UNIT NO. 1

PRINCIPLES OF MANAGEMENT AND SCREENING FOR STI

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ABSTRACT

Sexually Transmitted Infections (STIs) cause significant morbidity. The ability of the family physician to elicit a good history, administer the right drugs, as well as provide counselling are integral to the complete management of patients with STIs. Principles of STI management include history taking, physical examination, laboratory investigations, diagnosis, treatment, counselling and education, notification of STI, contact tracing, chemoprophylaxis, and epidemiologic therapy. Screening for STI refers to the testing of broad sectors of the population that are by and large asymptomatic, and that may be important to the control of STI. Screening can be routine or selective, voluntary or mandatory, and confidential or anonymous.

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INTRODUCTION

Sexually Transmitted Infections (STIs) cause significant morbidity. The ability of the family physician to elicit a good history, administer the right drugs, as well as provide counselling are integral to the complete management of patients with STIs. With the emphasis of health screening, asymptomatic individuals will also be coming forward for the purpose of sexual health screening, and the family physician should keep abreast of updated recommendations.

HISTORY TAKING

The history of a patient with or suspected to have a STI/HIV should include details on:

- recent sexual partner(s),
- type of sexual exposure,
- use of condoms,
- use of other contraceptives, and
- previous STI.

The sexual orientation of the patient is of relevance, and the physician should not assume that the patient's most recent sexual partner was a member of the opposite sex.

It is very important that practitioners ensure privacy, have a non-judgmental attitude, and maintain strict doctor-patient confidentiality.

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Relevant medical information should include:

- recent antimicrobial therapy,
- drug allergies,
- menstrual, gynaecologic and obstetric history in females, and
- recent blood tests or investigations.

Medical and behavioural evaluation

This is possible after an accurate history is obtained and will help the clinician to ascertain the patient's risk of contracting STI/HIV and to order the relevant laboratory investigations.

PHYSICAL EXAMINATION

The anogenital and inguinal regions should be exposed and examined in good lighting. If indicated, a general examination should be performed.

LABORATORY INVESTIGATIONS

The correct use of laboratory tests in STI includes:

- obtaining adequate specimens for smears, cultures and other detection methods,
- ordering the appropriate blood tests,
- proper storage and transport of the specimens, and
- accurate interpretation of the test results.

Tests of little or doubtful value should not be performed. These include serology tests for chlamydia and gonorrhoea.

DIAGNOSIS

Accurate diagnosis is based on:

- a good history,
- a thorough physical examination, and
- performing appropriate laboratory tests.

Relying on clinical diagnosis is often the situation faced in primary health settings like general practitioners' clinics. Making an aetiological diagnosis is usually possible in referral clinics and hospitals with laboratory backup.

Clinical syndromes (e.g. urethritis and genital ulcer disease) may be polymicrobial in aetiology.

All patients with a STI should be screened for other infections, in particular, syphilis and HIV infection.

TREATMENT

Treatment regimens must be efficacious, safe, simple to administer, easy to comply with, affordable, preferably given in a single dose, and easily administered. They should be provided as far as possible on the patient's first visit.

Treatment is, therefore, often based on clinical diagnosis based on the presenting symptom approach, e.g. urethral discharge, vaginal discharge, and genital ulcers. It is often not possible to have an aetiological diagnosis at the first visit. In these situations, it is important to ensure that the medications used are effective against all the major causes of the syndrome. Wherever possible, an aetiological diagnosis should be confirmed by laboratory tests. Approaches to making a clinical diagnosis are discussed in subsequent lectures.

COUNSELLING AND EDUCATION

Prevention of disease transmission

All patients should be informed of the diagnosis, the expected outcome and nature of treatment, the necessity to comply with and complete the treatment, reporting of side effects, and avoidance of sex until cured. In some cases, follow-up for tests-of-cure may be necessary.

Prevention of further infection

Counselling skills, which include respect for privacy, compassion and a nonjudgmental attitude, are essential for effective delivery of prevention messages.

