum contagiosum</td>
<td>71</td>
<td>32</td>
<td>103 (9)</td>
</tr>
<tr>
<td>Mixed VDs</td>
<td>126</td>
<td>21</td>
<td>147 (12.8)</td>
</tr>
</tbody>
</table>

Total: 924 | 221 = 1145 (100)

RESULTS

A total of 1870 patients with different STDs were seen during period of four years i.e. January 2002 to December 2005. Out of 1870 patients, 1145 (61.2 %) of the patients had viral STDs.
In cases of viral STDs the males accounted for 924 (80.7 %) cases while females accounted for 221 (19.3 %) cases with male to female ratio of 4.2:1.

Age group wise 433 (37.8 %) were in the age group of 25-34 years, followed by 411 (35.9 %) in 15-24 year age group, 201 (17.6 %) in the 35-44 year age group of 58 (5.1 %) in 45-54 year age group, 21 (1.8 %) in the 55-64 year age group, 15 (1.3 %) in the 0-14 year age group and 6 (0.5 %) above 65 years of age.

Education wise 420 (36.7 %) had completed high school education followed by 341 (29.8 %) had primary education, 207 (18.1 %) were illiterates while 101 (8.8 %) had higher secondary education and 76 (6.6 %) were graduates or above.

Majority of the patients 706 (61.6 %) in the present study were married followed by unmarried accounting for 364 (31.8 %) cases. Thirty (2.6 %) were Widow/Widower, 18 (1.6 %) were those who were married but were staying away from their spouse, 17 (1.5 %) were divorced while 10 (0.9 %) were remarried.

Out of 1145 cases of viral STDs, 156 cases were found to be coinfected with HIV. Thus the seroprevalence of HIV in viral STDs was 13.6 %.

Out of 156 cases of HIV, 121 (77.6 %) were males and 35 (22.4 %) were females with male to female ratio of 3.5:1. Majority of HIV positive patients 79 (50.6 %) belonged to the age group of 25-34 years followed by 37 (23.7 %) in the age group of 35-44 years, 31 (20 %) in the age group of 15-24 years, 6 (3.8 %) belonged to the age group of 45-54 years, 2 (1.3 %) belonged to 55-64 year age group. Only one male patient (0.6 %) was 10 years old.

Out of 156 HIV positive cases coinfected with viral STDs, herpes genitalis was the commonest STD observed in 75 (48.1 %) cases, followed by Mixed VDs in 42 (26.9 %) cases, condyloma acuminata in 23 (14.7 %) cases and molluscum contagiosum in 16 (10.3 %) cases. Out of 42 cases of Mixed VDs herpes genitalis as one of the viral STD was reported in 33 (78.6 %) cases.

**DISCUSSION**

Various epidemiological and clinical studies in the recent years point to the fact that there has been an increase in the number of cases of viral sexually transmitted diseases both in the developed and in developing countries including India. In the present study of 1145 patients with viral STDs, majority of the patients were males (80.7 %) as compared to females (19.3 %). Male to female ratio was 4.2:1.

Majority of the patients irrespective of gender belonged to the young sexually active age group of 15-34 years accounting for 73.7 percent of the cases which is similar to the studies from India and abroad by Agrawal and Gerbase et al respectively who also reported majority of the patients in this age group. Early age of sexual debut together with high risk sexual behaviour increases the risk of acquiring STDs including HIV. Patients having high school level of education accounted for 36.7 % of the cases which points to the fact that knowledge has little impact on sexual behaviour and therefore targeted programmes must be conducted which gives idea about the seriousness and long term consequences with special emphasis on homosexual/bisexual behaviour.

Majority of the patients were married (61.6 %) as compared to unmarried (31.8 %). This reinforces the need to target not only the unmarried population for counselling but also the married, as they are ones who can easily transmit the STDs to their spouse or regular partner and in some cases also to children by mother to child transmission.

History of contact with commercial females sex workers was reported in 50.2 % cases which is similar to other studies carried out from various parts of India. Homosexual contact was reported in 3.79 % of cases which was low compared to the study by Khandpur et al who reported homosexual contact in 6.2 % of cases. Bisexual contact was reported in 7.03 % of cases. Similar study by Agarwal et al reported bisexual contact in 6.5 % of the cases. In the present study the incidence of bisexual orientation was higher compared to those who were only homosexuals which is a cause of concern as more often these bisexual males are married and they carry an increased risk of transmitting infection to their spouse.
In females, out of 221 cases, 160 (72.4 %) gave a history of exposure with their spouse only including 61 females in whom the spouse had history of high risk sexual behaviour along with past or present complaint of genital lesions. This also highlights the fact that monogamous married women are at an increased risk of acquiring STDs including HIV from their spouse who has a history of high risk behaviour.

