CASE STUDY (PREVALENCE)

PREVALENCE OF SEXUALLY TRANSMITTED DISEASES (STDs) IN PREGNANT WOMEN ATTENDING THE STD CLINIC AT THE INSTITUTE OF SEXUALLY TRANSMITTED DISEASES IN THE ERA OF AIDS

R. Rajesh, V. Sudha

1. Associate Professor. Department of Dermatology & Venereology, IRT Perundurai Medical College, Perundurai, Tamil Nadu.
2. Professor & Director. Institute of Venereology, Madras Medical College, Chennai

CORRESPONDING AUTHOR:
Dr. R. Rajesh,
Associate Professor,
Department of Skin & STDs,
IRT Perundurai Medical College,
Perundurai-638053, Erode district, Tamilnadu.
E-mail: rajeshderma@gmail.com

ABSTRACT: KEY WORDS: Pregnancy, STDs, HIV / AIDS

INTRODUCTION: Sexually transmitted diseases (STDs) affecting mankind since antiquity are an important cause of morbidity and mortality worldwide, especially in women and children particularly in resource poor settings of developing world, which are store houses of most of the pathogens causing STDs1,2,3.

Women of childbearing age are at particular risk of sequelae from STDs due to the impact of many STDs on their reproductive health. STDs also increase the risk of acquiring and transmitting HIV infection.

The incidence of many STDs has increased during the last two decades, and the number of pregnancies per year is also again increasing, the super imposition of the one factor on the other can be expected to further amplify the effects of STDs on pregnancy and neonatal morbidity.

Infections in pregnancy are common but few causes fetal infection and damage. Particularly urgent is the need to control fetal wastage and congenital abnormalities due to sexually transmitted infections including HIV. Pregnancy is a vulnerable time for women. Hence STDs in the pregnant women are more serious than in the non pregnant women.

When all STDs are considered together, they represent one of the most common medical complications of pregnancy. As the spectrum of STDs has broadened, the medical and social consequences of STD in pregnancy have become more apparent.

STDs pose a constant threat to not only the health of the mother, but also the baby’s health. Presence of STDs results in physical and mental agony to the pregnant patient.

The frequent occurrence of multiple STDs co-existing with STD risk factors (non-use of barrier methods, multiple sex partners) may independently adversely affect pregnancy outcome.

Adolescent sexual activity is increasing globally. With the change in social norms, peer pressure and media influences, teenagers are engaging in premarital sex earlier leading to unintended pregnancy and STDs. In general, STD appears to pose a much greater problem in pregnant adolescents than in older pregnant women. Infections of young adult have their most
serious consequences later in life. Adolescents have miscarriages more often and are partly attributable to STD. Teenage pregnancies remains common in many societies. The incidence of Medical Termination of Pregnancy (MTP) is particularly high among adolescents.

Violence and sexual abuse by men is another aspect where women and girls are the most frequent victims. Pregnancy may also be a sign of ongoing sexual abuse. Meticulous examination should be performed looking carefully for STDs in those cases.

In India, statistics pertaining to STDs are meager. In India, the yearly incidence of STDs is 4-5%, which accounts for 40 million cases per year.

There are about 35 million women in India in the age group of 15-45 years and according to World Bank report, 15% of healthy life days are lost due to STDs including HIV in those women.

A number of surveys and general beliefs have labelled men as being responsible for the large proportion of ill health suffered by their female partners.

Physiological changes, anatomical in the genital tract, immunological alterations (alterations in host defence mechanisms) in a pregnant female have been postulated to influence the course of STDs, which pose special risk of infection for both mother and fetus.

Diagnosing sexually transmitted infections (STIs) in pregnancy can be difficult because most of them are either asymptomatic or too subtle to recognize clinically as pregnancy modifies the manifestations.

Since a second patient, the fetus, may also be endangered, the cause for screening and treating for asymptomatic genital infectious diseases may be stronger during pregnancy that at other times. Adequate treatment must automatically follow once screening is instituted. Test of cure is not generally advised, but may be considered in STDs during pregnancy.

Study of prevalence of STDs is important to know about their incidence at a particular place and to devise appropriate control measures. Antenatal attenders are a section of population routinely used as a reference point for STD prevalence in the general population of women.

