
UNIT 22 REPRODUCTIVE TRACT INFECTIONS/SEXUALLY TRANSMITTED INFECTIONS INCLUDING HIV/AIDS

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22.0 OBJECTIVES

After reading this unit, you should be able to:

- list the important RTI/STI;
- make a clinical diagnosis of common RTIs/STIs;
- manage common RTIs/STIs;
- describe the magnitude of HIV/AIDS in India and factors contributing to its spread; and
- identify the clinical features and management of AIDS with special reference to pregnant and lactating women.

22.1 INTRODUCTION

In this unit, you will read about RTI/STI including AIDS. You will also read the causes, clinical features and management of common RTIs/STIs and about the national guidelines for prevention, voluntary testing, diagnostic criteria and management of patients with HIV/AIDS.

Reproductive tract infections are common problems in women of reproductive age group; if untreated it can adversely affect the health and social well being of the woman. RTIs/ STIs are associated with infertility, ectopic pregnancy, cervical cancers, fetal wastage, low birth weight, neonatal pneumonia and mental retardation. In addition, transmission of infectious like HIV, chlamydia, trichomonas etc., appears to be more efficient from male to female than from female to male. When transmission occurs women are more likely than men to be asymptomatic and as a result do not seek care. Diagnosis of a number of RTI/STIs are more difficult in females than in males. The potential for spread of infection is greater in women than in men.

During the last two decades, there is a resurgence of interest in detection and management of RTIs/STIs. Demographic transition, increased urbanization and increase in multi-partner sex have resulted in increase in RTIs/STIs. Available data from research studies indicate that the risk of transmission of HIV infection is increased by RTI/STI. HIV infection in turn may increase the susceptibility to STIs.

22.2 DEFINITION OF RTI/STI

Reproductive tract infections have been broadly defined to include sexually transmitted infections and infections that are non sexually transmitted, including endogenous infections, caused by overgrowth of organisms that are normally present in the reproductive tract (such as bacterial vaginosis and vulvo-vaginal candidiasis) and iatrogenic infections caused by improperly performed procedures (such as unsafe abortions, poor delivery practices, pelvic examinations and IUD insertions).

The terms reproductive tract infections and sexually transmitted infections are often used interchangeably; it is however, important to remember that they are not synonymous. Post abortal and postpartum infections are important RTIs but are not sexually transmitted. Both in the very young and in the elderly, lack of hormonal support to the epithelium increases vulnerability to infection which are not sexually transmitted. So also tuberculosis which is a common infection in India which can affect the genital tract. On the other hand, sexually transmitted infections like HIV and Hepatitis B do not have genital manifestations at any time during the infection; syphilis does not present as clinical RTI in women and symptoms in women with gonorrhoea may be vague and non-specific or the women may be asymptomatic.

22.3 EXCESSIVE VAGINAL DISCHARGE NOT ASSOCIATED WITH ANY PATHOLOGY

It is important to remember that increased vaginal discharge may be present in extremes of age. At the onset of menarche columnar epithelium lies exposed on the ectocervix in the majority of adolescent girls. No bacterial pathogen is found in a large proportion of these girls with excessive vaginal discharge. However, intravaginal foreign body and poor perineal hygiene may cause the symptoms in these girls.

In postmenopausal women, the vaginal epithelium becomes thin with oestrogen withdrawal, lubrication occurs less often with sexual arousal, the introitus narrows, and the depth of the vagina decreases. Because of atrophic epithelium vascularity is less and bacterial infection can occur. This may result in atrophic vaginitis and discharge. Local oestrogen cream or oral oestrogen restores the vaginal epithelial thickness and infection often clears. Excessive vaginal discharge may also be present during mid- menstrual cycle, and during pregnancy. IUD use may be associated with excessive vaginal discharge.

With increasing media publicity on AIDS and increasing awareness many women seek repeated care for RTIs/STIs. Such venerophobia is often not recognized and the women undergo repeated investigations and treatment. Management of venerophobia must include more than just reassurance of non-infection which may be interpreted by the patient as not being taken seriously. Excessive physical interventions beyond that necessary to exclude disease, reinforces the patients belief in the existence of disease. Patient should be counseled; referral to an appropriate mental health professional should be considered if there is no improvement. There are also social cause of 'abnormal vaginal discharge'. Sociological studies have shown that many women attribute all illness to 'white discharge' and it has been suggested that this may represent a cultural issue of stress. This is often not recognized and these women undergo repeated treatment based on symptoms when in fact they have no illness.

A careful history should be taken to exclude the causes of vaginal discharge not related to RTIs/STIs. Any discharge associated with itching is usually pathological.

Check Your Progress 1

- 1) Mark True (T) or False (F):
 - a) RTI/STI are invariably symptomatic in women. (T/F)
 - b) Complaints of excessive vaginal discharge may be due to social causes. (T/F)
 - c) Transmission of HIV, trichomonas etc. is less efficient from male to female than female to male. (T/F)
 - d) Excessive vaginal discharge present at extremes of age is not usually pathological. (T/F)

22.4 INFECTIONS OF VAGINA CAUSING VAGINAL DISCHARGE

In this section, you will read about vaginal discharge due to vaginal infection. Vaginitis is usually characterized by a vaginal discharge or vulvar itching and irritation, an unpleasant odour may be present. The three common diseases characterized by vaginitis are Trichomoniasis (caused by *Trichomonas vaginalis*), Bacterial Vaginosis (caused by a replacement of the normal vaginal flora by an overgrowth of anaerobic micro-organisms and *Gardnerella vaginalis*) and Candidiasis (caused usually by *Candida albicans*). Mucopurulent cervicitis caused by *C. trachomatis* or *N. gonorrhoea* may also cause vaginal discharge which is described in the following section.

22.4.1 Vulvo-vaginal Candidiasis

You have already read about *Candida*/moniliasis in Unit 19. In majority of cases infection is caused by *Candida albicans*; in about 10% of cases, the aetiological agent is *Candida (Torulopsis) glabrata* which may play a significant role in recurrent candidiasis. The infections may arise from the patient's endogenous vaginal flora taking opportunities when host defenses can be overwhelmed, from local spread from rectal reservoirs or it may be sexually contracted from another person. Vulvo vaginal candidiasis may also present concurrently with STDs. *Candida albicans* can reside deep in the vaginal epithelium, protected from topical anti fungal therapy; these could at a later date, resurface and cause re-infection. The following factors have been identified to pre-dispose to vulvovaginal candidiasis:

- 1) Pregnancy — the altered oestrogen progesterone ratios in pregnancy lead to an increased glycogen content of vaginal epithelial cells; this enhances proliferation of *C. albicans*.
- 2) Diabetes mellitus — the higher glucose concentration favours yeast proliferation
- 3) Overuse of antibiotics — reduces the local commensal population in the vagina and promotes infection with *Candida*.
- 4) States of altered cellular immunity predisposes to local or systemic mycoses
- 5) Local warm moist environments brought on by tight nylon underwear promote vaginal candidiasis
- 6) Prolonged corticosteroid therapy predisposes to candidiasis

Symptoms and signs: profuse curdy discharge, intense pruritus; soreness and oedema of vulva; the vulva appears red, oedematous, excoriated and often fissured. White thick floccular vaginal (cottage cheese) discharge that adheres to the vaginal rugae is typical but the discharge may be thin or purulent. The pH of the vaginal secretions is below 4.5.

Diagnosis is by identification of fungus on microscopy. A wet smear is placed on a slide and mixing it with a drop of 10% potassium hydroxide solution. The potassium hydroxide lyses the cells, making the yeast easier to see. The wet mount is examined by a light microscope (400X) for the presence of the yeast or mycelial form and inflammatory response.

Treatment consists of :

- maintenance of personal hygiene
- avoidance of synthetic undergarments
- anti-fungal agents — Nystatin (Mycostatin) 1-2 vaginal pessaries containing 100,000 units placed deep in vagina at bedtime for 10-14 days. In recurrent cases oral Nystatin 500,000 units may be given concomitantly. Imidazoles like Myconazole, Clotrimazole vaginal pessaries or vaginal creams are effective in 85% cases. Terconazole vaginal cream/pessary, Ketoconazole vaginal pessary/ointment are other anti-fungal agents that could be used.

If the infection is secondary to diabetes, the latter should be treated. Oral contraceptive should be replaced by some other method of family planning. During pregnancy, only topical azole therapies should be used.

Vulvo vaginal candidiasis is not usually acquired through sexual intercourse; hence treatment of sex partners is not required.

22.4.2 Bacterial Vaginosis (BV)

Bacterial Vaginosis is a clinical syndrome resulting from replacement of the normal hydrogen peroxide producing *Lactobacillus* species in the vagina with high concentrations of anaerobic bacteria (e.g., *Bacteroides* species, *Mobiluncus* species), *Gardnerella vaginalis* and *Mycoplasma hominis*. This condition is the most prevalent cause of vaginal

discharge or malodour. However, half the women who meet clinical criteria for BV (given below) have no symptoms. The cause of the microbial alteration is not fully understood. Although BV is associated with sexual activity in that women who have never been sexually active are rarely affected and acquisition of BV is associated with having multiple sex partners, BV is not considered exclusively an STD. Treatment of male partner has not been found beneficial in preventing the recurrence of BV.

A malodourous vaginal discharge is its commonest presentation. Local irritation is uncommon. The clinical criteria requires three of the following symptoms or signs:

- A homogenous white non-inflammatory discharge that adheres to the vaginal walls
- The presence of clue cells on microscopic examination
- pH of vaginal fluid > 4.5
- Fishy odour of vaginal discharge before or after addition of 10% KOH (Whiff test)

Spontaneous cure of the infection may occur. Hence, the principal goals of therapy is to relieve vaginal symptoms and signs. Therefore, only symptomatic women require treatment; however, in view of its reported association with endometritis, PID or parametritis following invasive procedures, before performing MTP a wet smear is examined for pus cells wherever possible and if pus cells are seen, local vaginal pessaries are given for 5 days before MTP. Treatment of both asymptomatic and symptomatic BV may be considered before performing surgical abortion.

The treatment of choice is Metronidazole 2g. orally as a single dose or 400 mg. twice daily for 7 days.

