Shikshan Sanshodhan : Journal of Arts, Humanities and Social Sciences ISSN(o): 2581-6241
Monthly, Peer-Reviewed, Refereed, Indexed Journal Impact Factor: 7.384
Volume - 8, Issue - 6, June - 2025

DOIs:10.2018/SS/202506002 --:-- Research Paper / Article / Review

Epidemiology of STI/RTI

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Abstract : *According to WHO, STI and their complications rank in the top five disease categories for which adults in developing countries seek health care. The incidence and prevalence of STI in the developing world are rising rapidly. Premature deaths and disabilities not only devastate families, but also threaten the cultural and economic stability of communities, countries, and whole continents. In the present study highlights the factors contributing to high STI/RTI prevalence.*

Keyword : *Prevalence, Transmission, Infection, Vulnerable and Prevention.*

1. INTRODUCTION

In recent years, there is a growing concern regarding the prevalence and extent of STI/RTI among women and men in developing countries. Further, the threat of AIDS has focused greater attention on the importance of RTI including STI. The World Health Organization (WHO) estimates (2006) that approximately 340 million new cases of the four main curable STI (gonorrhoea, chlamydial infection, syphilis, and trichomoniasis) occur every year, 75–85% of them in developing countries. This means about 10% of adults are newly infected with curable sexually transmitted disease (STI) each year. WHO also estimates that out of these 340 million curable STI that occur globally each year there are about 12 million new cases of syphilis, 62 million new cases of gonorrhoea, 90 million new cases of chlamydial infection, 176 million new cases of trichomoniasis. Thus STI/RTI impose an enormous burden of morbidity and mortality in developing countries, both directly through their impact on reproductive and child health, and indirectly through their role in facilitating the sexual transmission of HIV infection.

2. Situation in India:

Many studies have been conducted to estimate the prevalence of STI/RTI in men and women in India, which reveal that there is a huge burden of STI/RTI and they adversely impact reproductive health of people. According to National Family Health Survey (NFHS) –2 data, it is estimated that the prevalence of symptoms suggestive of STI/RTI in women was in the range of 23% to 43%, while in men it is in the range of 4% to 9%. The STI clinic based data indicates syphilis as the major prevalent STI among men (12.6-57%) followed by chlamydia (20%-30%), chancroid (9.9%-34.7%), and gonnorhoea (8.5%-25.9%). The hospital based studies reports a varied prevalence for HSV (3.0- 14.9%) and HPV (4.9-14.3%) among men. The NACO data indicates that awareness about STI/RTI in men is 53% while in women is only 44%. It is estimated that about 6% of the adult population (15-49 years) have STI/RTI episode in a year which amounts to about 30 million episodes per year (ICMR Study, 2002).

3. Factors contributing to the spread of STI/RTI

Though the STI are infectious diseases, however, more than with other infectious diseases, STI transmission also depends mainly on sexual behavior. A person with many sexual partners is much more likely to acquire a STI than a person with one partner. A person with many partners also has more opportunity to infect others.

Factors contributing to high STI/RTI prevalence

There are many reasons for high prevalence of STI/RTI, which include lack of access to health care and medicines, lack of awareness of STI, and in-out migration.

- STI such as syphilis, gonorrhea and chancroid spread more rapidly in places where communities are disrupted, migrant labour is common and commercial sex networks are active.
- Iatrogenic infections are more commonly seen where the RTI in high prevalence, and where health care providers do not have the training or supplies to perform procedures safely. Postpartum and post abortion infections are more common where medical services and follow-up care are not provided safely.
- Endogenous infections, such as yeast infection and bacterial vaginosis, are common worldwide and are influenced by environmental, hygienic, hormonal and other factors like co existent diabetes and immune compromised states like AIDS.

Factors that increase the risk of transmission

It is not necessary that every act of unprotected sex will result in STI transmission. The possibility of getting infected depends on biological and behavioral factors.