Based on the above facts, the present study was done

1. To determine the prevalence of STDs including HIV infection among the pregnant women attending the STD clinic at the Institute of Sexually Transmitted Diseases, Madras Medical College and Research Institute, Chennai.
2. To study the prevalence of Hepatitis-B surface antigen (HBsAg) among them.

**MATERIALS AND METHODS:** It is a cross sectional study to find out the prevalence of STDs among pregnant women attending the STD clinic at the Institute of Sexually Transmitted Diseases, Madras Medical College and Research Institute, during the study period of May 1998 to July 1999. A disease with low prevalence may still be a major public health problem. Prevalence data are therefore important for directing and monitoring the impact of public health programmes.

130 consecutive pregnant women at various trimesters who attended the STD clinic at the Institute of Sexually Transmitted Diseases, Madras Medical College and Research Institute, were included in the study.

Majority of the pregnant women were referred from Institute of Obstetrics and Gynaecology, Egmore, Chennai. Also many attended on their own for various genitourinary symptoms.
Majority of the unmarried pregnant women were referred to be screened for sexually transmitted infections including HIV infection, prior to Medical Termination of Pregnancy (MTP).

A well structured, pre-tested proforma was prepared and used for the study. It consisted of various informations including their age, socio-economic status, sexual history and obstetric history apart from detailed clinical history. Pregnant women were screened for STDs and a provisional diagnosis was made. Investigations were accordingly to confirm the diagnosis.

Special investigations done for the study were:

A. Vaginal discharge for culture of Candida species (spp) in Sabouraud's agar medium.

B. Blood for HBs Ag by Enzyme Linked ImmunoSorbent Assay (ELISA).

A. Vaginal discharge for culture of Candida species (spp) in Sabouraud's agar medium

Sabouraud's medium is the commonest fungal cultural media used. It consists of ingredients like glucose, cycloheximide, agar etc. Sterile vaginal swabs were used for taking specimens. Cultures were incubated at room temperature (22°C) for 2 weeks.

Identification was based on the colony appearance (creamy, white, mucoid) and the morphology of the fungus by microscopy. The method of identifying candida albicans was based on its ability to form germ tubes within two hours when incubated in human serum at 37°C.

B. Blood for HBs Ag by Enzyme Linked ImmunoSorbent Assay (ELISA)

Anti-HBs antibody is bound to either a plastic bead or plate. If HBs Ag is present in the serum, after the addition of enzyme, colour change occurs which can be measured spectrophotometrically. The development of yellow colour denotes a positive test.

RESULTS: In this study, 130 pregnant women were examined and the following results were obtained.

<table>
<thead>
<tr>
<th>Age groups in years</th>
<th>Total No.</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>24</td>
<td>18.5</td>
</tr>
<tr>
<td>20-24</td>
<td>72</td>
<td>55.4</td>
</tr>
<tr>
<td>25-29</td>
<td>25</td>
<td>19.2</td>
</tr>
<tr>
<td>30-34</td>
<td>8</td>
<td>6.2</td>
</tr>
<tr>
<td>35-39</td>
<td>1</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Majority of the pregnant women were in the age group of 20-24 (55.4%). Majority of the pregnant women belonged to lower socio-economic strata.

MARITAL STATUS OF THE PREGNANT WOMEN IN THE STUDY GROUP (n=130)

Majority of the pregnant women were married (n=100, 76.9%)

In women, who were single (n=30, 23.1%), majority were deserted by their known partner after knowing about the present pregnancy (n=25, 83.3%), other forming the group were kept mistress (n=3, 10%) and commercial sex workers (n=2, 6.6%).
PRRESENTING COMPLAINTS OF PREGNANT WOMEN (n=130): Majority of the pregnant women had visited the STD clinic for check up (n=62, 47.7%). Genital discharge and genital sore were the most common presenting complaints in 36 (27.7%) and 17 (13.1%) patients respectively, followed by itching in the genitalia in 15 (11.5%) and growth in genitalia in 10 (7.7%) patients. Some pregnant women also had other symptoms like burning micturition (n=6, 4.6%), lower abdominal pain (n=6, 4.6%), fever (n=3, 2.3%), cough (n=2, 1.5%), loose stools (n=2, 1.5%), loss of weight (n=2, 1.5%), frequency of micturition (n=2, 1.5%), swelling of genitalia (n=2, 1.5%), loss of appetite (n=1, 0.8%), and dysuria (n=1, 0.8%).

