



ACTUAL INFECTION STATE OF SEXUAL TRANSMITTED DISEASE WHOSE PATIENTS WANT TO TEST IN OUT-PATIENT SETTING

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Abstract- Sexual transmitted diseases (STD) have a wide range of pathogens and lead to the development of serious complications unless early diagnosis and treatment is provided properly. The present study investigates the types of STD tests and infection rates among the patients, who visited a private clinic and underwent vaginal examination for STD in relation to gynecologic diseases.

Present study investigated medical records of patients who visited an obstetrics and gynecology clinic for STD examinations from October 2007 to April 2011, retrospectively.

Regarding test results, 479 (56%) out of the 845 patients were found to be infected with an STI, and 92 patients (11%) were afflicted with more than two STIs. *Gardnella vaginalis* (n = 103, 21.5%), *Ureaplasma urealyticum* (n = 102, 21.3%), *Mycoplasma hominis* (n = 101, 21%), *Chlamydia trachomatis* (n = 60, 12.5%), *Herpes simplex virus type 2* (n = 51, 10.6%), *Trichomonas vaginalis* (n = 40, 8.5%), *Mycoplasma genitalium* (n = 11, 2.3%) and *Neisseria gonorrhoea* (n = 11, 2.3%) were found in the order named.

Present study shown actual STD infection states of patients who visited clinic and wanted to test STD. Surprisingly, many of these patients had actually infected with STDs. To make conclusive results, the more organized and randomized study might be needed. However, STDs are likely to affect others or even newborns as well as patients themselves with various range of complications. Therefore early diagnosis and treatment are very important. To patients who suspect their STD infection, clinicians should conduct STD test for early diagnosis and proper treatment.

Keywords- Sexual transmitted disease, Out-patient

Introduction

Venereal disease (VD), also referred to as sexually transmitted disease (STD), are illnesses that are contracted and transmitted by sexual contact between humans and caused by such pathogens as viruses, bacteria, parasites and fungi.

Since the 1900s, VD has been replaced by a more medical term, STD (sexually transmitted disease). Recently, a more inclusive term, STI (sexually transmitted infection) has been used to emphasize the significance of transmission and infection from the perspective of public health [1]. These days, sexually transmitted infections are rising in frequency, assuming different aspects. In the past, venereal disease used to refer to gonorrhoea, syphilis, chancroid, lymphogranuloma venereum and granuloma inguinale. In recent years, the term 'adult diseases' or 'sexually transmitted diseases' has been preferred to 'venereal disease,' referring to sexually transmissible nongonococcal urethritis, trichomonas vaginitis, genital herpes and condyloma acuminata.

Venereal disease are also contracted and transmitted via injection needles not to mention oral, vaginal and anal sexual contact with infected persons. In some cases, venereal disease are transmitted to fetuses through the placenta during pregnancy. In other cases, newborns are infected with venereal disease in childbirth or breastfeeding. Causes and types of infection are becoming more diverse and extensive. The most common bacterial STD are mostly curable with susceptible antibiotics, whereas viral STD are more serious requiring preventive measures as they are not just incurable but

also show no subjective symptoms in most cases, leading to further transmission by continuous careless sexual contact with others [2].

In the midst of rapid socio-cultural changes in recent years, the established diagnostic methods and the concept of treatment have been changing thanks to accelerated advances in modern medicine. Domestically, ever-changing perception of sex and unimaginably open sex culture seem to have contributed to increasing the risk of venereal disease. Likewise, there have been many changes in the onset, diagnosis and treatment of STD. Yet, exact statistics regarding the status of STD are unavailable [3]. STD have a wide range of pathogens and lead to the development of serious complications unless early diagnosis and treatment is provided properly. Besides, people should pay attention to STD in that venereal diseases are highly infectious between sex partners. Hence, the present study investigates the types of STD tests and infection rates among the patients, who visited a private clinic and underwent vaginal examinations for STD in relation to gynecologic diseases, and analyzes clinical significance.

Materials and Methods

From October 2007 to April 2011, this study investigated 845 patients who visited an obstetrics and gynecology clinic for STD examinations and treatments to find out relevant characteristics. A retrospective study was conducted using medical records including the ages of patients at the time of clinic visits, the number of STD tests and results.