Biological factors: Certain biological factors influence the transmission of STI/RTI which includes age, sex, immune status of the host and virulence of the organism:

- **Age:** The vaginal mucosa and cervical tissue of young women is immature and makes them vulnerable to STI than older women. Cervical ectopy describes the situation where cells that more readily allow infections to occur are found on the outer intra-vaginal surface of the cervix. This is normal for younger women and makes them more vulnerable to STI than older women. Taking the contraceptive pill can increase the size of the ectopy.
- **Sex:** Infection enters more easily through a mucosal surface such as vaginal mucosa. Thus the woman has much larger mucosal surface than the man and is more prone to being infected if she has sexual intercourse with a partner who has an STI. In case of men, uncircumcised men are more likely to get an STI than circumcised men. It is more difficult for uncircumcised men to protect the inside surface of their foreskin from contact with body fluids.
- **Immune status:** The immune status of the host and the virulence of the infection affect transmission of STI. Certain STI increase the risk of HIV transmission. HIV, in turn facilitates the transmission of many STI and worsens the complications of STI by weakening the immune system.

Behavioral factors

Many behavioural factors affect the possibility of contracting STI. Such behaviors, known as risky behaviors are as follows:

- Personal sexual behaviors □
- not using condoms during penetrative vaginal or anal intercourse □
- frequent sexual partner exchange □
- having more than one sexual partner □
- having sex with casual partners, sex workers or their clients □
- previous history of STI □
- exchanging sex for money, goods or favors □
- exchanging sex for drugs or drugs for sex

Other personal behaviors (non-sexual) that are risky include: □

- skin piercing □
- alcohol or other drugs during or before sex □
- blood transfusion
- Even if an individual has no risky behaviors, they may be at risk if their partner/s: □
- has sex with others □
- has STI □
- is HIV positive □
- injects drugs □
- has sex with other men (male)

Social factors

- Number of social factors link sex and behavioral issues and may affect a person's risk of contracting STI:
- In most cultures women have very little power over sexual practices and choices; such as use of condoms
- Women tend to economically dependent on their male partners and are therefore likely to tolerate men's risky behavior of multiple sexual partners, thus putting themselves at the risk of contracting STI
- Sexual violence tend to be directed more towards women by men, making it difficult for women to discuss STI with their male partners
- In some societies girl-child tends to be married off to an adult male at a young age, thus exposing girls to the infections
- In some societies permissive attitude is taken to allowing the men to have multiple sexual partners.

Most STI transmission occurs within a small part of the population that has multiple sex partners. This does not mean that the rest of the community is not at risk for STI infection. A woman who has sex with only her husband can still get a STI if her husband has other partners. Clinical services can contribute to STI control, but they are not enough. Often, those at highest risk of STI infection are least likely to use services. For these reasons, control of STI in any community requires effective strategies that reach those with the greatest number of sex partners.

4. Risk group

In most communities there are certain people who may be more vulnerable to STI. These may vary in different communities, but they usually include:

- Adolescent girls and boys who are sexually active and indulging in unsafe sex
- Women who have several partners for earning money.
- Female and male sex workers and their Clients
- Men and women whose jobs force them to be away from their families or regular sexual partners are away for long periods of time.
- Men having sex with men (MSM) including transgenders.
- Street children, prison inmates, etc.

Special concerns for STI/RTI in women

Although STI affect both women and men, research shows that women are more susceptible to infection and are less likely to seek treatment than men. Though the rate of infection vary tremendously among and within countries, World Bank reports indicate that STI are the second most important cause of health life years lost in women of childbearing age (after pregnancy related problems). The potential complications of untreated RTI are more serious in women and infections can be transmitted to the offspring of pregnant women as well. The women are more vulnerable to infection with STI and management may be more difficult in them than it is for men. This can be explained in two ways:

5. Biological differences

Biological differences make male-to-female transmission easier than female-to-male transmission.

- The lining of the vagina is a mucous membrane, which is more permeable to infection than the skin on the outside of the penis.
- Women's genitals have more surface area through which infection can enter.
- Women are the receptive partners during intercourse.
- Lack of lubrication during intercourse or changes in the cervix during the menstrual cycle can facilitate more efficient transmission of infection to women.
- Semen (thus bacteria or viruses which may be present in semen) stays in contact with the vagina for a longer time than vaginal fluids stay in contact with male genitals.
- Younger women may be more susceptible biologically due to an immature genital tract. Because of this, their cervical tissues may be more readily penetrated by organisms (e.g., chlamydia and gonococcus).
- Older women are more likely to get small abrasions in the vagina during sexual activity because of the thinning of the tissues and dryness that occur with age.