When married pregnant women were interviewed for this study, around 4% gave history of (H/O) extramarital contact (n=4) and 2% gave H/O premarital contact (n=2). One women (1%) gave H/O both pre and extra marital contacts.

Among unmarried pregnant women, 25 women who were otherwise single, gave H/o contact with a known partner (83.3%). Two women (6.7%) who were commercial sex workers gave H/O contact with multiple males. Three women (10%) who were kept mistress for a known partner denied H/O exposure outside.

Among the 11 pregnant women (8.5%), who gave past H/O STD, 7 had genital ulcer (63.6%), 3 had genital discharge (27.3%). One had documented history of warts (9.1%). The rest of the pregnant women (91.5%, n=119) denied any history of previous STDs.

Bad obstetric history was found in 34 patients (26.2%) out of 130 pregnant women screened in the study. Majority of them had spontaneous abortions (n=20, 58.8%), followed by still births (n=8, 23.5%), and neonatal deaths (n=3, 8.8%) had both spontaneous abortions and still births.

Cervical erosion was the most common clinical sign seen in 38 (29.2%) pregnant women. Sooddening of the vulva was the next most common sign seen in 25 (19.2%) pregnant women, followed by genital ulcer in 18 patients (13.8%). Anogenital wart were noted in 10 (7.7%). They were distributed over labia majora, labia minora, fouhette and perianal region. One women had cervical wart in addition to ano genital warts. Arthralgia and osteologia were seen in 2 (1.5%) patients. Among the pregnant women, cervical nodes were enlarged in 6 (4.6%), epitrochlear in 4 (3.1%) and occipital nodes in 2 (1.5%). Urethral caruncle was seen in 2 pregnant women (1.5%).

### TABLE No 2 NATURE OF THE GENITAL DISCHARGE AMONG THE STUDY GROUP (n=130)

<table>
<thead>
<tr>
<th>Nature of the discharge</th>
<th>Total No.</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mucopurulent</td>
<td>52</td>
<td>40</td>
</tr>
<tr>
<td>Mucoid</td>
<td>48</td>
<td>36.9</td>
</tr>
<tr>
<td>Curdy white</td>
<td>26</td>
<td>20</td>
</tr>
<tr>
<td>Frothy</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Serosanguinous</td>
<td>1</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Majority of the pregnant women had Mucopurulent discharge (n=52, 40%)
<table>
<thead>
<tr>
<th>Investigations</th>
<th>Positive results (Total No.)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture for candida spp.</td>
<td>62</td>
<td>47.7</td>
</tr>
<tr>
<td>Gram stain for candida</td>
<td>39</td>
<td>30</td>
</tr>
<tr>
<td>KOH mount for candida</td>
<td>28</td>
<td>21.5</td>
</tr>
<tr>
<td>Wet film for Trichomonas vaginalis</td>
<td>14</td>
<td>10.8</td>
</tr>
<tr>
<td>Gram stain for clue cells</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Urine culture (routine)</td>
<td>3</td>
<td>2.3</td>
</tr>
</tbody>
</table>

**TABLE NO 4 ORGANISMS ISOLATED IN URINE CULTURE AMONG THE STUDY GROUP (n=3)**

<table>
<thead>
<tr>
<th>Organism</th>
<th>Total No.</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escherichia coli</td>
<td>2</td>
<td>66.7</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>1</td>
<td>33.3</td>
</tr>
</tbody>
</table>

Endocervical and urethral smear for gonococcus (Gram stain), and endocervical culture for gonococcus were negative in all pregnant women.

Vaginal discharge for the culture of candida species in Sabouraud’s dextrose agar medium revealed growth in 62 cases (47.7%). Candida albicans was the most frequently isolated candida species in 53 cases (85.5%).

**TABLE NO 5 VDRL REACTIVITY / TPHA**

<table>
<thead>
<tr>
<th>Serological test</th>
<th>Patients with Reactive VDRL/TPHA</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VDRL/TPHA</td>
<td>33</td>
<td>25.4</td>
</tr>
</tbody>
</table>

Blood VDRL / TPHA were reactive in 33 (25.4%) patients. Blood VDRL / TPHA were non-reactive in 97 (74.6%) patients.

