UNIT 7 : SEXUALLY TRANSMITTED DISEASES

UNIT STRUCTURE

7.1 Learning Objectives
7.2 Introduction.
7.3 History
7.4 Signs and Symptoms
7.5 Implications
7.6 Protective Measures
7.7 Let Us Sum Up
7.8 Further Readings
7.9 Answers to check your progress
7.10 Possible Questions

7.1 LEARNING OBJECTIVES

After going through this unit you will be able to-

- understand the concept of sexually transmitted diseases or STD
- learn about its origin or history
- know about the various signs and symptoms of the disease
- know the various implications that may take place due to these diseases
- know about the protective measures in countering the disease.

7.2 INTRODUCTION

Sexually Transmitted Diseases (STD), also known as sexually transmitted infections (STI) and venereal diseases (VD) are infections that are commonly spread by sex. While usually spread by sex, some STDs can also be spread by non-sexual contact with contaminated blood and tissues, breastfeeding, or during childbirth. Most STDs initially do not cause symptoms for which the risk of passing the disease on to others is greater compared to other diseases. STD was seen as a taboo when it first emerged

but with the introduction of different precautionary measures as well as curable measures it is no longer considered a taboo. Many people find it difficult to openly discuss STD but now the situation has changed with the invention of various medicines which are effective in curing the disease.

There are various ways to determine whether a person is affected by STD. Some of the symptoms include vaginal discharge, penile discharge, ulcers on or around the genitals, and pelvic pain. Due to STD a women may have problem in getting pregnant or the outcome of the newborn maybe poorer due to the infection which may pass on from the mother to the child.

There are more than thirty different bacteria, viruses, and parasites that can cause STDs. Bacterial STDs include chlamydia, gonorrhea, and syphilis etc. Viral STDs include genital herpes, HIV/AIDS, and genital warts among others. Parasitic STDs include trichomoniasis among others. STD diagnostic tests are easily available in the developed countries, but this facility is very rare in case of the developing and under developed countries.

In 2008, it was estimated that 500 million people were infected with either syphilis, gonorrhea, chlamydia or trichomoniasis. At least an additional 530 million people have genital herpes and 290 million women have human papillomavirus. STDs other than HIV, resulted in 142,000 deaths in 2013. In the United States, there were 19 million new cases of sexually transmitted infections in 2010. There is often shame and stigma associated with these infections. The term sexually transmitted infection is generally preferred over the terms sexually transmitted disease and venereal disease, as it includes those who do not have symptomatic disease.



CHECK YOUR PROGRESS

Q1. What are the other two terms used for STD?

.....

.....

Q2. What are the different non-sexual contacts that can cause STD?

.....

Q3. What are the different types of STD's caused by bacteria?

.....

7.3 HISTORY

The first well-recorded European outbreak of STD what is now known as syphilis occurred in 1494. It broke out among the French troops besieging Naples in the Itialian war of 1494-98. The disease may have originated from the Colombian Exchange. The disease swept across Europe, killing more than five million people from Naples As Jared Diamond describes it, "When syphilis was first definitely recorded in Europe in 1495, its pustules often covered the body from the head to the knees, caused flesh to fall from people's faces, and led to death within a few months," rendering it far more fatal than it is today. Diamond concludes ,"By 1546, the disease had evolved into the disease with the symptoms so well known to us today." Gonorrhoeae is recorded at least up to 700 years ago and associated with a district in Paris formerly known as "Le Clapiers". This is where the prostitutes were to be found at that time.

Prior to the invention of modern medicines, sexually transmitted diseases were generally incurable, and the treatment was limited to treating the symptoms of the disease. The first voluntary hospital for venereal diseases was founded in 1746 at London Rock Hospital. Treatment was not always voluntary. In the second half of the 19th century the Contagious Disease Acts were used to arrest suspected prostitutes. In 1924, a number of states concluded the Brussels Agreement, whereby the states agreed to provide free or low-cost medical treatment at ports for merchant seamen with venereal diseases.

The first effective treatment for a sexually transmitted disease was salvarsan, a treatment for syphilis. With the discovery of antibiotics, a large number of sexually transmitted diseases became easily curable, and this, combined with effective public health campaigns against STDs, led to a

public perception during the 1960s and 1970s that they have ceased to be a serious medical threat.