Results

A total of 845 patients (aged 15-60), who visited the obstetrics and gynecology clinic for STD examinations, were studied here. In terms of age group distribution, 21 patients were 15-20 years old (2.4%), 115 patients were 21-25 years old (14%), 248 patients were 26-30 years old (29%), 228 patients were 31-35 years old (27%), 157 patients were 36-40 years old (18.3%), 32 patients were 41-45 years old (4%), 32 patients were 46-50 years old (4%), 9 patients were 51-55 years old (1%) and 3 patients were 56-60 years old (0.3%). Patients aged 26-35 accounted for the highest percentage (56%) of the study subjects who visited the clinic for STD testing.

In respect of the number of STD tests, 288 patients (34%) received 1 test; 58 patients (7%) 2 tests; 160 patients (19%) 3 and 339 patients (40%) got more than 6 tests.

Regarding test results, 479 (56%) out of the 845 patients were found to be infected with an STI, and 92 patients (11%) were afflicted with more than two STIs.

Regarding the infection types and rates of STIs, *Gardnerella vaginalis* 103 patients (21.5%), *Ureaplasma urealyticum* 102 patients (21.3%), *Mycoplasma hominis* 101 patients (21%), *Chlamydia trachomatis* 60 patients (12.5%), *Herpes simplex virus type 2* 51 patients (10.6%), *Trichomonas vaginalis* 40 patients (8.5%), *Mycoplasma genitalium* 11 patients (2.3%) and *Nisseria gonorrhoea* 11 patients (2.3%) were found in the order named [Table-1], [Table-2].

Table 1- Basal characteristics of subjects (n = 845)

| Age (range) | Number | % |
|-------------|--------|--------|
| 15-20 | 21 | 2.40% |
| 21-25 | 115 | 14% |
| 26-30 | 248 | 29% |
| 31-35 | 228 | 27% |
| 36-40 | 157 | 18.30% |
| 41-45 | 32 | 4% |
| 46-50 | 32 | 4% |
| 51-55 | 9 | 1% |
| 56-60 | 3 | 0.30% |

Table 2- Number of STD tests & Infection type of STIs

| Number of STD tests | % |
|------------------------------------|--------|
| 1 test | 34% |
| 2 tests | 7% |
| 3 tests | 19% |
| More than 6 tests | 40% |
| Infection type of STIs | |
| <i>Gardnerella vaginalis</i> | 21.50% |
| <i>Ureaplasma urealyticum</i> | 21.30% |
| <i>Mycoplasma hominis</i> | 21% |
| <i>Chlamydia trachomatis</i> | 12.50% |
| <i>Herpes simplex virus type 2</i> | 10.60% |
| <i>Trichomonas vaginalis</i> | 8.50% |
| <i>Mycoplasma genitalium</i> | 2.30% |
| <i>Nisseria gonorrhoea</i> | 2.30% |

Discussion

Gardnerella vaginalis is an anaerobic bacterium present in the vagina, accounting for the most part of bacterial vaginosis in women. The infection is known to occur when lactic acid bacteria beneficial to vaginal health disappear followed by proliferation of the *Gardnerella vaginalis* as a result of frequent sex, hip bath or using vaginal washes. Symptoms include light-gray vaginal discharge with a fishy odor with little pruritus. However, *Gardnerella vaginalis* infection is often asymptomatic even though the bacterium is found in

testing. It may cause pelvic inflammatory diseases, urinary tract infection and endometritis. In general, *Gardnerella vaginalis* infection is not transmitted via sex, and thus sex partners need not be treated.

Nongonococcal urethritis is also referred to as nonspecific urethritis and it is one of the most common STD today. It is caused by pathogens other than gonococci and develops no noticeable symptoms with recurrence rates reaching 30-40% after treatment. Major pathogens include *Ureaplasma urealyticum*, *Mycoplasma* and *Chlamydia*. *Ureaplasma urealyticum* was first reported in 1954 by Shepard, who separated the bacterium from nongonococcal urethritis patients, and has been known as a pathogen causing multiple diseases, nongonococcal urethritis, chronic prostatitis, epididymitis, pyelonephritis, preterm labor, idiopathic abortion and infertility [4]. *Ureaplasma urealyticum* usually infects the neck area of human sperm and rolls up the tail of sperm, which in turn loses mobility, resulting in male infertility and prostatic diseases.

Mycoplasma is sub-divided into *Mycoplasma genitalium* and *Mycoplasma hominis*. Mostly, *Mycoplasma genitalium* is observed in STD. It is commonly present in the urogenital organs and reported to be closely associated with gynecologic diseases such as nongonococcal urethritis, infertility, pelvic inflammatory diseases, habitual abortion, low birth weight and preterm birth [5]. The major problem of this bacteria is the recurrent infection rates reaching approximately 30-40% within 6 weeks after treatment.