**TABLE NO 6 PREVALENCE OF HBs Ag**

<table>
<thead>
<tr>
<th>Serological test</th>
<th>Patients positive for HBs Ag</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBs Ag</td>
<td>23</td>
<td>17.7</td>
</tr>
</tbody>
</table>

ELISA test for Hepatitis –B surface antigen (HBs Ag) was positive in 23 patients (17.7%). It was negative in 107 patients (82.3%)

**TABLE NO 7 PREVALENCE OF HIV INFECTION**

<table>
<thead>
<tr>
<th>Serological test</th>
<th>Total No. of patients positive for HIV antibodies</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV</td>
<td>8</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Out of the 130 pregnant women screened for HIV antibodies, 8 women 6.2% were found to be seropositive. 122 women (93.8%) had no HIV antibodies in their serum by ELISA test.
TABLE NO 8 DISTRIBUTION OF INFECTIONS AMONG PREGNANT WOMEN

<table>
<thead>
<tr>
<th>Infections</th>
<th>Total No.</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vulvovaginal Candidiasis</td>
<td>62</td>
<td>47.7</td>
</tr>
<tr>
<td>Syphilis</td>
<td>33</td>
<td>25.4</td>
</tr>
<tr>
<td>Hepatitis-B</td>
<td>23</td>
<td>17.7</td>
</tr>
<tr>
<td>Trichomoniasis</td>
<td>14</td>
<td>10.8</td>
</tr>
<tr>
<td>Genital herpes</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>Genital warts</td>
<td>10</td>
<td>7.7</td>
</tr>
<tr>
<td>HIV</td>
<td>8</td>
<td>6.2</td>
</tr>
<tr>
<td>Non-gonococcal urethritis</td>
<td>6</td>
<td>4.6</td>
</tr>
<tr>
<td>Bacterial vaginosis</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Non-specific genital ulcer</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Chancroid</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Molluscum contagiosum</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>scabies</td>
<td>1</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Out of 33 patients with syphilis, one had primary syphilis (3%), five had secondary syphilis (15.2%) and 27 had early latent syphilis (81.8%)

TABLE NO 9 COMPARISON OF INFECTION AMONG MARRIED PREGNANT WOMEN (n=100) AND UNMARRIED PREGNANT WOMEN (n=30)

<table>
<thead>
<tr>
<th>Infections</th>
<th>Married (n=100)</th>
<th>Unmarried (n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total No.</td>
<td>%</td>
</tr>
<tr>
<td>Vulvovaginal Candidiasis</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>Syphilis</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Hepatitis-B</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Genital herpes</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Trichomoniasis</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Genital warts</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>HIV</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Non-gonococcal urethritis</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Bacterial vaginosis</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Chancroid</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Non-specific genital ulcer</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Molluscum contagiosum</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>scabies</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

TABLE NO 10 DISTRIBUTION OF INFECTIONS AMONG HIV-POSITIVE PREGNANT WOMEN (n=8)

<table>
<thead>
<tr>
<th>Infection</th>
<th>Total No.</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vulvovaginal Candidiasis</td>
<td>6</td>
<td>75</td>
</tr>
</tbody>
</table>
Among the 8 HIV-positive pregnant women (6.2%) examined and investigated, all had single or multiple infections. Two most important STDs met with in these patients were genital herpes in 2(25%) and Hepatitis-B in 2(25%).

**TABLE NO 11 CONCOMITANT INFECTIONS IN THE STUDY GROUP OF PREGNANT WOMEN (n=130)**

<table>
<thead>
<tr>
<th>Infections</th>
<th>Total No</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candidiasis + Hepatitis-B</td>
<td>8</td>
<td>6.2</td>
</tr>
<tr>
<td>Candidiasis + Genital herpes</td>
<td>8</td>
<td>6.2</td>
</tr>
<tr>
<td>Candidiasis + HIV</td>
<td>6</td>
<td>4.6</td>
</tr>
<tr>
<td>Candidiasis + Genital warts</td>
<td>6</td>
<td>4.6</td>
</tr>
<tr>
<td>Candidiasis + Non-gonococcal urethritis</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Candidiasis + Molluscum contagiosum</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Candidiasis + Non-specific genital ulcer</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Syphilis + Hepatitis-B</td>
<td>11</td>
<td>8.5</td>
</tr>
<tr>
<td>Syphilis + Candidiasis</td>
<td>10</td>
<td>7.7</td>
</tr>
<tr>
<td>Syphilis + Trichomoniasis</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Syphilis + Non-gonococcal urethritis</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Syphilis + Genital herpes</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Syphilis + HIV</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Trichomoniasis + Candidiasis</td>
<td>7</td>
<td>5.4</td>
</tr>
<tr>
<td>Trichomoniasis + Hepatitis-B</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Trichomoniasis + Genital herpes</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Trichomoniasis + Non-gonococcal urethritis</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Non-gonococcal urethritis + HIV</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Non-gonococcal urethritis + Hepatitis-B</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Non-gonococcal urethritis + Genital warts</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Genital herpes + HIV</td>
<td>2</td>
<td>1.5</td>
</tr>
</tbody>
</table>
### TABLE NO 12 DISTRIBUTION OF INFECTIONS AMONG HUSBANDS (n=82) OF MARRIED PREGNANT WOMEN