In the 1980s, first genital herpes and then AIDS emerged into the public consciousness as sexually transmitted diseases that could not be cured by modern medicine. AIDS in particular has a long asymptomatic period-during which time HIV (the human immunodeficiency virus, which causes AIDS) can replicate and the disease can be transmitted to others-followed by a symptomatic period, which leads rapidly to death unless treated. HIV/AIDS entered the United States from Haiti in about 1969. Recognition that AIDS threatened a global pandemic led to public information campaigns and the development of treatments that allow AIDS to be managed by suppressing the replication of HIV for as long as possible.



CHECK YOUR PROGRESS

Q4. When was the first STD outbreak took place which was well-recorded?

.....

Q5. What facilities did the states agreed to provide to the infected persons who concluded the Brussels Agreement?

.....

Q6. What is the full form of HIV?

.....

7.4 SIGNS AND SYMPTOMS

Not all STDs are symptomatic and symptoms may not appear immediately after infection. In some instances a disease can be carried with no symptoms, which leaves a greater risk of passing the disease on to others. Depending on the disease, some untreated STDs can lead to infertility, chronic pain or even death. The presence of an STD in prepubescent children may indicate sexual abuse.

Main types of STD are,

Sexually transmitted infections include:

- **Chlamydia :** It is a sexually transmitted infection caused by the bacterium Chlamydiatrachomatis. In women, symptoms may include abnormal vaginal discharge, burning during urination, and bleeding in between periods etc. Although most of the women do not experience any symptoms, symptoms in men include pain when urinating and abnormal discharge from the penis. If left untreated in both men and women, Chlamydia can infect the urinary tract and potentially pelvic inflammatory disease (PID). PID can cause serious problems during pregnancy and even has the potential to cause infertility. It can cause a woman to have a potentially deadly ectopic pregnancy, in which the child is born outside of the uterus. However, Chlamydia can be cured with antibiotics.
- The two most common forms of herpes are caused by infection with herpes simplex virus **(HSV)**. **HSV-1** is typically acquired orally and causes cold sores, **HSV-2** is usually acquired during sexual contact and affects the genitals, for which either strain may affect either site. Some people are asymptomatic or have very mild symptoms. Those that do experience symptoms usually notice them 2 to 20 days after exposure which last 2 to 4 weeks. Symptoms can include small fluid-filled blisters, headaches, backaches, itching or tingling sensations in the genital or anal area, pain during urination, flu like symptoms, swollen glands, or fever. Herpes is spread through skin contact with a person infected with the virus. The virus affects the areas where it entered the body. This can occur through kissing, vaginal intercourse, oral sex or anal sex. The virus is most infectious during times when there are visible symptoms. However, those that are asymptomatic can still spread the virus through skin contact. The primary attack is the most severe because the body does not have any antibodies built up. After the primary attack, one might have recurring attacks that are milder or might not even have future attacks. There is no cure for the disease but there are antiviral medications that treat its symptoms and lower the risk of transmission(Valtrex). Although **HSV-1** is typically the "oral" version

of the virus, and **HSV-2** is typically the "genital" version of the virus, a person with **HSV-1** orally can transmit that virus to their partner genitally. The virus, either type, will settle into a nerve bundle either at the top of the spine, producing the "oral" outbreak, or a second nerve bundle at the base of the spine, producing the genital outbreak.

- The human papillomavirus **(HPV)** is the most common STD in the United States. There are more than 40 different strands of HPV and many do not cause any health problems. In 90% of cases the body's immune system clears the infection naturally within 2 years. Some cases may not be cleared and can lead to genital warts (bumps around the genitals that can be small or large, raised or flat, or shaped like cauliflower) or cervical cancer and other HPV related cancers. Symptoms might not show up until advanced stages. It is important for women to get pap smears in order to check for and treat cancers. There are also two vaccines available for women (Cervarix and Gardasil) that protect against the types of HPV that cause cervical cancer. HPV can be passed through genital-to-genital contact as well as during oral sex. It is important to remember that the infected partner might not have any symptoms.
- **Gonorrhea** is caused by bacterium that lives on moist mucous membranes in the urethra, vagina, rectum, mouth, throat, and eyes. The infection can spread through contact with the penis, vagina, mouth or anus. Symptoms of Gonorrhea usually appear 2 to 5 days after contact with an infected partner. But sometimes the symptoms might not be noticed for up to a month. Symptoms in men include burning and pain while urinating, increased urinary frequency, discharge from the penis (white, green, or yellow in color), red or swollen urethra, swollen or tender testicles, or sore throat. Symptoms in women may include vaginal discharge, burning or itching while urinating, painful sexual intercourse, severe pain in lower abdomen (if infection spreads to fallopian tubes), or fever (if infection spreads to fallopian tubes), however many women do not

show any symptoms. There are some antibiotic resistant strains for Gonorrhea but most cases can be cured with antibiotics.