22.4.3 Trichomoniasis

This is one of the most common vaginal infections. It is caused by *Trichomonas vaginalis*, which is an anaerobic, fusiform, flagellated protozoa. It is thought to be sexually transmitted but non-sexual contact and fomite transmission is possible. It produces vaginitis in an alkaline vaginal pH. Hence symptoms are aggravated following menstruation. Many women with *T.vaginalis* in their vaginal secretions is asymptomatic. In symptomatic women, the vaginal discharge is profuse, thin, creamy or slightly green in colour, irritating and frothy. The vaginal walls are tender, and the discharge causes pruritis and inflammation of vulva. There may be multiple small punctate strawberry spots on the vaginal vault and portio vaginalis of the cervix. The patient may complain of urinary symptoms such as dysuria and frequency and a low grade urethritis may be discovered on examination. Abdominal pain, low backache and dyspareunia may also be complained of.

The diagnosis of *T.vaginalis* infection is based on its identification in a saline wet mount. The vaginal fluid in infected cases has a pH between 5.0 and 7.0. There is recent evidence of a possible relationship between vaginal trichomoniasis and adverse pregnancy outcomes, particularly premature rupture of membranes and preterm delivery.

Treatment is by Oral Metronidazole 200mg three times daily for 7 days or Metronidazole 2 g single dose orally. Sex partners should be treated. Patients should be instructed to avoid sex until patient and partner(s) are cured. In the absence of microbiologic test-of-cure this means when therapy has been completed and patient/ partners(s) are without symptoms.

22.5 DISEASES OF CERVIX CAUSING MUCOPURULENT CERVICITIS

You have read earlier that cervical infection may be a cause of vaginal discharge. Cervical tears caused by normal vaginal delivery leaves the endocervical mucosa exposed to vaginal pH and endogenous organisms. Mucopurulent vaginal discharge is seen in such women. This is a type of RTI. Mucopurulent cervicitis is characterized by a yellow endocervical exudate visible at external or coming from the endocervical canal or in an endocervical swab specimen. Some experts also make the diagnosis on the basis of an increased number of polymorphonuclear leukocytes on gram stain. The condition is asymptomatic among women, but some may experience an abnormal vaginal bleeding.

There may be erythema, oedema, friability and contact bleeding in an area of cervical ectopy. The condition can be caused by *Neisseria gonorrhoea* or *Chlamydia trachomatis*. Mucopurulent cervicitis is however, not a sensitive predictor of infection; however, most women with *N. gonorrhoea* or *C. trachomatis* do not have mucopurulent cervicitis.

22.5.1 Gonorrhoea

The causative agent is the Gram negative diplococcus *Neisseria gonorrhoea*. It is transmitted by sexual contact and its infectivity is high. Apart from the localized uncomplicated infections of the cervix, urethra, rectum and pharynx, gonorrhoea also causes local genital tract (inflammation of the paraurethral glands of Skene, Bartholinitis, pelvic Inflammatory disease and cystitis) and generalized systemic complications (septic arthritis, conjunctivitis, peri-hepatitis, disseminated gonococcal infection).

About 50% of women with uncomplicated gonorrhoea are asymptomatic. The incubation period is not known with certainty. Endocervicitis may produce an increased vaginal discharge. The cervix may appear erythematous and there may be mucopurulent cervical discharge. There may be dysuria due to urethritis, and milking the urethra through the anterior vaginal wall may reveal a urethral exudate.

Diagnosis is by identification of Gram negative diplococci on gram staining. However, Gram stain is not useful for endocervical smears (sensitivity 50-70%) because the presence of other Gram negative diplococci makes interpretation difficult. The endocervical specimen can be cultured; the organisms are then identified by colony appearance, Gram stain, oxidase reaction, sugar utilization and immunofluorescence.

Many antibiotics are safe and effective for treating Gonorrhoea. Selection of treatment regimen requires consideration of site of infection, resistance of *N. gonorrhoea* strains to antimicrobials, the possibility of concurrent infection with *C. trachomatis*, the side effects and the cost of various treatment regimens. Treatment is by any of the following:

- Amoxicillin (3.0 g orally) or Ampicillin (3.5g) with probenecid 1.0 g. orally
- Procaine penicillin 1.2-4.2 mega units intramuscularly with or without probenecid
- Aqueous crystalline penicillin G 5 mega units intramuscularly with 1.0 g Probenecid orally
- Co-trimoxazole in penicillin sensitive patients
- Spectinomycin 2.0 g intramuscularly
- Ceftriaxone 250mg. intramuscularly as single dose

Patient should be instructed to refer sex partners for evaluation and treatment. Sexual intercourse should be avoided until patient and partner are cured.

22.5.2 Chlamydia Trachomatis

The Chlamydia is an obligate intracellular organism that appears as intracytoplasmic inclusion body. Often women are symptomatic but may develop vaginal discharge, dysuria and frequency of micturition and mucopurulent cervicitis. Sometimes, Chlamydia may cause Reiter's syndrome (with arthritis, skin lesions, conjunctivitis and genital infection) and perihepatitis. During pregnancy, abortion and preterm labour and IUGR may occur. New borns suffer from conjunctivitis, naso-pharyngitis and pneumonia. Some women with apparently uncomplicated cervical infection already have upper reproductive tract infection. Treatment of cervical infection is believed to reduce the likelihood of sequelae, although few studies have demonstrated that antimicrobial therapy reduces the risk of subsequent ascending infection or decreases the incidence of long term complications of tubal infertility and ectopic pregnancy. Because of high prevalence of co-infection with *C. trachomatis* among patients with gonococcal infection, presumptive treatment for chlamydia of patients being treated for gonorrhoea is appropriate, particularly if no diagnostic test for *C. trachomatis* will be performed. Complications of untreated infections include PID, ectopic pregnancy and infertility. Laboratory tests include fluorescein conjugated monoclonal antibody tests, hybridization assay and PCR assay, the tests are expensive. Treatment is by tetracycline or erythromycin 2.0 g per day for 7 days.

22.6 DISEASES CAUSING GENITAL ULCERS

This section deals with various types of genital ulcers.

22.6.1 Chancroid

It is a sexually transmitted infection caused by *Haemophilus ducreyi*, a gram-negative coccobacillus that is seen under the microscope in small chains or clusters. It is a non-motile facultative anaerobe. The average incubation period of the disease is 6 days. The lesion begins as a small erythematous papule which later ulcerates and becomes a soft sore. The ulcers are multiple, occurring on the labia majora and minora, fourchette and perivulval and perianal skin. They are painful, tender nonindurated ulcers with a necrotic base. Within 2 weeks these patients develop painful tender usually unilateral lymphadenopathy on the same side of the vulva most affected, but it may be bilateral. These later become matted and coalesce into a unilocular bubo, which becomes fluctuant in a week and will have to be drained by needle aspiration.

Diagnosis is by accurate history, clinical examination, exclusion of other STDs and identification of *H. ducreyi* on Gram staining and culture. Treatment is by giving Tetracycline, erythromycin, Bactrim or Ciprofloxacin orally.

22.6.2 Lymphogranuloma Venereum

Lymphogranuloma is caused by *Chlamydia trachomatis* (serotypes L₁, L₂, L₃). The incubation period is 7-21 days. The earliest lesion is a vesiculopustular eruption which is associated with inguinal lymphadenopathy which may go unnoticed. As the disease progresses there is ulceration of the vulva and is associated with inguinal lymphadenopathy. Oedema in the anorectal region occurs causing painful defecation and bleeding per rectum; rectal and vaginal fibrosis may occur due to oedema and ulceration. Systemic symptoms such as fever, headache, arthralgia, chills, and abdominal cramps are seen in the later phase of the disease. Diagnosis is usually made serologically and by exclusion of other causes of inguinal lymphadenopathy or inguinal ulcers. Treatment is by Tetracycline 2 g.daily for 2-4 weeks or doxycycline 100mg. twice a day for 2-3 weeks. Erythromycin 2g.daily in divided doses for 2-3 weeks is preferred during pregnancy.

22.6.3 Granuloma Inguinale

The causative agent is *Donovania granulomatis*. The incubation period is 8-12 weeks. The disease begins as a papule in the vulva/ perineum/inguinal region which ulcerates with the development of a beefy red granular zone with clean sharp edges. The ulcer may develop into chronic ulcer with satellite lesions, enlarged lymph nodes with superadded infection and an inguinal swelling (bubo) results. The bubo may show redness, ulceration or formation of granulation tissue. A chronic inflammatory exudate comprising lymphocytes, giant cells and histiocytes exudes from the buboes. Anal and urethral areas may be involved and at times the introitus becomes contracted causing dyspareunia. Diagnosis is by:

- examination of smear from the surface of the ulcer which may show Gram negative bipolar rods within leucocytes (Donovan bodies).
- biopsy from lesion which shows granulation tissue infiltrated by plasma cells and large macrophages with rod shaped cytoplasmic inclusion bodies (Mikulicz cells).

Treatment is by giving Tetracycline 500mg. orally four times a day for three weeks; erythromycin and chlorthalidone are alternative drugs.

22.6.4 Genital Herpes Simplex Virus (HSV) Infection

Genital herpes is a disease that is usually recurrent. Two types of HSV have been identified: HSV-1 and HSV-2; most cases of genital herpes are caused by HSV 2. Most infected persons never recognize signs suggestive of genital herpes; some will have symptoms shortly after infection and then never again. Many cases of genital herpes are acquired from persons who are asymptomatic at the time of sexual contact. Vesicles appear on an erythematous base on the vulva, vagina and occasionally the cervix. These soon

rupture leaving multiple shallow ulcers which are painful following secondary bacterial infection. 30% patients suffer symptoms like fever, malaise and headache. Spontaneous healing of ulcers without scarring occurs in 14-21 days. Inguinal lymph nodes enlarge and become tender. Recurrent vaginal herpes is common, but less severe and lasts for a shorter period than primary attack. Retention of urine may follow dysuria. Patients with severe disease or complications (disseminated infection that includes encephalitis, pneumonia or hepatitis) would require hospitalization. Diagnosis is by examination of smear from ulcers (smear reveals giant multinucleated cells with characteristic intranuclear inclusion bodies), culture in Hank's solution or by ELISA assay.

Local analgesic ointment relieves pain. Use of 10% betadine douches or paints help to destroy the organisms locally. Antiviral agents like Acyclovir (Zovirax) 200 mg 5 times a day for 5 days orally is effective. 5% acyclovir ointment applied 4 times a day for 10 days is also curative. Herpes simplex virus II should be completely eradicated otherwise dysplasia and carcinoma-in-situ vulva as well as of cervix may develop. The presence of genital tract infection at term requires caesarean delivery to avoid infection in the newborn. The partner should also be treated.