<table>
<thead>
<tr>
<th>Infections</th>
<th>Total No.</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syphilis</td>
<td>26</td>
<td>31.7</td>
</tr>
<tr>
<td>Hepatitis-B</td>
<td>10</td>
<td>12.2</td>
</tr>
<tr>
<td>Genital herpes</td>
<td>5</td>
<td>6.1</td>
</tr>
<tr>
<td>HIV</td>
<td>5</td>
<td>6.1</td>
</tr>
<tr>
<td>Candidial Balanitis</td>
<td>4</td>
<td>4.9</td>
</tr>
<tr>
<td>Non-gonococcal urethritis</td>
<td>4</td>
<td>4.9</td>
</tr>
<tr>
<td>Anogenital warts</td>
<td>3</td>
<td>3.7</td>
</tr>
<tr>
<td>Non-specific genital ulcer</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Chancroid</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Gonorrhoea</td>
<td>1</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Among the husbands (n=82) examined and investigated, forty-five (54.9%) had single or multiple infections. Among those who were affected with syphilis (n=26), 2 had primary syphilis (7.7%), three had secondary syphilis (11.5%), 20 had early latent syphilis (76.9%) and one had late latent syphilis (3.8%).

**DISCUSSION:** In this study, majority of the pregnant women were in the age group of 20-24, followed by 25-29. A significant number of pregnant women were below 19 years. This study has confirmed that adolescent sexual activity has increased resulting in rise in unintended pregnancy rate. The load of STDs in this group of community is a reflection of the control programmes prevailing in that locality. Due to early initiation of sexual activity, they are more prone for STDs including HIV. As they often resort to MTP, services offered to them should include STD check up and knowledge about contraception. These teenage pregnancies often limit future educational economical opportunities for mother, father and child. By helping adolescents to delay their sexual debut, we can offer hope to the greatest number of teens.

Majority of the pregnant women belonged to lower socio-economic strata. Lower socio-economic status often co-exist with poor nutritional status of pregnant women which in turn affect the course of the disease and their obstetrics outcomes.

Majority of the pregnant women in this study were married. A considerable number of pregnant women were unmarried. They form an important risk group for acquiring STDs including HIV infection as they are exposed to high-risk sexual behaviour.

Majority of the pregnant women had visited the STD outpatient department for checkup. Most of them were referred cases. A good number of pregnant women presented with various genitourinary symptoms on their own along with their partners. This increase in number of self-referral by these women could be as a result of campaigns conducted for generating awareness about STDs including HIV infection.
Nearly half of the pregnant women reported only for checkup. However on clinical examination and completion of investigations, it was found that 115 (88.5%) pregnant women were found to be suffering from one or other infections. This shows that majority of the pregnant women were asymptomatic. Genital infections often remain unnoticed during pregnancy as their signs and symptoms may be seen as part of the normal discomfort of pregnancy. The asymptomatic nature of infections in females and their frequent consultation in gynaecological clinics instead of STD clinics may have been responsible for a low prevalence of STD reported in women. Hence, it is important to screen and treat such asymptomatic cases with obligatory partner therapy to prevent STD leading to unwanted consequences. This was in accordance with data published in earlier studies.

Among the asymptomatic pregnant women (n=62), 19 were found to be affected with early latent syphilis, 16 with Hepatitis-B, 3 with HIV. One had both HIV and syphilis, one had both HIV and Hepatitis-b. The significance of this is that pregnant women may not be aware of the silent clinical states of syphilis, Hepatitis-B and HIV. This may lead to delay in detection in initial stages, so that effective interventions can be done. Genital discharge, genital sore and itching in genitalia were the most common symptoms noticed among the study group.