- **Syphilis** is an STD caused by a bacterium. If it is left untreated, it can lead to complications and death. Clinical manifestations of syphilis include the ulceration of the uro-genital tract, mouth or rectum. In recent years, the prevalence of syphilis has declined in Western Europe, but it has increased in Eastern Europe (former Soviet states). A high incidence of syphilis can be found in places such as Cameroon, Cambodia, Papua, New Guinea. Syphilis infections are increasing in the United States.
- **Trichomoniasis** is a common STD that is caused by infection with a protozoan parasite called Trichomonas vaginalis. Trichomoniasis affects both women and men, but symptoms are more common in women. Most patients are treated with an antibiotic called metronidazole, which is very effective.
- **HIV** (human immunodeficiency virus) damages the body's immune system, which interferes with its ability to fight off disease-causing agents. The HIV virus attacks the T-Lympocytes-T-in man. The destruction of these T-Lymphocytes decreases the ability of the host to mount immune responses to infecting organisms. The virus kills CD4 cells, which are white blood cells that help fight off various infections. HIV is carried in body fluids, and is spread by sexual activity. It can also be spread by contact with infected blood, breast feeding, childbirth, and from mother to child during pregnancy. When HIV is at its most advanced stage, an individual is said to have AIDS (acquired immunodeficiency syndrome). There are different stages of the progression of the HIV infection. The stages include primary infection, asymptomatic infection, symptomatic infection, and AIDS. In the primary infection stage, an individual will have flu like symptoms (headache, fatigue, fever, muscle aches) for about 2 weeks. In the asymptomatic stage, symptoms usually disappear, and the patient can remain asymptomatic for years. When HIV progresses to the symptomatic stage, the immune system is weakened, and has a

low cell count of CD4+ T Cells. When the HIV infection becomes life-threatening, it is called AIDS. People with AIDS fall prey to opportunistic infections and die as a result. When the disease was first discovered in the 1980s, those who had AIDS were not likely to live longer than a few years. There are now antiretroviral drugs (ARVs) available to treat HIV infections. There is no known cure for HIV or AIDS but the drugs help suppress the virus. By suppressing the amount of virus in the body, people can lead longer and healthier lives. Even though their virus levels may be low they can still spread the virus to others.



CHECK YOUR PROGRESS

Q7. What is the bacteria that cause Chlamydia?

.....

Q8. What is the most common STD in United States?

.....

Q9. What is the protozoan parasite that cause Trichomoniasis

.....

Q10. What is the most advanced stage of HIV known as?

.....

7.5 IMPLICATIONS

STD incidence rates remain high in most of the world, despite diagnostic and therapeutic advances that can rapidly render patients with many STDs and cure most. In many cultures, changing sexual morals and oral contraceptive use have eliminated traditional sexual restraints, especially for women, and both physicians and patients have difficulty dealing openly and candidly with sexual issues. Additionally, development and spread of drug-resistant bacteria (e.g., penicillin-resistant gonococci) makes some STDs harder to cure. The effect of travel is most dramatically illustrated by

the rapid spread of the AIDS virus (HIV-1) from Africa to Europe and the Americas in the late 1970s.

Commonly reported prevalences of STDs among sexually active adolescent girls both with and without lower genital tract symptoms include chlamydia (10-25%), gonorrhea (3-18%), syphilis (0-3%), Trichomonas vaginalis (8-16%), and herpessimplex virus (2-12%). Among adolescent boys with no symptoms of urethritis, isolation rates include chlamydia (9-11%) and gonorrhea (2-3%). A 2008 CDC study found that 25-40% of U.S. teenage girls had a sexually transmitted disease.