22.6.5 Condylomata Acuminata or Veneral Warts or Genital Warts

Genital warts/Condylomata acuminata is a sexually transmitted disease; the causative agent is Human Papilloma Virus (HPV) which is a small DNA virus. There are several types of HPV of which HPV 6, 11, 16 and 18 are important as they are implicated in the development of Condyloma acuminata, cancer of the cervix and vulva. It causes warts which spread diffusely over the whole vulval area. The verrucous growths may appear discrete or coalesce to form large cauliflower growth. They affect the skin of the labia majora, perineum and perianal region. Vaginal discharge and pregnancy favour their growth. Vulvar, vaginal and cervical cancer occur in 20% of the cases.

Treatment:

- young women with flat condyloma may be observed for 6 months, specially when it develops during pregnancy as lesions often disappear spontaneously.
- 25% podophyllin in alcohol or 20% podophyllin in tincture benzoin locally causing sloughing of small warts in 3-4 days. Treatment may be repeated as warts recur at 3-6 week interval. Contraindications for this treatment are first trimester of pregnancy (as drug is absorbed into the circulation and is cytotoxic causing abortion and peripheral neuropathy) and in vaginal and cervical lesions (causes severe inflammatory reaction).
- Intramuscular injection of Interferon 2×10^6 IU daily for 10 days — this treatment is very expensive
- Surgical excision of local lesion.
- Laser or Electric cauterization.

22.6.6 Syphilis

Syphilis is a systemic disease caused by *Treponema pallidum*. Patients with syphilis may seek treatment for primary infection (ulcer or chancre at site of infection), secondary infection (rash, mucocutaneous lesions and lymphadenopathy), or tertiary infection (cardiac, neurologic, ophthalmic, auditory or gummatous lesions). Infections may also be detected during the latent stage by serologic testing. Dark field examinations and direct immunofluorescent antibody tests of lesion, exudates or tissue are the definitive methods for diagnosing early syphilis. Presumptive diagnosis is possible with the use of serologic tests — VDRL or Fluorescent treponemal antibody absorbed tests and micro haemagglutination assay for antibody to *T.pallidum*. Treatment is by Benzathine Penicillin 2.4 million units i/m. Tetracycline or erythromycin is given four times a day for 15 days in penicillin sensitive women.

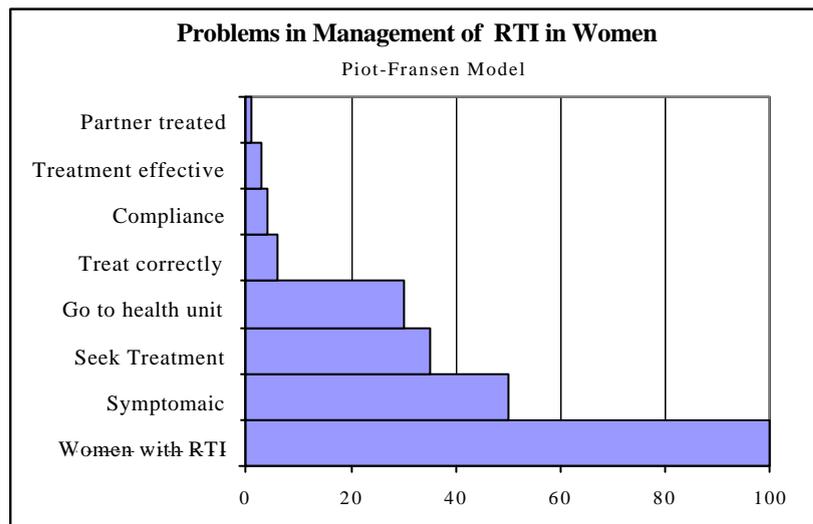
Check Your Progress 2

Fill in the blanks:

- 1) Trichomoniasis is caused by.....
- 2) Mucopurulent cervicitis caused by sexually transmitted organisms areand
- 3) Donovan bodies and Miculicz cells are characteristics of
- 4) Genital Herpes lesions are caused by.....
- 5) Causative agent of Condylomata acuminata is.....

22.7 PROBLEM IN THE MANAGEMENT OF RTIs/ STIs

Diagnosis and management of RTIs/STIs are often difficult as nearly 50% of the cases are asymptomatic and only a small proportion of those actually get treated and cured. Of all the women with STI only 50% of women are symptomatic, 35% of these women seek treatment, 30% go to a health centre, 6% are treated correctly, 4% are compliant to treatment, treatment is effective in 3% of women and in only 1% partner gets treated.



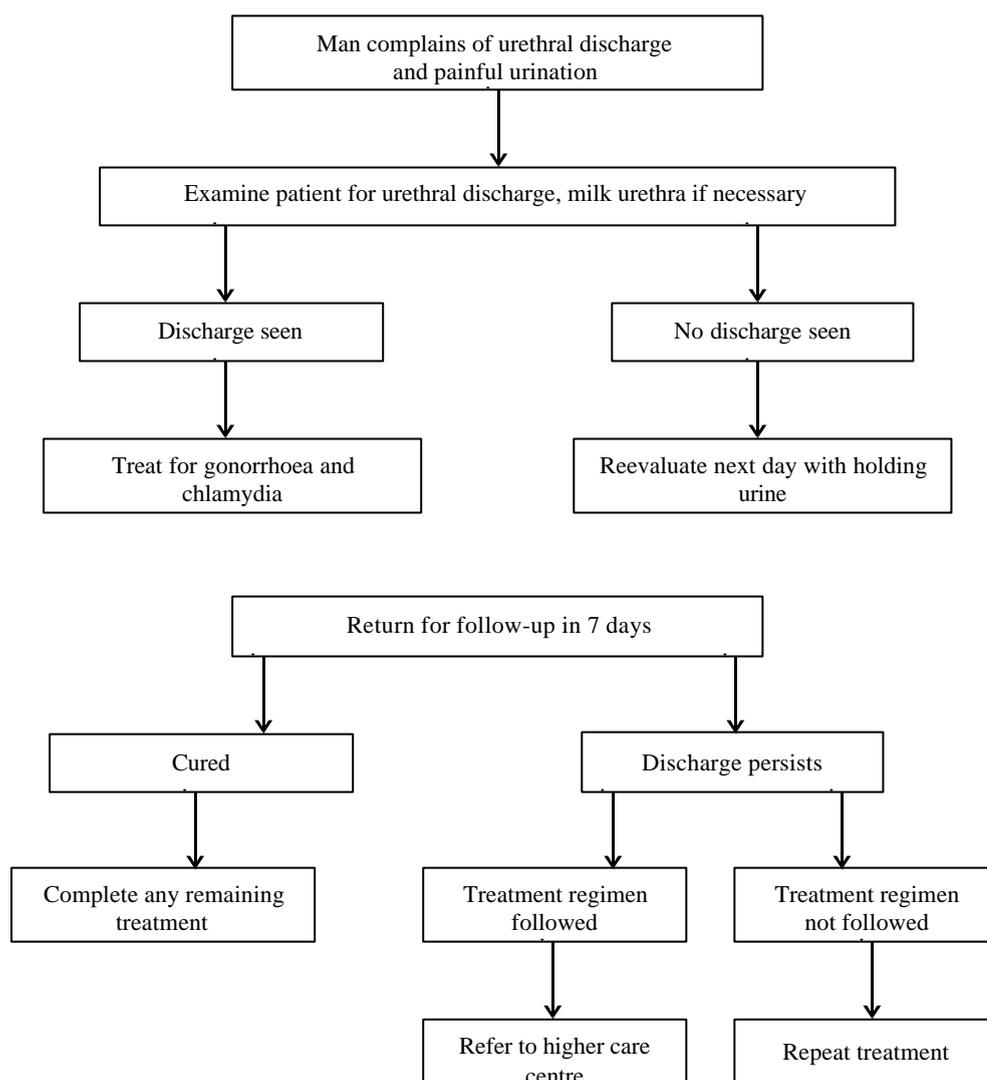
22.8 SYNDROMIC MANAGEMENT OF RTIs/STIs

The WHO has been advocating syndromic management of STIs. The syndromic management is based on categorizing the patient as in high risk or low risk category and identifying symptoms and signs in each risk category. Treatment is provided for all diseases that could cause that syndrome. The advantages of syndromic management are:

- it is relatively simple and allows diagnosis and treatment in one visit
- it requires minimal training for service provider
- in settings where laboratory support is not available syndromic management is preferable to the clinic based approach for the management of STI related syndromes and can result in more cases receiving effective treatment.

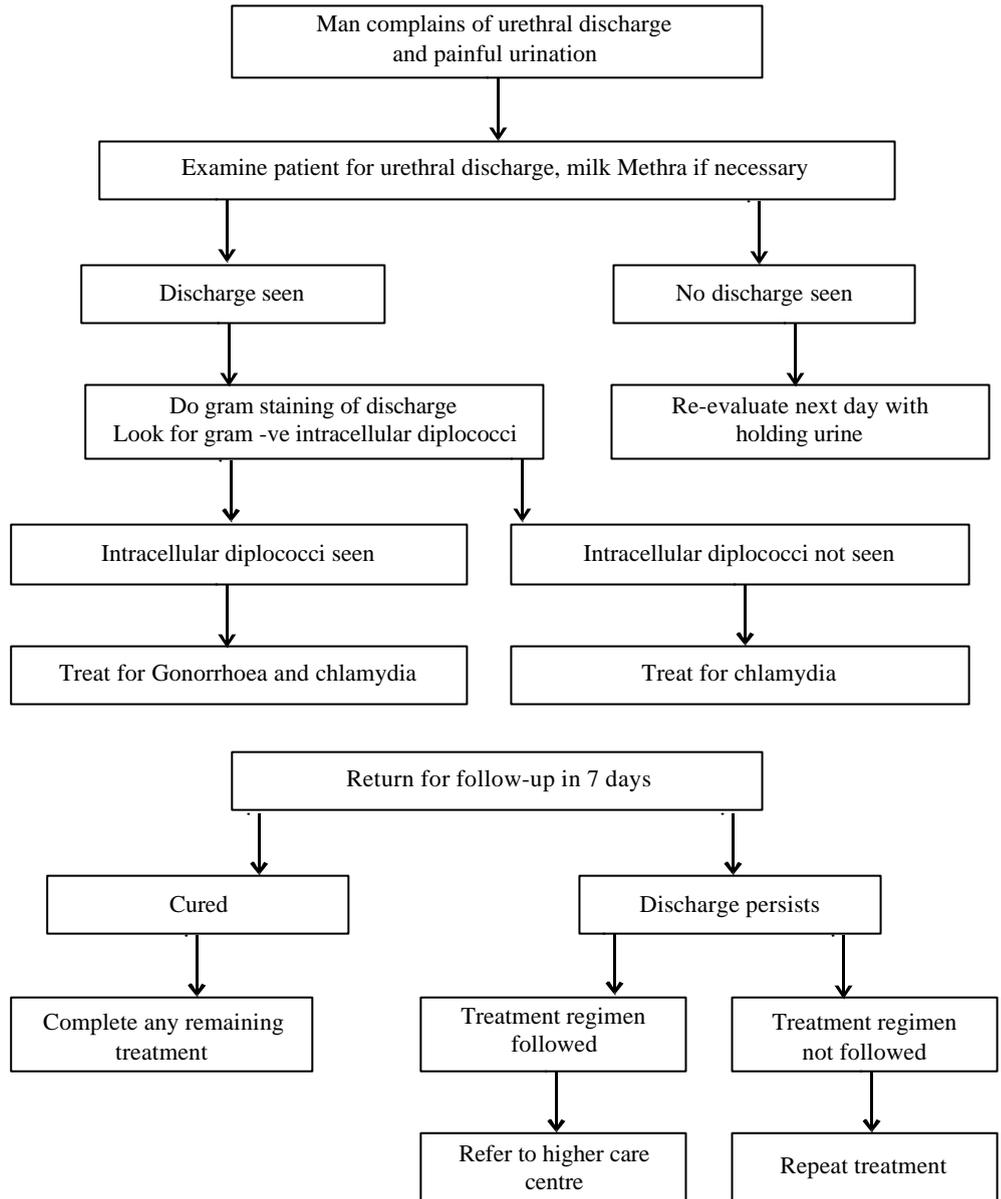
The National AIDS Control Organisation (NACO) has developed guidelines for syndromic management of RTIs/STIs. These are given below:

