SEXUALLY TRANSMITTED INFECTIONS –

TREATMENT GUIDELINES

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STI TREATMENT RECOMMENDATIONS

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STI TREATMENT RECOMMENDATIONS

Introduction

STI Treatment Guidelines have been updated on account of the introduction of newer modalities on management of STIs and development of resistance by microorganisms to antibiotics used earlier.

The process of finalizing the document in its present form involved consultation with technical experts over a series of meetings and incorporating their critical comments. The treatment regimens recommended in this publication are all deemed to be effective in the Indian context. Careful monitoring of treatment efficacy should be done wherever possible.

It is, in general, recommended that a choice be made for the most simple and shortest treatment. For instance, a single dose of oral treatment is preferable over multi-day treatment with multiple drugs. The order in which the treatment regimens are placed indicates an order of preference: in most instances the first listed treatment should be the treatment of choice.

All STI patients should be asked to refer their sexual partner(s) for investigation and/or treatment. This can be facilitated by handing out a contact slip to the patient.

1. GONORRHOEA

1.1 Uncomplicated gonococcal infection

This includes anterior urethritis and proctitis in males; cervicitis, urethritis and proctitis in females and pharyngitis in both.

Recommended regimens

i. azithromycin, 2g orally as a single dose *

or

ii. cefixime, 400 mg orally as a single dose

or

iii. ceftriaxone, 250 mg intramuscular (IM) as a single injection

* Will treat both gonococcal and chlamydial infections.

1.2 Rectal and pharyngeal gonococcal infection

i. ceftriaxone, 500 mg/1g IM as a single dose

1.3 Complicated and disseminated gonococcal infection

This includes posterior urethritis, prostatitis, epididymo-orchitis, tysonitis, cowperitis and bartholinitis. The patient should, if necessary, be admitted to a hospital.

Recommended regimen

i. *ceftriaxone, 1g IM or IV once daily for 7 days

(An alternative third generation cephalosporin may be required if ceftriaxone is not available, but more frequent daily dosage will be needed)

ii. cefixime, 400 mg twice daily orally for 7 days

*For gonococcal meningitis and endocarditis the same dosages apply, but the duration of intravenous therapy will be increased to two weeks for meningitis and four weeks for endocarditis.

N B. Appropriate supportive treatment like scrotal support, analgesics and sedatives are to be added, if required.

1.4 Gonococcal conjunctivitis

1.4.1 Adults

Recommended regimen

i. ceftriaxone, 500 mg IM as a single dose

or

ii. kanamycin, 2g IM as a single dose

Local cleaning of eyes by irrigation with saline or tap water is essential. Proper hand washing with soap and water of the patient's attendant is essential.

1.4.2 **Neonates with gonococcal ophthalmia neonatrum and those born to mothers with gonococcal infection**

Neonates with gonococcal conjunctivitis should be treated with the most effective antibiotic available. Persons caring for infected infants should always wash their hands carefully.

i. ceftriaxone, 50 mg/kg IM as a single dose to a maximum of 125 mg/kg

or

ii. (kanamycin, 25 mg/kg IM as a single dose to a maximum of 75 mg/kg

In case of discharge from the eyes, these can be gently cleaned with distilled water.

1.4.3 Gonococcal infection in pregnancy

i. ceftriaxone, 250 mg intramus cular (IM) as a single injection

or

ii. cefixime, 400 mg orally as a single dose

or

iii. *azithromycin, 2g orally as a single dose

*Azithromycin has not been adequately evaluated during pregnancy; Will treat both gonococcal and chlamydial infections.

1.5 Follow-up of patients with gonococcal infection

Patients should be reviewed on day 3rd and 14th after the onset of the treatment for clinical cure and wherever possible or indicated, smear examination for N. gonorrhoeae. Serological tests for syphilis can be repeated after one month.

1.6 All cases of conjunctivitis in neonates should be treated for both N.gonorrhoeae and C.trachomatis.

2. NON-GONOCOCCAL URETHRITIS (NGU) OR CERVICITIS

2.1 Uncomplicated non-gonococcal infections

Most common causative agents of NGU are chlamydia trachomatis and ureaplasma urealyticum.

NGU includes urethral, endocervical and rectal infections.

The patient can be asked to hold the urine for 5 hours before reporting to the clinic. A finding of 5 or more pus cells or clumps in the urethral discharge or urinary sediment, under an oil immersion without intra - cellular diplococci (ICDC) is indicative of NGU.

Recommended regimen (effective against both chlamydia trachomatis and ureaplasma urealyticum)

i. azithromycin, 2g orally in a single dose*

or

ii. doxycycline, 100 mg orally twice daily for 7 days

or

iii. erythromycin base/ erythromycin stearate, 500mg orally for 7 days

* Will treat both gonococcal and chlamydial infections.

NB. Doxycycline is contra-indicated during pregnancy. Alternative regimens are used in pregnancy.