Majority of the married pregnant women denied history of premarital or extramarital contacts. This stresses the fact that innocent housewives were infected by their promiscuous husbands. Their unborn and new born children were also at risk.

Majority of the unmarried pregnant women gave history of exposure with only one male partner. None of the women in the study group or their partner were found to practice safer-sex. This makes them prone to unintended pregnancy and sexually transmitted infections (STIs). If these STIs are left undetected and untreated during pregnancy, they produce reproductive ill health at a later date.

Genital ulcer was the commonest among previous STDs noted. Genital infections, particularly ulcerative diseases are associated with sexual transmission of HIV. We also noted increased rate of recurrence of genital herpes during pregnancy, similar to other observers. During pregnancy, the link to other partners or the partners of their sexual partner is often either ignored or not even made, thus increasing the likelihood of reinfection of curative treatment.

Bad obstetric history (BOH) was noted in a significant proportion of pregnant women. Majority of them had spontaneous abortion in the past, followed by still births and neonatal death. Among these women (n=34), majority have found to have syphilis (n=14, 41.2%). The other STDs noted were Trichomoniasis (n=3, 8.8%), Hepatitis-B (n=3, 8.8%), Genital herpes (n=2, 5.9%), HIV (n=1, 2.9%) and bacterial vaginosisis (n=1, 2.9%). The remaining pregnant women were not found to have any infections. Hence it is necessary to screen all women with BOH (a significant risk factor) for presence or absence of STIs.

In the study group, cervical erosion, saddening of vulva, genital ulcer and genital warts were the important clinical signs noted. Erosion of the cervix was seen in nearly one third (n=38, 29.2%) of pregnant women. Erosion or cervical ectopy enhance the entry of a variety of pathogenic agents (E.g. HIV, HPV, HSV, Trichomonas, Chlamydia etc).

Generalized Lymphadenopathy is an important sign of secondary syphilis and HIV disease. Among pregnant women 4.6% had generalized Lymphadenopathy. These women were found to have secondary syphilis or HIV infection.

Generalized skin rash is a characteristic feature of syphilis in its secondary stage. Pregnant women suffering from secondary syphilis had generalized skin rashes. Papulo-
squamous type of rashes (n=2) were seen more commonly than maculopapular type (n=1). Moist, grayish white, flat topped papules (Condylomata lata) which are highly infective in nature were seen in four pregnant women.

Signs of HIV infection like loss of weight, oral candidiasis, oral hairy leukoplakia were noted in a seropositive pregnant women. In the study group, 8 cases were found to be HIV positive. Absence of signs of HIV infection may be due to early detection of hidden cases. Hence to detect early cases, the primary prevention services (counseling on HIV / STI / RTI) should be offered to pregnant women in the OPD. The antenatal clinics should be utilized effectively for imparting education to pregnant women about HIV / AIDS.

In this study, Mucopurulent vaginal discharge was commonly seen. Vaginal discharge apart from vaginal infections may also be caused by Mucopurulent cervicitis, so it is essential to examine cervix of all patients with Vulvovaginal complaints using speculum. Vaginal discharge is definitely an important co-factor for STD/HIV transmission.

Patients with Trichomonas vaginalis (n=14) had predominantly mucopurulent discharge and the typical frothy discharge of Trichomoniasis was seen only in three.

The usual description of discharge in Vulvovaginal candidiasis is curdy white and adherent. In this study, only 20% of the pregnant women had the above said clinical sign. Majority of these patients had no symptoms whole the rest complained of itching in genitalia. The clinical presentation is similar in both HIV infected and seronegative pregnant women although severity of symptoms were noted in the former.

Three patients (2.3%) had Bacterial vaginosis (BV) and their genital discharge was mucoid in nature. Prevalence of BV in our study was low compared to an American study, which quotes prevalence of 15-20%. Wet mount, Gram staining and diagnostic criteria established by Amsel et al should be stringently followed not to miss cases of BV as it is associated with bad obstetric outcomes. Routine screening and treatment should become the standard of practice.

Serosanguinous discharge was noted in a pregnant woman with extensive genital herpes. A pregnant women with severe Genital herpes presented with retention of urine in the third trimester. Culture from the endocervical canal for gonococcus was negative in all the study subjects. Non-gonococcal urethritis was seen in six pregnant women, of which E.Coli was the commonly seen isolate (n=2).