22.8.1 Urethral Discharge (Syndrome Diagnosis and Treatment)



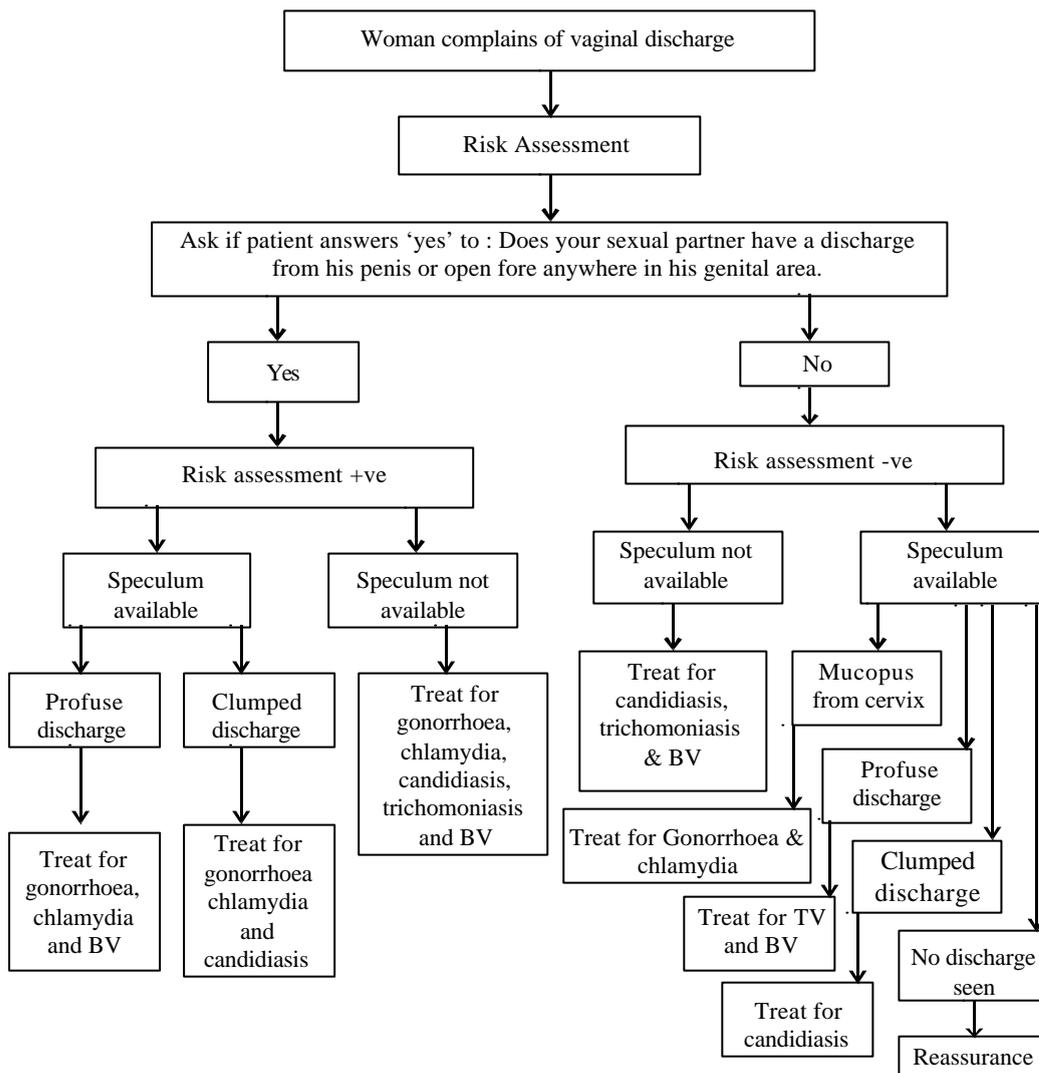
Treatment	Steps for prevention and management
<p>Treat patient both for gonorrhoea and chlamydial infection.</p> <p>Gonorrhoea: Ciprofloxacin 500 mg orally in a single dose (contraindicated in pregnancy) or Cefixime 400 mg orally in single dose or Ceftriaxone 250 mg IM as a single dose or Spectinomycin 2 g IM as a single dose.</p> <p>Chlamydial Infection: Doxycycline 100 mg orally 2 times daily for 7 days or Tetracycline 500 mg orally 4 times daily for 7 days or Erythromycin 500 mg orally 4 times daily for 7 days (pregnant women)</p>	<p>Give all patients:</p> <ol style="list-style-type: none"> 1) Treatment 2) Instructions for medication and follow-up. 3) Education and counselling 4) Condoms <p>Education and counselling for patients:</p> <ol style="list-style-type: none"> 1) Cure your infection 2) Do not spread STD 3) Help your sexual partner(s) to get treatment 4) Come back to make sure you are cured. 5) Stay cured with use of condom. 6) Keep safety by staying with just one sexual partner 7) Protect yourself against HIV/AIDS 8) Protect your baby and ask the patient to attend ANC during pregnancy in case of female.

Urethral Discharge (Syndromic and Laboratory Diagnosis and Treatment)



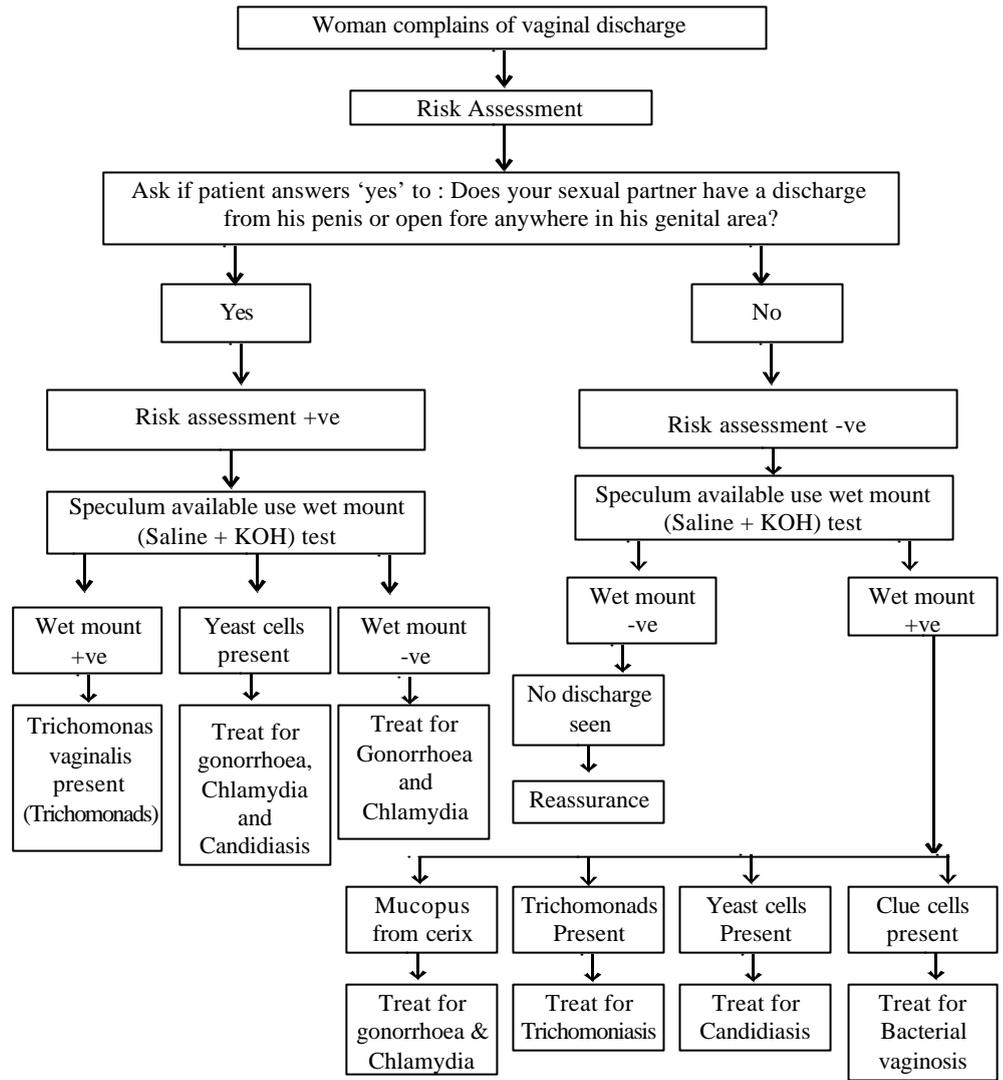
Treatment	Steps for STD Prevention and Management
<p>Gonorrhoea: Ciprofloxacin 500 mg orally in a single dose (contraindicated in pregnancy) or Cefixime 400 mg orally in single dose or Ceftriaxome 250 mg IM in a single dose or Spectinomycin 2 g IM as a single dose.</p> <p>Chlamydial infection: Doxycycline 100 mg orally 2 times daily for 7 days or Tetracycline 500 mg orally 4 times daily for 7 days or Erythromycin 500 mg orally 4 times daily for 7 days (pregnant women).</p>	<p>Give all patients:</p> <ol style="list-style-type: none"> 1) Treatment 2) Instructions for medication and follow-up 3) Education and counselling 4) Condoms <p>Education and counselling for patients:</p> <ol style="list-style-type: none"> 1) Cure your infection 2) Do not spread STD 3) Help your sexual partner(s) to get treatment 4) Come back to make sure you are cured 5) Stay cured with use of condom 6) Keep safety by staying with just one sexual partner 7) Protect yourself against HIV/AIDS 8) Protect your baby and ask the patient to attend ANC during pregnancy in case of female.