AIDS is among the leading causes of death in present-day Sub-Saharan Africa. HIV/AIDS is transmitted primarily via unprotected sexual intercourse. More than 1.1 million persons are living with HIV/AIDS in United States and it disproportionately impacting on African-Americans. In India too, many patients are suffering from AIDS. In India, the first evidence of HIV was obtained in March 1986. Similarly, Assam is not free from effects of HIV/AIDS. The first HIV positive case was reported in Assam in the year 1990. Assam stands as a very vulnerable state in terms of HIV/AIDS and a number of people are affected by this disease till today. Hepatitis B is also considered a sexually transmitted disease because it can be spread through sexual contact. The highest rates are found in Asia and Africa and lower rates are in the America and Europe. Approximately two billion people worldwide have been infected with the hepatitis B virus.

7.6 PROTECTIVE MEASURES

The most effective way to prevent sexual transmission of STDs is to avoid contact of body parts or fluids which can lead to transfer with an infected partner. Not all sexual activities involve contact: cybersex, phone-sex or masturbation from a distance are methods of avoiding contact. Proper use of condoms reduces contact and risk. Although a condom is effective in limiting exposure, some disease transmission may occur even with a condom.

Both partners should get tested for STDs before initiating sexual contact, or before resuming contact if a partner engaged in contact with someone else. Many infections are not detectable immediately after exposure, so enough time must be allowed between possible exposures and testing for the tests to be accurate. Certain STDs, particularly certain persistent viruses like HPV, may be impossible to detect with current medical procedures.

Many diseases that establish permanent infections can also affect the immune system that other diseases become more easily transmitted. The innate immune system led by defenses against HIV can prevent transmission of HIV when viral counts are very low, but if busy with other viruses or overwhelmed, HIV can establish itself. Certain viral STD's also greatly increase the risk of death for HIV infected patients.

Strategies to increase testing for HIV and STDs have proved to be successful. Some treatment facilities utilize in-home test kits and have the person return the test for follow-up. Other facilities strongly encourage that those previously infected can return to ensure that the infection has been eliminated. Novel strategies to foster re-testing have been through the use of text messaging and email as reminders. These types of reminders are now used in addition to phone calls and letters.

Vaccines

According to medical scientists, vaccine is a biological preparation that provides active acquired immunity to a particular disease. There is no vaccine against HIV infection. However, vaccines are available that protect against some viral STDs, such as Hepatitis A, Hepatitis B, and some types of HPV. Vaccination before initiation of sexual contact is advised to assure maximal protection. The development of vaccines to protect against gonorrhea is ongoing.

Condoms

Male condoms as well as female condoms only provide protection when used properly as a barrier, and only to and from the area that it covers. Uncovered areas are still susceptible to many STDs. In the case of HIV, sexual transmission routes almost always involve the penis, as HIV cannot

spread through unbroken skin; therefore, properly shielding the penis with a properly worn condom from the vagina or anus effectively stops HIV transmission. An infected fluid to broken skin borne direct transmission of HIV would not be considered "sexually transmitted", but can still theoretically occur during sexual contact. This can be avoided simply by not engaging in sexual contact when presenting open, bleeding wounds.

Other STDs, even viral infections, can be prevented with the use of latex, polyurethane or polyisoprene condoms as a barrier. Some microorganisms and viruses are small enough to pass through the pores in natural skin condoms, but are still too large to pass through latex or synthetic condoms.

Proper male condom usage entails:

- Not putting the condom on too tight at the end, and leaving 1.5 cm (3/4 inch) room at the tip for ejaculation. Putting the condom on snug can and often does lead to failure.
- Wearing a condom too loose can defeat the barrier.
- Avoiding inverting or spilling a condom once worn, whether it has ejaculate in it or not.
- If a user attempts to unroll the condom, but realizes they have it on the wrong side, then this condom should be discarded.
- Being careful with the condom if handling it with long nails.
- Avoiding the use of oil-based lubricants (or anything with oil in it) with latex condoms, as oil can eat holes into them.
- Using flavored condoms for oral sex only, as the sugar in the flavoring can lead to yeast infections if used to penetrate.

In order to best protect oneself and the partner from STDs, the old condom and its contents should be assumed to be infectious. Therefore, the old condom must be properly disposed of. A new condom should be used for each act of intercourse, as multiple usage increases the chance of breakage, defeating the effectiveness as a barrier.

The most effective way of preventing STDs is by not having sex. Some vaccinations may also decrease the risk of certain infections including hepatitis B and some types of HPV. Safer sex practices such as use of

condoms, having a smaller number of sexual partners, and being in a relationship where each person only has sex with the other also decreases the risk. Circumcision in males may be effective to prevent some infections. Most STDs are treatable or curable. Of the most common infections, syphilis, gonorrhea, chlamydia, trichomoniasis are curable, while herpes, hepatitis B, HIV/AIDS, and HPV are treatable but not curable. Resistance to certain antibiotics is developing among some organisms such as gonorrhea.