The prevalence of VDRL/TPHA reactivity was 25.4%. early latent syphilis (n=27) was the stage of luetic disease seen in this study followed by secondary syphilis (n=5) and primary chancre (n=1). The prevalence rate of syphilis in developing countries is between 3-19%. In a Calcutta study, 8% of antenatal attendants were VDRL test strongly reactive. Our observations stress for continuous examination of all antenatal mothers for VDRL test routinely. This increase in VDRL test routinely. This increase in VDRL reactivity in this study could be due to referral of high risk pregnant women to the STD clinic. Thus in this study, syphilis was the major STD. it confirms the fact that syphilis still remain a common complication of pregnancy, despite availability of cheep, accurate diagnostic tests and sensitivity of Treponema pallidum to penicillin. We have not encountered any biologically false positive VDRL reaction in our study group of 130 pregnant women. Prenatal care should begin with a STS and end with a STS. In patients at high risk, there should be additional intermediate testing at the beginning of the third trimester. We advocate that expectant mothers should be treated when non-treponemal and treponemal tests are reactive if on through evaluation the cause of a possible false positive result cannot be ensured.
The prevalence of HBs Ag in the study group was 17.7%, which is on par with other Indian studies. This high prevalence data could be due to high-risk population screened. All pregnant women should be screened at the first prenatal visit for HBs Ag. Sexual partner and children of HBs Ag positive mothers should be offered testing and vaccination.

In this study group, prevalence of HIV was 6.2%, which is relatively higher than some Indian studies. To detect HIV positive pregnant women earlier to prevent MTCT, programmes which offer active group education, counseling of women and their husbands, HIV testing, cost free anti viral therapy, informative education about infant feeding, modes of delivery and MTP for all the pregnant women participants should be implemented across the country for the prevention and control of HIV pandemic.

The prevalence of Genital herpes in the study population was 10%. Most of these cases were due to recurrences of HSV infection especially in third trimester. Low prevalence of genital herpes is comparable with other studies. It might be due to self resolving short course of the disease and overlooking of the disease during diagnosis. Serology helps in actual determination of the prevalence of HSV infection than clinical examination alone.

The prevalence of Genital warts in the group of pregnant women studied was 7.7%. this was almost comparable to the existing data available. Extensive huge, Anogenital warts were noted in HIV positive pregnant women. Only one on the study had puvvious history of Condyloma acuminata.

Prevalence of Trichomoniasis in the study population was 10.8%. this corroborates with the reported prevalence data. Trichomonas vaginalis was a significant contributor in 14 out of 115 pregnant STD cases. Further out of 14 Trichomonas vaginalis, 7 cases were associated with Candida Spp, one each with Hepatitis-B, HSV and non-gonococcal urethritis. Trichomoniasis itself is consider to cause NGU. This study highlights the importance of T.Vaginalis as an important indicator for other etiological STD agents.

About 50% of the pregnant women had genital candidiasis. Candida Spp was isolated more with culture method (47.7%) than KOH mount (21.5%) and Gram stain (30%). Hence to detect VVC in pregnancy, culture is the gold standard. This study confirmed the aspects that Vulvovaginal candidiasis is more common in pregnancy and was the most common condition among HIV positive pregnant women (n=6). Most of the sero positive women with VVC were symptomatic. Oral thrush was noted in seropositive women in addition to VVC. Recurrent VVC reported in HIV positive women is not encountered in our study. Vulvovaginal candidiasis co-existed with many other STDs in this study. Species isolation was done using germ tube test.

Albicans species (85.5%) predominated this study. Non-albicans Spp formed a sizeable percentage (14.5%) among the isolated species. All patients with symptomatic genital candidiasis had positive isolates. Speciation of candida (albicans Vs non-albicans) which is gaining importance in the era of HIV and antifungal drugs resistance was done as the clinical manifestations of both are clinically indistinguishable, percentage of non-albicans Spp is rising dramatically and some of non-albicans Spp, C.albicans Spp in the presence of HIV are resistant are less susceptible to azole therapy.

Our study confirms the fact there is an increased frequency of other candida species isolated in recent times, although C. albicans is still responsible for majority of isolates.

The important sexually transmitted infections (STIs) found in married pregnant women(n=100) were syphilis(32%) Hepatitis-B(17%), Genital herpes(13%), Trichomoniasis(11%), Genital warts(10%) and HIV(6%).
The most important infections found after screening of unmarried women (n=30) were Hepatitis-B(20%), Trichomoniasis(10%), and HIV(6.7%). The problems of STIs, non-marital pregnancy and their consequences are two of the most significant issues faced by society today. Individuals in this group being adventurous and immature with a considerable inquisitiveness for sex and lack of healthy recreation was probably responsible for this high prevalence.