22.8.2 Vaginal Discharge (Syndromic Diagnosis and Treatment)



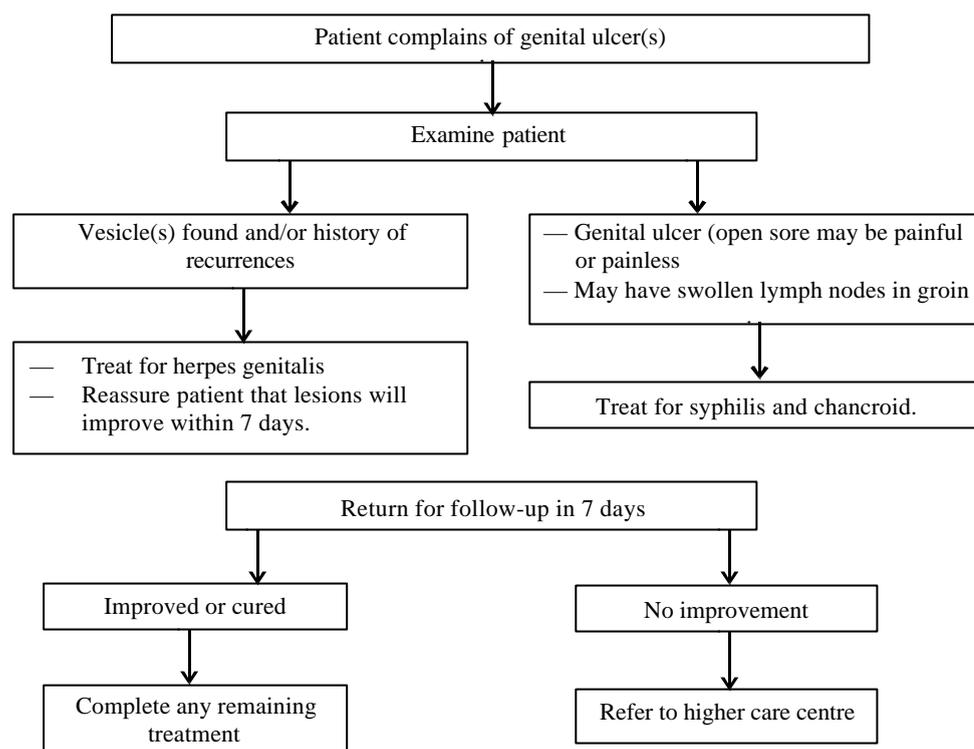
Treatment	Steps for STD prevention and management
<p>Cervical discharge on speculum examination: Treatment for Cervicitis includes treatment for both Gonorrhoea and Chlamydial infection.</p> <p>Recommended regimen: In non-pregnant women: Ciprofloxacin 500 mg in a single dose orally and Doxycycline 100 mg orally twice daily for 7 days.</p> <p>In case of pregnancy: Inj. Ceftriaxone 250 mg single IM dose and Erythromycin stearate 500 mg orally four times daily for 7 days.</p> <p>Alternate regimen: Azithromycin 2 g single oral dose under supervision (effective both for Gonorrhoea and Chlamydial infection)</p> <p>Vaginal discharge on speculum examination</p> <p>Recommended regimen for Trichomoniasis and Bacterial Vaginosis: Metronidazole 400 mg orally twice daily for 7 days or 2 g orally as a single dose.</p> <p>(Note: During the first trimester of pregnancy Metronidazole must not be given, regular treatment with Metronidazole to follow after delivery).</p> <p>and For candidiasis: Miconazole or Clotrimazole 200 mg intravaginally once daily for 3 days or Clotrimazole 500 mg intravaginally once only or Fluconazole 150 mg orally as a single dose.</p>	<p>Give all patients:</p> <ol style="list-style-type: none"> 1) Treatment 2) Instructions for medication and follow-up 3) Education and counselling 4) Condoms <p>Education and counselling for patients:</p> <ol style="list-style-type: none"> 1) Cure your infection 2) Do not spread STD 3) Help your sexual partner(s) to get treatment 4) Come back to make sure you are cured 5) Stay cured with use of condom 6) Keep safety by staying with just one sexual partner 7) Protect yourself against HIV/AIDS. 8) Protect your baby and ask the patient to attend ANC during pregnancy in case of female.

Vaginal Discharge (Syndromic and Laboratory Diagnosis and Treatment)



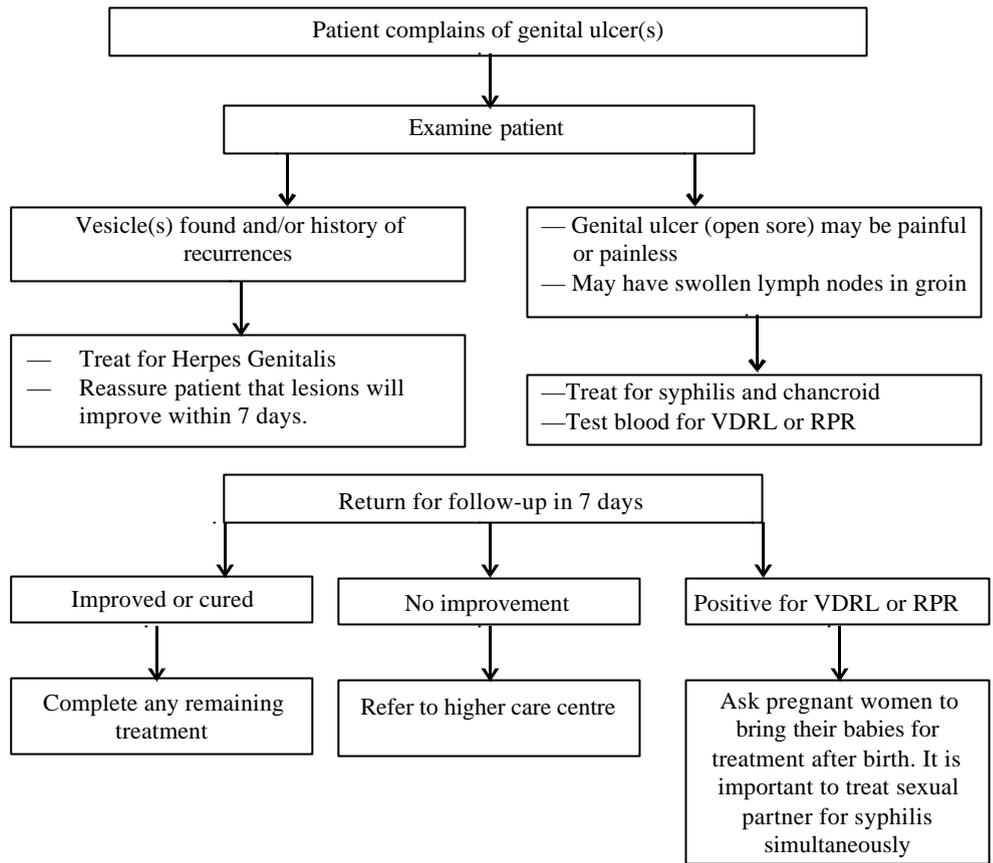
Treatment	Steps for STD Prevention and Management
<p>Cervical discharge on speculum examination: Treatment for Cervicitis includes treatment for both Gonorrhoea and Chlamydial infection.</p> <p>Recommended regimen (non-pregnant women): Ciprofloxacin 500 mg in a single dose orally and Doxycycline 100 mg orally twice daily for 7 days.</p> <p>In case of pregnancy: Inj. Ceftriaxone 250 mg single IM dose and Erythromycin stearate 500 mg orally four times a day for 7 days.</p> <p>Alternate regimen: Azithromycin 2 g single oral dose under supervision (effective both for Gonorrhoea and Chlamydial infection)</p> <p>Vaginal discharge on speculum examination: Recommended regimen (for Trichomoniasis and Bacterial Vaginosis): Metronidazole 400 mg twice daily for 7 days; or Metronidazole 2 gm stat</p> <p>(Note: During the first trimester of pregnancy Metronidazole must not be given, regular treatment with Metronidazole to follow after delivery).</p> <p>and For Candidiasis: Miconazole or Clotrimazole 200 mg intravaginally once daily for 3 days or Clotrimazole 500 mg intravaginally once only or Fluconazole 150 mg orally as a single dose.</p>	<p>Give all patients:</p> <ol style="list-style-type: none"> 1) Treatment 2) Instructions for medication and follow-up 3) Education and counselling 4) Condoms <p>Education and counselling for patients:</p> <ol style="list-style-type: none"> 1) Cure your infection 2) Do not spread STD 3) Help your sexual partner(s) to get treatment 4) Come back to make sure you are cured 5) Stay cured with use of condom 6) Keep safety by staying with just one sexual partner 7) Protect yourself against HIV/AIDS. 8) Protect your baby and ask the patient to attend ANC during pregnancy in case of female.