- Symptoms are less reliable indicators of disease in women.
- Women with STI are less likely to have symptoms (asymptomatic) than men with STI.
- When women do have symptoms such as vaginal discharge, they are not necessarily due to STI.
- Women who already have an infection (particularly one that causes genital lesions) are more likely to get or transmit HIV, since women are often asymptomatic when infected with an STI, they are often not aware of this increased risk.
- Complications in women are more frequent, numerous and severe because infection may ascend to uterus, tubes, and ovaries (Pelvic Inflammatory Diseases).
- Consequences include PID, infertility, ectopic pregnancy, spontaneous abortion, and cervical cancer.

6. Socio cultural differences

Socio cultural norms for men

Accepted male behavior that is the norm in many countries puts women at risk of infection.

- Older men often seek younger women as sex partners. Older men are more likely to have been exposed to STI because over time, they have more partners and therefore more opportunities to transmit infections such as HIV, HSV and HPV, which remain for life. While women more often settle into more stable relationships by their mid-20s.
- Younger men who are single, are more likely to have new or multiple partners, and are less likely to know about or use condoms. Younger men may have more partners over a shorter time period and thus are at increased risk of STI. Socio cultural norms for women Certain factors reduce women's options for protection against STI.
- Women can't always insist on condom use.
- Women lack power in family and community to influence male sexual behavior.
- Women cannot always refuse unwanted sex.
- Women may be forced into exchanging sex for money or favors out of financial need.
- For women, stigma attached to genital tract infections can prevent health care seeking behavior.
- Social stigma resulting from STI and their consequences can prevent marriage, cause divorce, and lead to domestic abuse.
- Other risks for women include the use of vaginal douches (which increase the risk of PID) and the influence of hormonal contraceptives on acquiring or transmitting STI, although this relationship is not yet fully understood.

7. Impact of STI/RTI and the need for their prevention and management

The STI/RTI are not only becoming a rapidly growing problem throughout the world but in the country too. As the transmission and prevalence of STI/RTI are influenced mainly by social and economic factors as well as by biological and behavior pattern, therefore the burden of STI/RTI varies greatly from region to region, and from community to community. Where STI/RTI are common, their complications are also common and the impact of STI is serious.

Seriousness of complications

RTI often go undiagnosed and untreated, and they lead to serious complications. If left untreated or if not diagnosed and treated in time, even curable STI can cause serious complications. Some of these infections can cause pelvic inflammatory disease, premature labor and delivery, spontaneous abortion, ectopic pregnancy, infertility, inflammation of the testes, cardiovascular or neurological complications, cervical cancer or even death. Some infections can also lead to pneumonia, respiratory infections, and eye infections in infants. Pelvic inflammatory disease arising from STI poses a major public health problem and adversely affects the reproductive health of poor and untreated women. In women of childbearing age, STI are second only to maternal factors as causes of disease and death. By far, the greatest burden of STI is borne by women and adolescents.

8. Links to HIV/AIDS

Studies have shown that the spread of HIV and other STI are closely related, STI are identified as a co-factor for the causation of HIV infection and promiscuous behavior puts people at risk for any sexually transmitted infections as well

as HIV infection (86%). A person with an STI has a much higher risk of acquiring HIV from an infected partner. A person infected with both HIV and another STI has a much higher risk of transmitting HIV to an uninfected Partner. For example, a person who has chancroid, chlamydia, gonorrhoea, syphilis, or trichomonas infection can have as much as four to ten times the risk of getting HIV from a sexual partner as a person who is not infected with one of these STI. An ulcerative STI (such as genital herpes, syphilis, or chancroid) increases the risk of HIV transmission per exposure significantly more than a non-ulcerative STI (such as gonorrhoea or chlamydia) since HIV can pass more easily through genital ulcers. But STI that do not cause ulcers also increase risk because they increase the number of white blood cells (which have receptor sites for HIV) in the genital tract, and because genital inflammation may result in damage that can allow HIV to enter the body more easily .