All patients should be counselled on the methods of reducing their risk of acquiring STI/ HIV in the future. These include abstinence, the avoidance of multiple sexual partners, and the avoidance of sexual contact with persons who have multiple sexual partners.

They should be instructed on the correct and consistent use of condoms, including for anal and oral sex. They should be advised to seek medical attention if they feel that they have been exposed to an infection.

They should neither self-medicate nor seek treatment from unqualified persons. Repeaters (patients with multiple episodes of STI) should receive intensive counselling on methods to reduce risk.

Confidentiality

In the case of STIs, managing patients with treatable STIs such as gonorrhoea or syphilis often presents a dilemma to doctors. Although 'to tell' without the consent of a patient in this case may result in a certain cure to the partner, medical secrecy from the point of view of both the index patient and prospective patients should not be broken without consent, and confidentiality should be assured.

The attending physician must accept that many patients would initially be reluctant to inform their regular partners, particularly if the STI was acquired as a result of an exposure to a commercial sex worker or a casual partner. The doctor should educate the patient on possible consequences to their regular partner if treatment is not administered. The possibility that many infections can be asymptomatic (especially in women) and the possibility of reinfection if only one partner is treated should be emphasised.

In some situations, referral to a specialist may be warranted.

Counselling young persons

At puberty, and particularly when sexual intercourse takes place at an early age, the questions of providing necessary advice on contraception and on STIs inevitably arise.

At the DSC clinic, the following principles apply:
Young persons aged between 14 to 16 years of age are seen by a senior doctor. During the consultation, the doctor explores the possibility of parental involvement with the patient. If the patient does not wish to involve his or her parents and the doctor is unable to persuade him/her, the doctor would proceed to treat the patient provided:

- the patient understands the advice and treatment given,
- the patient is likely to continue to have sexual intercourse with or without treatment, and
- it is in the patient's best interests that he or she receives treatment.

Doctors attending to young persons with an STI should use simple language that is easily understood, and should not 'talk down' to their patients. If additional support (medical social worker) is not available at the clinic, a referral should be considered. Follow up is required, and messages often need to be reinforced. Since many young persons are IT-savvy, they should also be referred to good websites to learn more about STIs.

NOTIFICATION OF STI

Certain STIs are notifiable in Singapore. Reporting of STI to the authorities allows monitoring of disease trends, planning, and assessing the National STI control programme.

Except when HIV/AIDS is involved, there is no need to include the name, identity card number, or address of the patient when notifying an STI. Only demographic data for epidemiological analysis is required.

Notification of STI is not meant for case-detection or contact tracing; as such, patient privacy and confidentiality is maintained.

Gonorrhoea, syphilis (infectious, non-infectious, and congenital), chancroid, NGU, genital herpes (first episode and recurrent) should be notified to the DSC clinic by fax (6299 4335) using form MD 131 or electronically through www.moh-ens.gov.sg.

HIV infection and AIDS should be notified to DCE, TTSH by fax (6254 1616) using form MD 131 or electronically through www.moh-ens.gov.sg.

Hepatitis B infection should be notified to ENV by fax (6734

8287 or 6731 9368) using form MD131 or electronically through www.moh-ens.gov.sg.

CONTACT TRACING

Further transmission, reinfection, and complications can be prevented by sex partner referral for diagnosis, counselling, and treatment (where possible). Referral or contact tracing can be undertaken either by the health care worker (provider referral) or by the patient (contract referral). Trained health advisors (counsellors) from the DSC are available to assist private doctors in this respect.

Interviewing the index patient is a matter of great delicacy. It is often time-consuming and it must be carried out in privacy. It depends essentially upon the regard and respect of the interviewer for the patient. There is no place for hostility and everything must be done to encourage rapport. Gently, the patient must be convinced that he or she is the only person who can ensure that the one or more consorts are treated. It is explained how effective treatment is and how helpful it would be for all concerned if the sexual partner could attend.