Chlamydia is a Gram-negative bacterium that can survive only in cells, mostly causing infections in the urogenital organs and the eyes, and it is known as the most common pathogen in STD [6]. Even newborns and infants as well as adults may be infected with *Chlamydia*. Also, it affects the upper genital organs in females, causing infertility and ectopic pregnancy. Moreover, in case of maternal infection, it can affect pregnancy progress and prognosis and fetal condition. *Chlamydia* infection is asymptomatic or shows mild symptoms with data on its actual frequency being rarely available. Hence, those who have risk factors had better receive testing regardless of their symptomatic or asymptomatic status [7]. *Chlamydia* infection is commonly concurrent with *Gonorrhoea* infection, and thus sex partner must be tested and treated.

Herpes simplex virus (HSV) infection is subdivided into type 1 and type 2, and the primary and secondary infection. The primary infection shows severe symptoms, and the frequency of neonatal infection is high. The type 1 HSV infection develops lesions in the mouth and face, whereas the type 2 virus is widely known to lead to lesions in the genitals and anus. HSV infection occurs via direct skin contact and develops an itchy and painful rash after a latent period of 3-6 days with many little blisters forming on the external genitalia. About 20% of HSV carriers are asymptomatic. Accordingly, caution is required as the HSV infection may occur by having sex with any asymptomatic partner. A pregnant woman diagnosed with HSV infection can be administered with antiviral agents in advance to prevent the vertical infection to fetus and newborn, and need undergo a Cesarean section, if applicable, in case of lesions including pre-partum ulceration or preterm premature rupture of membranes [8].

Trichomonas vaginalis infection is characterized by vaginal discharge and odor accompanied by severe pruritus. It is often observed in male and female. urinary tract genitalia and concurrent with bacterial vaginosis (BV), leading to high transmission rates of over 70% even by one-time sex with any infected person. Males are mostly asymptomatic, whereas females mostly show symptoms

including yellowish and smelly vaginal discharge and yellow-greenish foamy leucorrhoea in some cases. *Trichomonas vaginalis* infection is known to cause pruritus in the external genitalia, painful intercourse and cystitis and to increase the risks of preterm birth, preterm premature rupture of membranes and low birth weight. Due to recurrence, sex partners must be treated as well [9].

As the second most common STD, gonorrhoea often develops severe symptoms in males leading to early treatment. By contrast, females often experience no or mild symptoms until complications develop, e.g. pelvic inflammatory diseases [10]. As mentioned earlier, gonorrhoea is concurrent with chlamydia infection, which warrants simultaneous treatments for both infections when a person is diagnosed with gonorrhoea infection.

In males symptoms of gonorrhoea include purulent urethral discharge, burning sensation on urination, urethral pruritus and swelling in the urethral. In females, gonorrhoea may be concurrent with vaginal discharge, dysuria, low-back pain and abdominal pain. However, about 60-90% of females infected with gonorrhoea are asymptomatic. Complications include paraurethritis developing into urethral stricture, severe prostatitis developing into prostate abscess and epididymitis complications leading to infertility in males. In females, gonorrhoea-associated complications include salpingitis, vaginitis, endometritis, pelvic inflammatory diseases and possibly infertility. Sex partners must receive testing and treatment when they had sex within 60 days before the onset of symptoms. The latest sex partners who had sex even before the 60 days must be tested and treated. Upon completion of treatment, patients must not have sex until symptoms disappear [1].

As demonstrated in the abovementioned results, STD are found across different age groups from teenagers to those who are in their 60s. This is attributable to increasing exposure to STD resulting from younger ages at first sexual intercourse, more sex partners, various sex acts including oral sex and increase in sex acts among the elderly. Notwithstanding efforts exerted to prevent and manage STD, more than 340 million people are newly infected with STD yearly. The development of antibiotics, many STD are completely curable. Yet, there are lots of asymptomatic infections, e.g. gonorrhoea and chlamydia, especially in females. About 40% of those women with asymptomatic infections become afflicted with pelvic inflammatory diseases unless being treated properly, and 1/4 of them end up in infertility, which is another problem in modern society. STD are not incurable diseases that should be hidden. Also, STD are highly likely to affect others or even newborns as well as patients themselves with a range of sequelae and issues, in which sense early diagnosis and treatment of STD is very important.

Conflicts of Interest: None declared.

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