In addition, HIV infection may complicate diagnosis and treatment of other STI because HIV may change the patterns of disease or clinical manifestations of certain infections and may affect laboratory tests. In people with HIV infection, STI symptoms may be more severe, the period of infectivity may be increased, and normal treatments may not give good results. Fortunately, prevention of STI involves much the same behavior as prevention of HIV, and prevention works. In addition, since HIV spreads more easily when other STI are present, HIV transmission can be reduced by improving the recognition and management of curable STI at the primary health care level. Therefore in prevention campaigns to educate people about the link between behavior and infection with STI and HIV are needed. Prevention of STI infection provides windows of opportunity for preventing new HIV infection. Effective STI prevention is considered as the most cost effective strategy in preventing HIV infection. So, STI treatment and prevention can be an important tool in limiting the spread of HIV infection.

9. Challenges in prevention and management of STI/RTI

People are often too embarrassed or frightened to ask for help and information. Social stigma, misinformation, fear, shame, cultural barriers, gender inequities and other factors can keep individuals away from practicing safer sex behaviors, notifying partners, or receiving adequate treatment. In many countries, women find it particularly difficult to talk about STI and seek services for a variety of reasons. Because of cultural and social factors, a woman may be more likely to blame herself for her infection, fear abuse by her partner, and deny the presence of symptoms, or feel too embarrassed to ask for care. Young people may also have particular difficulty in accessing health care facilities because they may lack independent financial resources or fear that they will be denied services or judged by health care workers and others. In some countries, men who have sex with men– particularly those who do not consider themselves bisexual or homosexual– may fail to seek treatment out of embarrassment, fear, or stigmatization.

Other common barriers to STI treatment for Clients include:

- Lack of knowledge about STI, risks, symptoms, and complications
- Misconceptions about causation of STI/RTI
- Dependence on home remedies, quacks, faith healer especially in rural areas.
- Absence of signs or symptoms of STI (especially in women)
- Lack of knowledge about or access to treatment
- Reluctance to discuss sexual matters
- Fear that others will find out
- Fear of a judgmental approach by the health care provider
- Reluctance to undergo a genital examination (particularly by a provider of the opposite sex)
- Laws and restrictions (such as laws restricting health care for minors)

It is important for health care providers to remember that STI affect men and women of all ages, backgrounds, and socioeconomic levels. Providers of STI services and counseling must avoid judgmental and moralistic attitudes that can deter clients from seeking treatment – especially in the case of clients (who might be particularly susceptible to social stigma and bias, such as adolescents, sex workers, unmarried women, and homosexuals).

10. Future implications

STI are a major public health problem not only because they are among the most common causes of illness in the world, but also because of the potentially serious complications of untreated STI and because of the relationship between STI and increased HIV transmission. In women of childbearing age, STI are second only to maternal factors as causes of

disease and death. By far, the greatest burden of STI is borne by women and adolescents. In 2006-07, HIV surpassed tuberculosis as the world's leading infectious cause of death among adults. The social impact of HIV has been particularly pronounced in Sub-Saharan Africa, where an estimated 70% of the 40 million people in the world are living with HIV/AIDS and where 14 million children have been orphaned by AIDS. In some countries, more than 20% of the adult population is infected. The effects of losing an entire generation have created economic and social dislocation families have lost means of support; industry has lost workers; the health care system has been overwhelmed.

11. Conclusion :

- STI/RTI are increasing and constitute one of the major causes of ill health in our country.
- STI/RTI infection increases the risk of HIV transmission.
- STI/RTI cause serious complications in men and women, including infertility.
- STI/RTI are responsible for reproductive loss: spontaneous abortion, ectopic pregnancy, still birth, prematurity, neonatal infections.
- If left unscreened and untreated one of the serious consequences is cervical cancer in women in India.
- STI/RTI affect the larger community at national level: □
- Social impact of infertility □
- Mother-to-child transmission causing perinatal mortality,
- infant and child mortality and morbidity such as disabilities and orphans □
- Maternal mortality. □
- Socio economic impact of AIDS □
- Increased cost to health systems □
- Cost to national productivity □
- Decreased life expectancy

12. Need for action

When diagnosed early, most STI/RTI can be treated easily and effectively. In addition, the earlier a person seeks treatment for STI, the less likely it is that the infection will cause serious and irreparable damage, be spread to others, or be passed to a baby. And now due to emergence of HIV/AIDS problem and identification of STI as a co-factor for its causation, have further lent a sense of urgency for formulating a programmatic response to address this important public health problem.

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