CHEMOPROPHYLAXIS

Blind treatment of STI in asymptomatic persons must be avoided. There is no universally effective antimicrobial. Chemoprophylaxis may suppress STI, but does not cure it. This may lead to complications, promote development of resistant strains of microbes, give a false sense of security to the patient, and lead to transmission of infection.

EPIDEMIOLOGIC THERAPY

Treatment of sexual contacts of patients (with a confirmed STI) without laboratory confirmation may be indicated in situations where the risks of complications are high (e.g. in pregnancy), or when the follow-up of the contact may not be guaranteed or possible. Recommended treatment regimes must be used in these situations.

SCREENING FOR SEXUALLY TRANSMITTED INFECTIONS

Screening refers to the testing of broad sectors of the population that are by and large asymptomatic, and that may be important to the control of STI. Screening can be routine or selective, voluntary or mandatory, and confidential or anonymous. It is different from diagnostic testing, in which, tests are performed on patients who present with symptoms or signs, or have been identified as a sexual contact of a case of STI. A high diagnostic sensitivity and very high negative predictive value are the most important performance characteristics of a screening test.

Chlamydia trachomatis

Who to screen

Sexually active women with the following risk factors may be at higher risk of chlamydial infection and should be considered for screening:

- aged 25 years and younger,
- women who have a new sexual partner or who have had two or more partners in the past 12 months and lack of use of barrier contraception,
- women undergoing termination of pregnancy with risk factors, and
- women undergoing instrumentation of the uterus should be considered for screening on an individual case basis.

The optimal interval for screening is uncertain. For women with a previous negative screening test, changes in sexual partners should be taken into account when deciding the interval for re-screening. Re-screening at 6 to 12 months may be appropriate for previously infected women because they have high rates of reinfection.

Screening in pregnancy

Pregnant women aged 25 years and younger, and other pregnant women at higher risk for infection should be considered for screening.

The optimal timing of screening in pregnancy is uncertain. Screening early in pregnancy provides greater opportunity to improve pregnancy outcomes, but screening in the third trimester may be more effective at preventing transmission of chlamydial infection to the newborn.

Screening men

Asymptomatic men with high-risk behaviour, such as frequent partner change, lack of use of barrier protection, or sex with prostitutes, can be considered for screening.

Screening methods

It is recommended to perform screening using Nucleic Acid Amplification Tests (NAAT) such as PCR (Polymerase Chain Reaction).

PCR can be used in screening on endocervical or urethral swabs, as well as non-invasive specimens such as urine. The sensitivities and specificities of NAAT are all high, ranging from 82% to 100%. Enzyme Immunoassay Tests (EIA) for *Chlamydia trachomatis* have a lower sensitivity compared to PCR.

Serological tests based on genus-specific complement fixation test are not useful in the diagnosis of chlamydial genital infections, with the possible exception of lymphogranuloma venereum. The optimal frequency of screening is a matter of clinical discretion. Screening for chlamydia infection should be performed about 1 week after high-risk exposure or change of sex partner.

Syphilis

Who to screen

Women and men at increased risk for infection – including sex workers, persons with other STI (including HIV) and genital ulceration, and sexual contacts of persons with active syphilis – should be screened.

Pregnant women should be screened at their first antenatal visit. Pregnant women at higher risk for infection should have screening repeated in the third trimester.

Screening methods

The testing strategy varies depending on several factors, including whether the aim is to detect all stages of syphilis or infectious syphilis only.

Many laboratories use nontreponemal tests (VDRL/RPR) for screening. The sensitivity of these tests varies with the levels of antibodies present during the stages of disease. Positive results should be confirmed with a specific test such as TPPA or TPHA. Other laboratories use the TPPA/TPHA test or newer EIA assays as the screening test.

The optimal frequency of screening is a matter of clinical discretion. Screening for syphilis should be performed 1 month after exposure, and repeated again after 3 months.