The importance of viral STDs particularly genital herpes, condyloma acuminata and molluscum contagiosum has been stressed in the recent years as they are also one of the important markers in the HIV disease progression. In the present study of 1145 patients having viral STDs, herpes progenitalis was the most common STD in males and in females accounting for 701 (61.2 %) cases, followed by condyloma acuminata accounting for 194 (17 %) cases, mixed VDs in 147 (12.8 %) cases and molluscum contagiosum in 103 (9 %) cases. Out of 147 cases of mixed VDs (i.e. 126 males and 21 females), 122 (83 %) (i.e. 101 males and all 21 females) had herpes progenitalis as one of the sexually transmitted disease along with any other STD.

In the present study herpes progenitalis was reported as the commonest viral STD reported in 61.2 % of all cases. Similar study in India by Ambhore et al. reported herpes progenitalis in 40.2 % of cases. Globally also herpes progenitalis remains to be the commonest STD in developed countries where reported rates vary from 30% - 70% among STD clinic patients in USA to 42.5 % and 42.9 % respectively in developing countries like Nigeria and Tanzania.

In the present study 206 patients (178 males and 28 females) had complaint of recurrent genital herpes. In HIV positive patients also genital herpes was found to be the common viral STD accounting for 75 (48.1 %) cases. The fact that genital herpes and HIV have synergistic effect; patients with increased level of HSV especially type 2 in genital ulcers are more susceptible to acquire HIV due to disruption of mucosal integrity, by recruitment and activation of HIV target cells, such as the CD4 lymphocytes and possibly by HIV taking advantage of CCR5 and CXCR4 (Fusion) chemokine receptors. Moreover HSV-2 ulcers in HIV positive patients are often present as chronic, non healing ulcers and hence HSV-2 lesions with duration above one month are considered as AIDS defining illness by CDC.

Condyloma acuminata as viral STD was reported in 194 (17 %) cases. In the recent times genital warts have been observed as the newly emerging viral STDs after genital herpes. The causative agent of genital warts, Human papilloma virus (HPV) is also responsible for causing cervical cancer which is also one of the commonest cancers observed in females. Moreover in HIV positive patients warts were observed in 23 (14.7 %) patients. Studies by Aramy et al. has shown that in the immunocompromised patients the warts are larger in size, multicentric and refractory to treatment. Moreover HIV also influences local immunity by altering HPV transcription and by systemic immunodeficiency.

Molluscum contagiosum was reported in 103 (9 %) cases with viral STDs. In HIV positive patients 16 cases (10.3 %) reported MC as the viral STD. In the era of HIV/AIDS it is considered as one of the common cutaneous pathogen. Between 10 % to 30 % of patients with symptomatic HIV disease or AIDS have molluscum contagiosum. The prevalence and the severity of the disease increase with advancing immunodeficiency and lesions occur in up to one third of patients with CD4 T-cell counts of 100/microliter or lower.

Mixed VDs in which one of the STD was viral STD was reported in 147 (12.8 %) cases. Out of these 147 cases, herpes genitalis as STD was present in 122 (83 %) cases. Mixed STDs in which both were viral STDs were reported in 48 cases of which 29 cases were of HP+CA including two cases in which one had accompanying S2 and another had GI as third STD, followed by 12 cases of HP+MC including one case of accompanying S2 while remaining 7 cases having CA+MC as viral STDs.

Out of 42 cases of Mixed VDs coinfected with HIV, herpes progenitalis was seen as one of the STD in 33 HIV seropositive patients. Majority of the HIV
patients had HP+CA as mixed viral STDs accounting for 13 cases including one case also having S2, followed by HP+MC and CA+MC sharing 5 cases each. The remaining 19 cases had a viral STD along with either Syphilis (S1 or S2), chancroid, gonorrhoea, NGU or GI as other STD. The high occurrence in the number of mixed infections points to the multi-partner high risk sexual behaviour of the patients which make them more susceptible to acquire or transmit HIV.

CONCLUSION

Viral STDs are newly emerging as a global threat in the era of HIV infection. Genital herpes being the commonest STD in India as well as globally and its synergistic effect with HIV can make it one of the most threatening disease. Similarly genital warts and molluscum contagiosum infections are also on rise which in HIV infected patients can lead to increased severity and change the natural history of the disease.

REFERENCES