22.8.3 Genital Ulcer (Syndromic Diagnosis and Treatment)



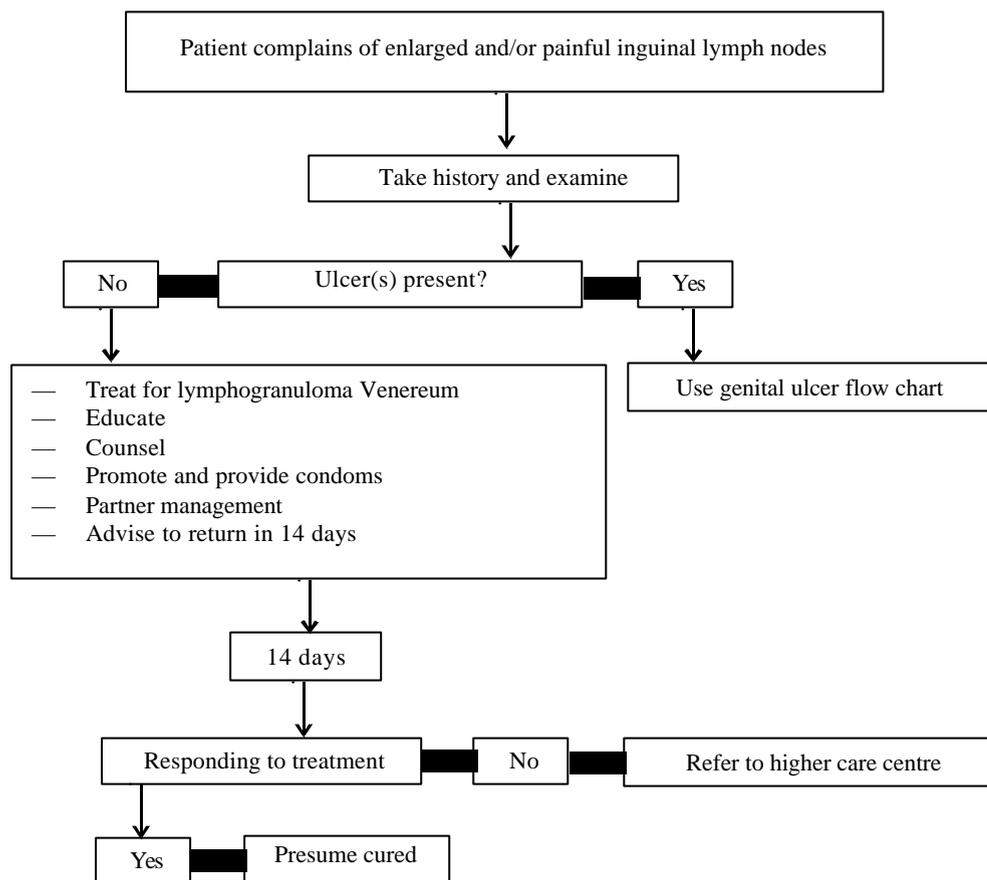
Treatment	Steps for STD Prevention and Management
<p>Syphilis: Benzathine Penicillin G 2.4 million units IM in 2 injections (equally divided) (give one injection in each buttock) after doing intradermal sensitivity test for penicillin or Aqueous Procaine Penicillin G 1.2 million units IM injection daily for 10 days after doing sensitivity test.</p> <p>For men and non-pregnant women sensitive to Penicillin: Doxycycline 100 mg orally 2 times daily for 15 days or Tetracycline 500 mg orally 4 times daily for 15 days.</p> <p>For pregnant women sensitive to Penicillin: Erythromycin stearate 500 mg orally 4 times daily for 15 days (advise those women to bring the child within 7 days of birth for screening).</p> <p>Chancroid: Erythromycin stearate 500 mg orally 4 times daily for 7 days.</p> <p>Alternative Treatment: Ciprofloxacin 500 mg orally as a single dose (do not give to pregnant woman) or Spectinomycin 2 g single IM dose or Ceftriaxone 250 mg in a single IM dose.</p> <p>Herpes Genitalis:</p> <ul style="list-style-type: none"> ● Advise patient to wash genital area regularly with soap and water, or saline ● First episode- Acyclovir 200 mg orally 5 times daily for 7 days ● Recurrent episodes - Acyclovir 200 mg orally 5 times daily for 5 days ● There is no known cure for herpes, but course of symptoms can be modified with acyclovir if started at the earliest. 	<p>Give all patients:</p> <ol style="list-style-type: none"> 1) Treatment 2) Instructions for medication and follow-up 3) Education and counselling 4) Condoms <p>Education and counselling for patients:</p> <ol style="list-style-type: none"> 1) Cure your infection 2) Do not spread STD 3) Help your sexual partner(s) to get treatment 4) Come back to make sure you are cured 5) Stay cured with use of condom 6) Keep safety by staying with just one sexual partner 7) Protect yourself against HIV/AIDS. 8) Protect your baby and ask the patient to attend ANC during pregnancy in case of female.

Genital Ulcer (Syndromic and Laboratory Diagnosis and Treatment)



Treatment	Steps for STD Prevention and Management
<p>Syphilis: Benzathine Penicillin G 2.4 million units IM in 2 injections (equally divided) (give one injection in each buttock) after sensitivity test for penicillin or Aqueous Procaine Penicillin G 1.2 million units IM injection daily for 10 days after sensitivity test.</p> <p>For men and non-pregnant women sensitive to Penicillin: Doxycycline 100 mg orally 2 times daily for 15 days or Tetracycline 500 mg orally 4 times daily for 15 days.</p> <p>For pregnant women sensitive to Penicillin: Erythromycin stearate 500 mg orally 4 times daily for 15 days (advise those women to bring the child within 7 days of birth for screening).</p> <p>Chancroid: Erythromycin 500 mg orally 4 times daily for 7 days.</p> <p>Alternative Treatment: Ciprofloxacin 500 mg orally as a single dose (do not give to pregnant women) or Spectinomycin 2 g single IM dose or Ceftriaxone 250 mg in a single IM dose.</p> <p>Herpes Genitalis: ● Advise patient to wash genital area regularly with soap and water, or saline ● First episode- Acyclovir 200 mg orally 5 times daily for 7 days ● Recurrent episodes- Acyclovir 200 mg orally 5 times daily for 5 days ● There is no known cure for herpes, but course of symptoms can be modified with acyclovir if started at the earliest.</p>	<p>Give all patients:</p> <ol style="list-style-type: none"> 1) Treatment 2) Instructions for medication and follow-up 3) Education and counselling 4) Condoms <p>Education and counselling for patients:</p> <ol style="list-style-type: none"> 1) Cure your infection 2) Do not spread STD 3) Help your sexual partner(s) to get treatment 4) Come back to make sure you are cured 5) Stay cured with use of condom 6) Keep safety by staying with just one sexual partner 7) Protect yourself against HIV/AIDS. 8) Protect your baby and ask the patient to attend ANC during pregnancy in case of female.

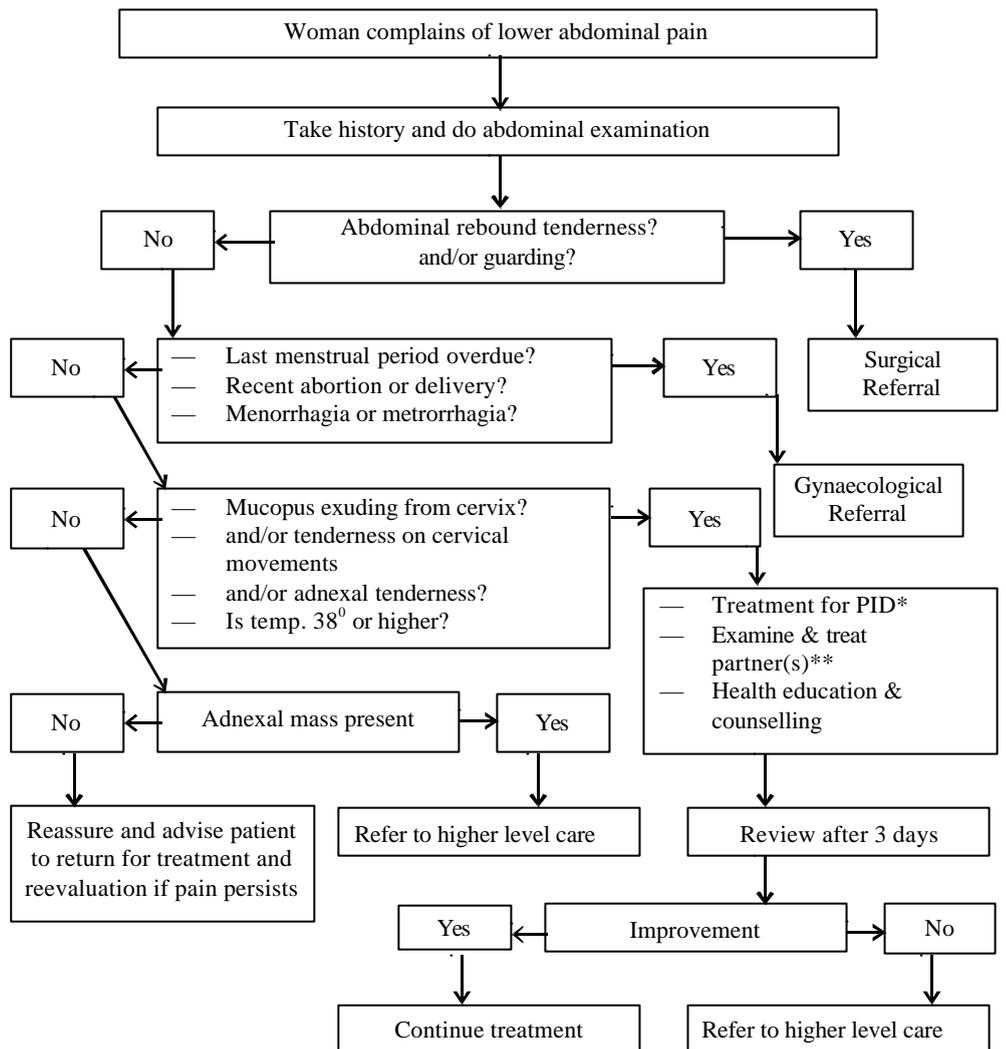
22.8.4 Inguinal Bubo



Treatment	Steps for STD Prevention and Management
<p>Lymphogranuloma Venereum (LGV): Doxycycline 100 mg orally twice daily for 14 days or Tetracycline 500 mg orally four times a day for 14 days</p> <p>Alternate regimen: Erythromycin stearate 500 mg orally four times daily for 14 days.</p> <p>If bubo becomes fluctuant, pus should be aspirated with a wide-bore needle and syringe every second or third day until there is no aspirate. The entry into the bubo should be made through normal healthy skin. Under no circumstances should bubo be incised.</p>	<p>Give all patients:</p> <ol style="list-style-type: none"> 1) Treatment 2) Instructions for medication and follow-up 3) Education and counselling 4) Condoms <p>Education and counselling for patients:</p> <ol style="list-style-type: none"> 1) Cure your infection 2) Do not spread STD 3) Help your sexual partner(s) to get treatment 4) Come back to make sure you are cured 5) Stay cured with use of condom 6) Keep safety by staying with just one sexual partner 7) Protect yourself against HIV/AIDS. 8) Protect your baby and ask the patient to attend ANC during pregnancy in case of female.