It could be noted from this study that the prevalence data of Hepatitis-B, HIV, Trichomoniasis and Candidiasis were almost the same in married and unmarried pregnant women.

In our study, Candidiasis and syphilis were the predominant infections in pregnant women. This in conformity with the studies done by Sujay Khandpur et al. infections like Non-specific genital ulcers(n=2), Chancroid(n=1), Molluscum Contagiosum(n=1), Scabies(n=1) were also seen in this study group.

Among the HIV-positive women in this study group, viral STDs [Hepatitis-B 9(n=2) / Genital herpes(n+2) / Warts(n=2)] were found to be more common than bacterial STDs, which is consistent with other studies. High index of suspicion is required to detect viral STDs in HIV such as HSV as it manifests atypically. Early diagnosis and treatment of viral infections positively affects the HIV progression and decrease the risk of MTCT.

Uncontrolled studies conform with our study which reports increased prevalence and severity of VVC in HIV seropositive women. Hence it is suggested that HIV serologic testing may be done in women with recurrent symptoms. As our number of seropositive pregnant women were less, prevalence of other STDs cannot be compared with available data.

Co-infection (mixed infections) with two or more organisms occurred in significant percentage of study group. Hepatitis-B and syphilis co-existed in eleven (8.5%) cases. Our observation agrees with that of other workers that HBs Ag is seen more frequently in patients with positive syphilis serology. Occurrence of more than one STD noted in this study must make any clinician suspicious of possible concomitant STD pathogens.

STD rate was high (n=82, 54.9%) among the husbands of married pregnant women (n-100) screened. Commonest STD among them was again syphilis. These heterosexual high-risk males are engaged in extramarital contacts with low condom usage with CSWs. Educational and behavioral interventions are urgently needed to help them to avoid HIV and other STDs. Contact slip practice should be stringently followed to enable patients to bring partners for management when so advised.

CONCLUSION: This study revealed that majority of the pregnant women attending the STD clinic was found to suffer from atleast one STD. this study also revealed the high prevalence of syphilis and Hepatitis-B. a larger proportion of them were asymptomatic. Hence, all pregnant women have to be screened for Syphilis (Blood VDRL) and Hepatitis-B (HBs Ag) to prevent vertical transmission.

The prevalence of HIV infection among the study group was high. Hence it is suggested that all pregnant women should be counseled and encouraged to be tested for HIV.

An important STD risk factor noticed in this study was promiscuity among husbands of pregnant women. Health education regarding transmission of STDs, safer sex and counseling should be made available to them. Prompt treatment of infected patients and their partner(s) by early detection will prevent further transmission. It will also minimise the severity of long term sequelae. The large number of pregnant women with an STD provides an important opportunity to reduce the reservoir of infection in the broader community. Hence systematic screening of
Sexually Transmitted Infections (STIs) in pregnancy combined with adequate treatment and follow-up will reduce the risk of maternal, fetal and neonatal adverse consequences. Appropriate antenatal, intrapartum, and postnatal care should be provided.

Unmarried pregnant women who attended the STD clinic in this study prior to Medical Termination of Pregnancy (MTP) had or have an increased risk of acquiring STDs. Counseling services, knowledge regarding use of contraceptives and provision of STD care should be made available to them. The health care professionals must educate not only about the STDs and their consequences but also about life styles and behavior changes. Our role should be to encourage responsible sexual behavior, not to moralise about it. Hence this study highlights the need for specific intervention strategies to tackle these problems like sex education in school to prevent unintended pregnancy and STDs.

To conclude, there is an urgent need to mount effective, rational and feasible intervention programmes to combat the HIV/STD pandemic, making optimum use of the existing health and social welfare services.

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Pic 1 Palmar syphilide Pic 2 Plantar syphilide

Pic 3 Herpes with candidiasis Pic 4 Primary chancre
CASE STUDY (PREVALENCE)

Pic 5 Vulval warts

Pic 6 Warts with Trichomoniasis

Pic 7 Warts with candidiasis

Pic 8 Molluscum contagiosum
Pic 9 Extensive herpes in HIV

Pic 10 Vulval herpes with candidiasis