Gonorrhoea

Who to screen

Women at high risk for infection - including sex workers, women with a history of repeated episodes of gonorrhoea, women with two or more sex partners in the previous year, should be screened. Homosexual men with frequent partner change or other high-risk behaviour should be considered for screening.

Screening methods

The ideal screening test is isolation of *Neisseria gonorrhoeae* by culture from the appropriate sites. Sites to be sampled will be determined by the history of sexual contact - urethra, cervix, rectum or pharynx.

PCR for *N. gonorrhoeae* on urine specimens, urethral, and cervical swabs may also be used if cultures cannot be performed.

The optimal frequency of screening is a matter of clinical discretion. Screening for gonorrhoea should be performed about 1 week after exposure.

Herpes Simplex Virus Infection

Who to screen

Routine screening for genital herpes simplex virus (HSV) infection by viral culture, serology, or other means is not recommended for asymptomatic men or women.

Screening methods

DSC offers the Type-Specific Serological Tests (TSST) which are based on HSV-specific glycoprotein G2 for the diagnosis of infection with HSV-2 and glycoprotein G1 for the diagnosis of infection with HSV-1. At the time of writing, the HerpeSelect-1 ELISA IgG or HerpeSelect-2 ELISA IgG (manufactured by Focus Technology, Inc) is used.

Because almost all HSV-2 infections are sexually acquired, type-specific HSV-2 antibody indicates anogenital infection, but the presence of HSV-1 antibody does not distinguish anogenital from orolabial infection.

If patients request the HSV TSST, it is recommended to give them pre- and post-test counselling as results may cause anxiety if patients are uncertain of their implications and interpretation.

In the following situations, the physician may perform HSV TSST to assist in management of patients:

- patient with a history of recurrent genital ulceration suggestive of recurrent herpes, but no positive culture results (in this case, negative TSST renders the diagnosis of recurrent genital herpes extremely unlikely);
- evaluation of possibly sero-discordant couples (with the possibility of introducing pharmacological therapy to reduce risk of transmission to seronegative partner);
- evaluation of a pregnant woman who may have a history of recurrent genital herpes or has a partner with genital herpes (a pregnant woman who is seronegative is at greater risk of having a baby with neonatal HSV if she acquires disease in the third trimester).

Human Immunodeficiency Virus Infection

Clinicians should assess risk factors for human immunodeficiency virus (HIV) infection in all persons by carefully obtaining a sexual history and inquiring about injecting drug use.

Who to screen

This would include those with STI, men who have sex with men (MSM), past or present injecting drug users, persons who exchange sex for drugs or money, and their sex partners, persons whose past or present sex partners were HIV-infected, and persons who have had a blood transfusion or an organ transplant that had not previously been screened.

Persons with recent high-risk behaviour should be screened at 1 month and 3 months after the last high-risk exposure to rule out a possible initial false negative result. Pregnant women should be offered the test in the first trimester.

Screening methods

Screening for HIV is performed using EIA. A positive result requires 2 reactive EIA tests and confirmation with the Western Blot (WB) assay, performed by experienced laboratories that receive regular external proficiency testing. Screening for HIV should be performed 6-monthly in a person who continues to exhibit high-risk behaviour.

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LEARNING POINTS

- **The history of a patient with or suspected to have an STI/HIV should include details on: recent sexual partner(s), type of sexual exposure, use of condoms, use of other contraceptives, and previous STI.**
- **In *Chlamydia trachomatis*, re-screening at 6 to 12 months may be appropriate for previously infected women because they have high rates of reinfection.**
- **Screening early in pregnancy provides greater opportunity to improve pregnancy outcomes, but screening in the third trimester may be more effective at preventing transmission of chlamydial infection to the newborn.**
- **Screening for syphilis should be performed 1 month after exposure, and repeated again after 3 months.**
- **Screening for gonorrhoea should be performed about 1 week after exposure.**
- **Screening for HIV should be performed 6-monthly in a person who continues to exhibit high-risk behaviour.**