22.8.5 Lower Abdominal Pain

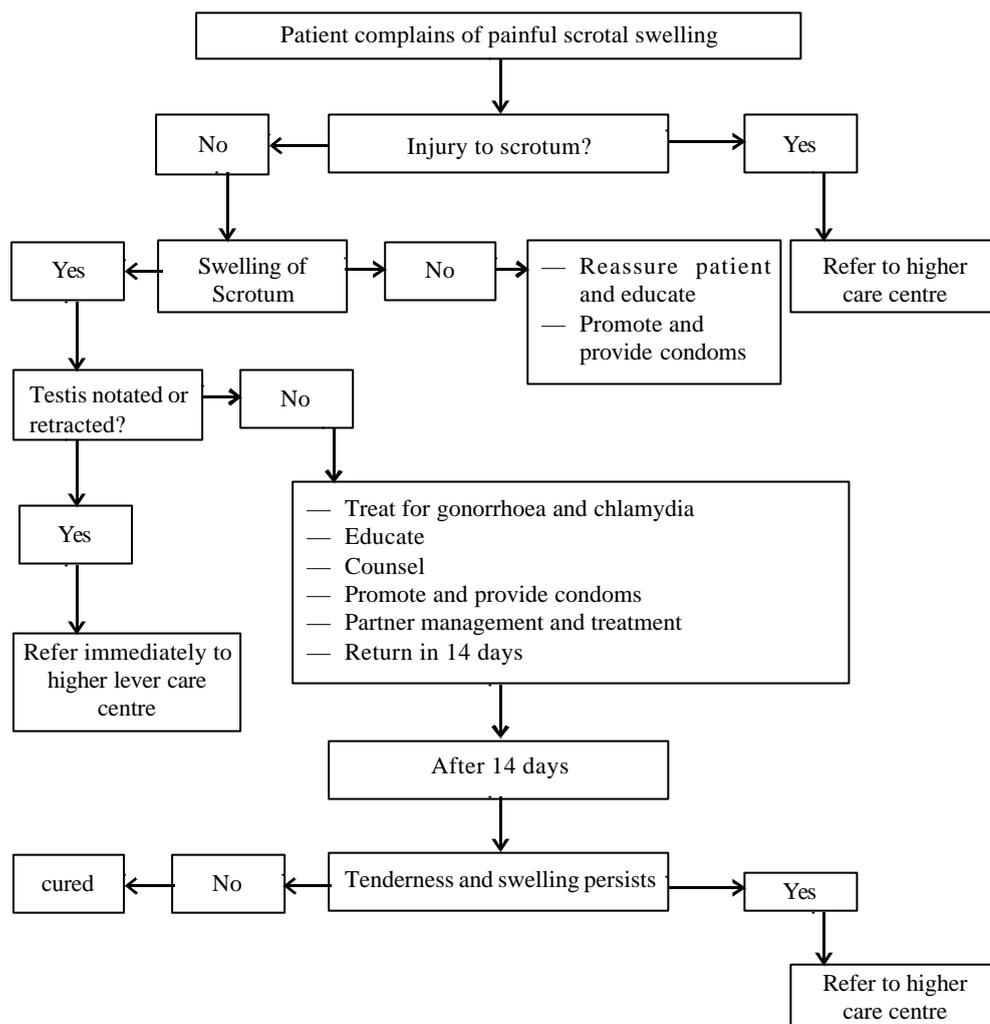
(Speculum and bimanual examination possible with or without micro copy.)



* for patients with IUD, remove IUD 2-4 days after standing treatment
 ** treatment for gonococcal and chlamydial infections

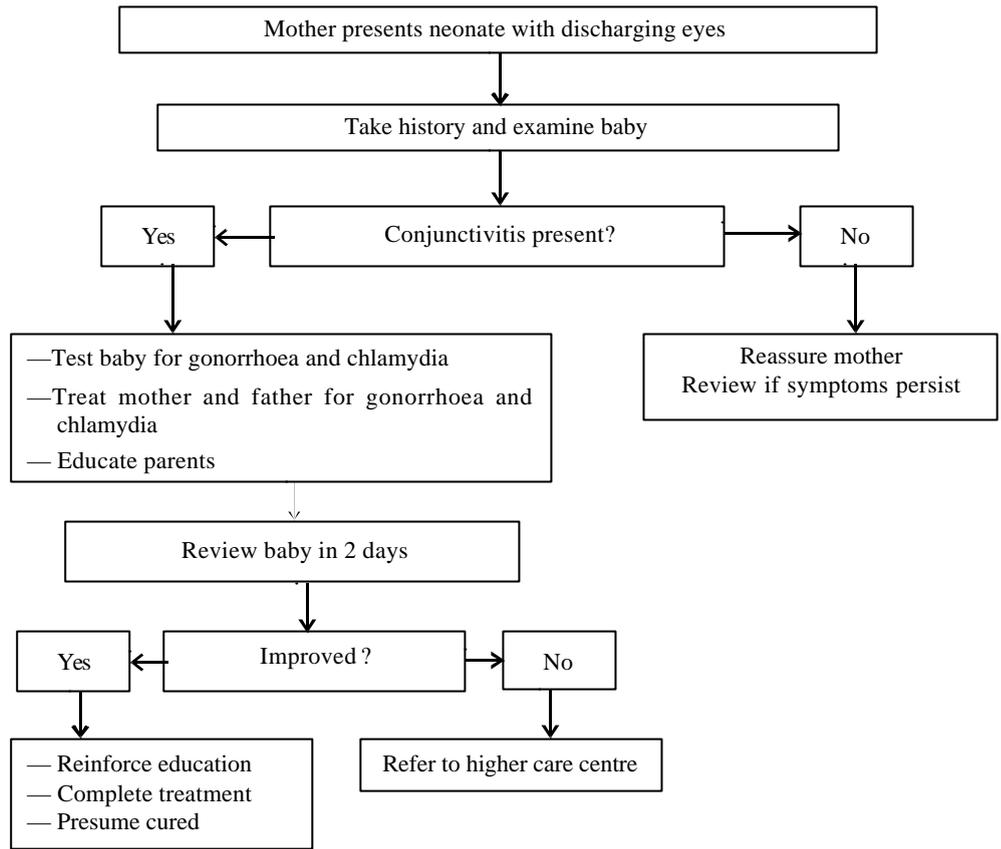
Treatment	Steps for STD Prevention and Management
<p>PID: (Gonorrhoea + Chlamydia + Anaerobic infection) Use this regimen only if patient is well enough to take food and liquids, walk unassisted, take her medication and return for follow up. Otherwise, refer to higher care centre.</p> <p>Gonorrhoea: Ciprofloxacin 500 mg orally as a single dose or Ceftriaxone 250 mg IM as a single dose or Cefixime 400 mg orally as a single dose or Spectinomycin 2 g IM as a single dose.</p> <p>Chlamydia: Doxycycline 100 mg orally 2 times daily for 14 days or Tetracycline 500 mg orally 4 times daily for 14 days.</p> <p>Plus Anaerobic Infection: Metronidazole 400 mg twice daily for 14 days.</p>	<p>Give all patients:</p> <ol style="list-style-type: none"> 1) Treatment 2) Instructions for medication and follow-up 3) Education and counselling 4) Condoms <p>Education and counselling for patients:</p> <ol style="list-style-type: none"> 1) Cure your infection 2) Do not spread STD 3) Help your sexual partner(s) to get treatment 4) Come back to make sure you are cured 5) Stay cured with use of condom 6) Keep safety by staying with just one sexual partner 7) Protect yourself against HIV/AIDS 8) Protect your baby and ask the patient to attend ANC during pregnancy in case of female.

22.8.6 Scrotal Swelling



Treatment	Steps for STD Prevention and Management
<p>Gonorrhoea : Ciprofloxacin 500 mg as a single oral dose (make sure that the patient swallows the tablets under supervision).</p> <p>Alternative regimen: Ceftriaxone 250 mg single IM dose or Cefixime 400 mg in a single oral dose or Spectinomycin 2 g IM as a single dose.</p> <p>Plus Chlamydial Urethritis:</p> <p>Doxycycline 100 mg orally twice daily for 10-14 days (make sure that the patient receives 20-28 tablets or capsules with instructions to take one tablet in the morning and one in the evening).</p> <p>Alternative regimens: Tetracycline 500 mg orally 4 times a day for 10 days or Erythromycin 500 mg orally 4 times a day for 10 days.</p> <p>Supportive therapy: This is a painful condition and supportive therapy with bed rest and scrotal elevation with a scrotal support and analgesic is essential part of management.</p> <ul style="list-style-type: none"> Advise the patient to take all his tablets and inform him about the mode of transmission of STD and the possible complications of infection and, in particular, epididymo-orchitis. 	<p>Give all patients:</p> <ol style="list-style-type: none"> Treatment Instructions for medication and follow-up Education and counselling Condoms <p>Education and counselling for patients:</p> <ol style="list-style-type: none"> Cure your infection Do not spread STD Help your sexual partner(s) to get treatment Come back to make sure you are cured. Stay cured with use of condom. Keep safety by staying with just one sexual partner Protect yourself against HIV/AIDS Protect your baby and ask the patient to attend ANC during pregnancy in case of female.

22.8.7 Ophthalmic Neonatorum (Neonatal Conjunctivitis)



Treatment	Steps for STD Prevention and Management
<p>Recommended regimen:</p> <p>Ceftriaxone 50 mg/kg body weight by intramuscular injection as a single dose to a maximum of 125 mg.</p> <p>Alternative regimens:</p> <p>Where Ceftriaxone is not available, Spectinomycin 25 mg/kg body weight by intramuscular injection as a single dose to a maximum of 75 mg</p> <p>Plus Erythromycin syrup 50 mg/kg body weight per day orally in 4 divided doses for 14 days.</p> <p>(Single dose Ceftriaxone, and Spectinomycin are of proven efficacy. The addition of Tetracycline eye ointment to these regimens is of no documented benefit.)</p>	<p>Give all patients:</p> <ol style="list-style-type: none"> 1) Treatment 2) Instructions for medication and follow-up 3) Education and counselling 4) Condoms <p>Education and counselling for patients:</p> <ol style="list-style-type: none"> 1) Cure your infection 2) Do not spread STD 3) Help your sexual partner(s) to get treatment 4) Come back to make sure you are cured. 5) Stay cured with use of condom. 6) Keep safety by staying with just one sexual partner 7) Protect yourself against HIV/AIDS 8) Protect your baby and ask the patient to attend ANC during pregnancy in case of female.