7.7 LET US SUM UP

- STD is also known as sexually transmitted infection (STI) or venereal disease (VD).
- STD is commonly spread by the activity of having sex.
- The other forms of non-sexual contacts that are responsible for STD are contact with contaminated blood and tissues, breastfeeding or during childbirth.
- Some of the symptoms of STD include vaginal discharge, penile discharge, ulcers on or around the genitals and pelvic pain.
- There are more than thirty different bacteria, viruses and parasite that cause STD.
- Bacterial STDs include Chlamydia, gonorrhea, syphilis etc.
- Viral STDs include genital herpes, HIV/AIDS, genital warts etc.
- Parasitic STDs include trichomoniasis.
- In 2008, it was found that more than 500 million people were either infected with syphilis, gonorrhea, Chlamydia or trichomoniasis.
- First well-recorded European outbreak of STD that is now known as syphilis occurred in 1494.
- The first voluntary hospital for venereal diseases was founded in 1746 at London Rock Hospital.
- HIV/AIDS entered the United States from Haiti in about 1969.
- Chlamydia is a sexually transmitted infection caused by the bacterium Chlamydiatrachomatis. The symptoms are different in

both men and women. Due to Chlamydia there may be complexity in pregnancy and childbirth. It can be cure with the help of antibiotics.

- The two most common forms of herpes are caused by infection with herpes simplex virus (HSV). HSV-1 is typically acquired orally and causes cold sores, HSV-2 is usually acquired during sexual contact and affects the genitals, for which either strain may affect either site.
- The human papillomavirus (HPV) may cause cervical cancer. There are two vaccines available for women which are Cervarix and Gardasil which helps in fighting against cervical cancer.
- Gonorrhea is a sexually transmitted infection which may lead to infertility if left untreated.
- Syphilis is a bacterial infection which starts with a painless sore.
- HIV is responsible for damaging the immune system of a person which hampers the ability of the body to fight against infections. It kills the CD4 cells.
- There are various preventive measures that can help a person from the infection of STD with vaccination and proper use of condoms. Although some may not be curable enough but it decrease the risk of infections such as hepatitis B or HPV.



7.8 FURTHER READING

Faro,Sebastian; Sexually Transmitted Diseases in Women, Lippincott Williams and Wilkins, Philadelphia, 2003.

Saikia, J.P. ;Gender: Themes & Issues, Concept Publishing Pvt. Ltd, New Delhi, 2010

Sehgal, Virendra N, Sexually Transmitted Diseases, 4th edition, Jaypee Brothers, New Delhi, 2006.

Shoquist Jennifer, The Encycholpedia of Sexually Transmitted Diseases, Facts on File, Inc, New York, 2004.

7.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No. 1. The two other terms used for STD are STI and VD.

Ans to Q No. 2. Different non-sexual contacts that can cause STD are contact with contaminated blood and tissues, breastfeeding or during childbirth.

Ans to Q No. 3. Different types of STD caused by bacteria are Chlamydia, gonorrhea, syphilis etc.

Ans to Q No. 4. First well-recorded outbreak of STD took place in 1494.

Ans to Q No. 5. The facilities that were provided after the conclusion of Brussels Agreement were to provide free or low-cost medical treatment at ports for merchant seamen with venereal diseases.

Ans to Q No. 6. The full form of HIV is human immunodeficiency virus.

Ans to Q No. 7. Bacteria that cause Chlamydia is Chlamydiatrachomatis.

Ans to Q No. 8. Most common STD in United States is human papillomavirus (HPV).

Ans to Q No. 9. The protozoan parasite which is responsible for causing Trichomoniasis is Trichomonas vaginalis.

Ans to Q No. 10. The most advanced stage of HIV is known as AIDS (acquired immunodeficiency syndrome).



7.10 POSSIBLE QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q.1. What is the most common way STD spreads?

Q.2. What was STD considered when it first emerged?

B) Write short notes (within 150words)

Q.1. Write about the various protective measures of STD.

C) Long Questions (Answer each question in about 300-500 words

Q.1. Explain the various types of STDs, also elaborate their symptoms and precautionary measures.

*** ***** ***