22.8.8 Problems with Syndromic Management

Studies on assessment of syndromic approach shows:

- protocols based on syndromic approach cannot identify and treat asymptomatic cases.
- syndromic management has high sensitivity and very low specificity making it an ineffective screening tool
- presence of multiple infections and mixed infections are reported to be reasons for infections not being detected by syndromic protocols
- it requires treatment of 2 or more infections even though only one or none may be present
- high degree of wasted expenditure on over treatment.
- most STIs and all cervical infections are not detected or treated

Check Your Progress 3

List the advantages of syndromic management.

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22.9 ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)

You have already read about HIV/AIDS in the PSM course. According to current estimates by NACO there are 3.86 million HIV positive individuals in the country in 2000-01. The mode of transmission is:

- heterosexual transmission through sexual intercourse with infected partner (most common mode in India - approximately 85%)
- use of contaminated needles (approx. 8%)
- transfusion of infected blood (4%)
- from infected mother to her unborn child
- other modes such as homosexual transmission, accidental exposure etc.

One in every 4 cases reported is a woman.

22.9.1 Case Definition

The National AIDS Control organization has revised the case definition of AIDS in October 1999. The case definition of AIDS in adults (for persons above 12 years of age) is:

- 1) Two positive tests for HIV infection on ELISA/Rapid/Simple (ERS) test
AND
- 2) Any one of the following criteria:
 - a) Significant weight loss (>10% of body weight) within last one month/cachexia (not known to be any condition other than HIV infection)
 AND
 Chronic diarrhoea (intermittent or continuous)> 1 month duration

- b) Tuberculosis : extensive pulmonary, disseminated, military, extra pulmonary tuberculosis.
- c) Neurological impairment preventing independent daily activities, not known to be due to the conditions unrelated to HIV infection (e.g.) trauma
- d) Candidiasis of the oesophagus (diagnosable by oral candidiasis with odynophagia)
- e) Clinically diagnosed life threatening or recurrent episodes of pneumonia with or without aetiological confirmation
- f) Kaposi's sarcoma
- g) Other conditions: cryptococcal meningitis, neurotoxoplasmosis, CMV retinitis, *Pencillum marneffe*, Recurrent Herpes Zoster or multi-dermatomal herpes infection, disseminated molluscum.

22.9.2 Diagnosis of HIV Infection

For diagnosis of HIV infection, 5-6 ml. of blood of the person is collected taking aseptic precautions. The blood is allowed to clot and serum separated. If the serum has to be transported it must be in a screw cap bottle. The sample should be properly labeled and sent to the Laboratory. Information on HIV testing centers may be obtained from NACO.

Diagnosis of HIV infection cannot be based on a single positive test. For diagnosis of asymptomatic HIV infection or when an individual is clinically suspected as HIV infected, at least three Elisa/Rapid/Simple (ERS) tests using different antigens or methods are essential. For detection of HIV antibodies three main categories of tests are available:

ELISA: They use enzyme as an indicator system for detection of complex formed due to reaction between antigen and antibody which is present in the patients sera. It requires equipment.

Rapid tests: They have a total reaction time of less than 30 mins. They are visual tests based on Enzyme Immuno assay. It is more expensive than ELISA but do not require complex equipment.

Simple tests: Simple tests are similar to rapid tests but take longer than 30 mins. e.g., Latex agglutination, Gelatin particle agglutination test (GPAT), Passive haemagglutination tests (PHAT).

22.9.3 Voluntary Counselling and Testing

You may have to refer a patient to a Voluntary Counseling and Testing Centre (VCTC). There are at present 143 VCTC centres, of which 131 are in medical colleges and regional level hospitals. It will be your responsibility to carry out pre-test counseling, obtaining consent of the patient, maintain confidentiality of the result and impart post test counseling.

HIV testing for individuals must always be undertaken after pre- test counseling and informed consent. The blood sample should be collected as given above and sent to a VCTC. The confidentiality of test results should be strictly maintained. You should reveal the test result after post test counseling. If test is positive, the patient should be encouraged to reveal the test result to:

- 1) Husband and bring him for counseling services. In case she fails to do so it is obligatory for you to notify the result to husband as per Supreme Court Decision.
- 2) In case of a minor, the parents must be informed of the HIV status after pre-test and post-test counseling
- 3) In case where there is no spouse or parents, consent may be taken from patient for informing either a close relative or friend in the interest of the patient.

NACO has developed a checklist for pre and post test counseling which is given below:

Pre-test Counselling

The following activities should be carried out :

- Reason for attending discussed
- Knowledge about HIV and modes of transmission explored.
- Misconceptions corrected
- Assessment of personal risk profile carried out.
- Information concerning the HIV tests given (e.g, process of testing, meaning of test results, window period)
- Understanding checked for
- Discussion of meaning of HIV positive and HIV negative results and possible implications
- Capacity to cope with HIV positive test result
- Discussion of potential needs and available support
- Discussion of a personal risk - reduction plan
- Issues of assessing partner for STD/HIV
- Time allowed for thinking through issues
- Informed consent/dissent given freely
- Adequate time for questions and clarifications

Post-test Counselling

- Results given simply and clearly.
- Time allowed for result to sink in
- Checking for understanding
- Discussion of the meaning of the result for the patient
- Discussion of the personal, family and social implications
- Discussion of a personal risk reduction plan
- Dealing with immediate emotional reactions
- Checking availability of adequate immediate support
- Partner evaluation
- Discussion of follow up care and support
- Options and resources identified
- Immediate plans, intentions and actions reviewed
- Follow up plans discussed and referrals where necessary

22.9.4 Management of HIV/AIDS Cases

Clinical management of HIV/AIDS requires strict enforcement of biosafety and infection control measures as per universal precautions; these have been discussed in the PSM section. Asymptomatic carriers should be counseled about risk of spread of HIV within

family transplacentally or through sexual contact. No matter how typically a case may be seen to resemble AIDS, every attempt should be made to arrange for a comprehensive clinical, physical and laboratory investigations of the patient. Persons suspected to have developed AIDS should be referred to the nearest hospital. Anti retroviral drugs such as AZT(zidovir/retrovir), squinavir (Invirase/Fortavase), d4T (stavuvir), Indinavir (Crixivan) etc., are available in India, but antiretroviral therapy should be started in a referral hospital with regular follow up. The person with confirmed AIDS after counseling and treatment can return to her residence with recommendations on home care. Common complications like diarrhoea, respiratory infections, prolonged fever, associated infections should be managed appropriately. HIV positive women should have complete choice regarding decisions regarding pregnancy and child birth. There should be no forcible abortion or sterilization on the ground of HIV status of woman. Counselling should be given to the pregnant woman for enabling her to take an appropriate decision either to go ahead with or terminate the pregnancy. The risk of vertical transmission should be explained.

22.9.5 Prevention of Mother to Child Transmission (PMTCT)

Mother to child transmission is the most significant route of transmission of HIV infection in children below 15 years. HIV can be transmitted during pregnancy especially in the last trimester, during child birth or breast feeding. The efficiency of transmission from an infected mother to infant ranges between 25-30%. With 27 million pregnancies a year and an estimated 0.3% prevalence rate of HIV infection in pregnant women, it is estimated that about 100,000 HIV infected women deliver each year. Assuming a vertical transmission rate of 30%, about 30,000 infants acquire HIV infections each year. Antenatal clinics can be utilized for imparting education to pregnant women about prevention and control of HIV/AIDS through trained counsellors. Generally both males and females are sensitive towards the health of the baby; therefore PMTCT offers a good opportunity to involve both partners in understanding the various issues including safe behaviour which has great potential in prevention and control of Hiv infection. Zidovudine (AZT) antenatally, during intrapartum period and postnatally in newborns have demonstrated a reduction in transmission of HIV infection. The feasibility of administration of single dose Nevirapine to HIV infected mothers to reduce MTCT is currently ongoing in India. During delivery universal precautions should be followed. Eye protection shield should be used. Mucus trap should be used for mucus suction of newborn.

Issues with regard to feeding the newborn relates to weighing the risk of diarrhoea and malnutrition vis-a vis risk of HIV transmission through breast milk. Every effort should be made to promote exclusive breast feeding upto 4 months in HIV positive mothers followed by weaning and complete stoppage of breast feeding at 6 months in order to restrict transmission through breast feeding. However, such mothers should be about the risk of transmission of HIV through breast milk and its consequences and should be helped for making informed choice regarding infant feeding.

22.9.6 Gynaecological Diseses in HIV/AIDS

An HIV infected woman is more likely to suffer from:

- Vaginal infections—candiadiasis, trichomonasiasis and BV
- Oesophageal candidiasis
- Genital warts
- More frequent and severe episodes of PID
- CIN and HPV infection

Check Your Progress 4

1) How will you diagnose HIV infection in individuals?

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2) What are the drugs being used for PMTCT?

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3) What advice will you give regarding breast feeding to HIV positive mothers?

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22.10 LET US SUM UP

In this unit, you learnt about reproductive tract infections and sexually transmitted infections including AIDS. The diseases have been described according to major symptoms that can produce simplified guidelines for syndromic management that have been prepared by the National AIDS Control Organisation; the advantages and disadvantages of syndromic management have been detailed. The current case definition of AIDS, the diagnosis of HIV infection, prevention of mother to child transmission and voluntary counseling and testing have been discussed.

22.11 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1) a) F, b) T, c) F, d) T

Check Your Progress 2

- 1) *Trichomonas vaginalis*
- 2) *Neisseria gonorrhoea, Chlamydia trachomatis*
- 3) Granuloma inguinale
- 4) HSV-2
- 5) Human Papilloma Virus

Check Your Progress 3

- 1) — Simple, allows diagnosis and treatment in one visit
— Requires minimal provider training
— Useful in settings where there is no laboratory support

Check Your Progress 4

- 1) Three positive ERS tests using different antigens are essential.
- 2) AZT, Niverapine (undergoing clinical trial)
- 3) — Exclusive breast feeding up to 4 months because of risk of diarrhoea and malnutrition in non breast fed infants

- Weaning and complete stoppage of breast feeding at 6 months
- Explain risk of transmission of HIV through breast milk.

22.12 KEY WORDS

CIN	:	Cervical Intraepithelial Neoplasia
HIV	:	Human immunodeficiency virus
PMTCT	:	Prevention of mother to child transmission
RPR	:	Rapid Plasma Reagin test
RTI	:	Reproductive tract infections
STD	:	Sexually transmitted diseases

22.13 FURTHER READINGS

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