Regimens in pregnancy

i. erythromycin base/ stearate, 500 mg orally 4 times a day for 7 days; erythromycin should not be taken on empty stomach

or

ii. amoxycillin, 500 mg orally three times a day for 7 days on empty stomach

or

iii. *azithromycin, 2 g orally as a single dose on empty stomach
*Azithromycin has not been adequately evaluated during pregnancy

2.2 Neonatal non-gonococcal conjunctivitis

Recommended regimen

i. erthromycin syrup, 50 mg/kg per day orally in four divided doses for 2 weeks

In case of non-availability of erythromycin syrup

trimethroprim, 40 mg with sulfamethoxazole 200 mg orally twice daily for 14 days

Care of the eyes. In case of discharge from the eyes, it should be gently cleaned with distilled water or saline.

* All cases of conjunctivitis in neonates should preferably be treated for both gonococcal and non-gonococcal infection

2.3 Infantile pneumonia

Recommended regimen

i. erthromycin base / stearate syrup, 50 mg/kg per day orally in 4 divided doses for 3 weeks.

In case of non-availability of erythromycin syrup, co-trimoxazole (trimethoprim, 40 mg plus sulphamethoxazole, 200 mg) to be given orally, twice daily for 3 weeks

2.4 Follow-up of patients with non-gonococcal infection

This is similar to gonococcal infection

3. TRICHOMONIASIS

Recommended regimens

i. metronidazole, 2g orally in a single dose/ metronidazole, 400mg orally twice daily for 7 days

or

ii. tinidazole', '2g orally in a single dose

Patients taking metronidazole or tinidazole should be cautioned to avoid taking alcohol while on these drugs and upto 24-48 hours after the last dose

Patients should be asked to come for follow up if symptoms persist.

Patients not cured with initial single dose of metronidazole or tinidazole', 'often respond very well to 7 days repeat treatment with metronidazole

3.1 Management of sexual partners

Sexual partners of women of trichomoniasis should be treated with single oral dose of 2 g, metronidazole or tinidazole. Patient should be advised against sexual intercourse until both partners are adequately treated.

3.3 Pregnancy

There is increasing evidence of association between infection with T. vaginalis and premature rupture of the choroid-amniotic membrane and low birth weight.

Metronidazole and tinidazole are contra-indicated in the first trimester of pregnancy, but may be used during the second and third trimesters. The minimum effective dose should be used (metronidazole, 400mg orally twice daily for 7 days). However, in symptomatic women, in the first trimester and those intolerant to metronidazole/ tinidazole, imidazole pessaries/ cream may be given for 7 days

Lactating women should be treated with a single oral dose of 2 g of metronidazole or tinidazole

3.2 Neonatal Infections

Infants with symptomatic trichomoniasis or with urogenital colonization persisting after the fourth month of life should be treated with metronidazole.

Metronidazole/ tinidazole, 5 mg/kg orally 3 times a day for 7 days.

4. BACTERIAL VAGINOSIS BV)

BV is a clinical syndrome in which normal flora of vagina', 'Lactobacillus sp. is replaced with high concentration of anaerobic bacteria', 'such as G. vaginalis and mycoplasma hominis etc.. BV is an endogenous reproductive tract infection. Antiseptic or vaginal douching', 'if being employed', 'should be stopped. Sexual transmission of the disease is not proven.

4.1 Treatment

Recommended regimens

i. metronidazole', '400 mg orally twice daily for 7 days metronidazole', '2 g orally as a single dose

or

ii. tinidazole', '2 gm orally as a single dose

However', 'in symptomatic women', 'in the first trimester and those intolerant to metronidazole tinidazole', 'imidazole pessaries cream may be given for 7 days

4.2 Pregnancy

Metronidazole is contra-indicated during the first trimester of pregnancy, but may be used, if necessary, during the second and third trimesters. There is some evidence that bacterial vaginosis may increase the incidence of premature rupture of the membranes. It should, therefore be treated when diagnosed in third trimester

4.3 Sexual partners

Sexual transmission of BV is not proven. Treatment of sexual partners has not been demonstrated to be beneficial

5.CANDIDIASIS

5.1 Vulvo-vaginal candidiasis

Therapy generally involves topical use of a wide variety of imidazole antifungal agents (eg. clotrimazole, miconazole, econazole) or polyene anti-fungal agents (nystatin). Generally, imidazoles act more quickly and appear to be more effective than polyenes.

Recommended regimens

i. miconazole or clotrimazole, 100 mg intravaginally daily for 6 days

or

ii. clotrimazole, 500 mg intravaginally as a single dose

or

iii. fluconazole, 150mg orally as a single dose

5.2 Recurrent Infection

Reduction or elimination of predisposing factors such as antibiotic or oral contraceptive use, immunosuppressive drugs including corticosteroids or review of diabetic status and examination of sexual partner, are helpful in dealing with frequent recurrences.

5.3 Candidal balanoposthitis

Clotrimazole (1%) cream or miconazole (2%) cream may be applied locally till complete healing.

5.4 VULVOVAGINAL CANDIDIASIS IN PREGNANCY

Only topical imidazole miconazole', 'clotrimazole etc.) should be used. The safety of oral treatment with azoles is not yet established.

5.5 CANDIDIASIS AND HIV

Candidiasis affecting multiple sites', 'including vulva and vagina often occurs in HIV disease. Relapses of candidiasis are frequent. Prolonged treatment and suppressive therapy with imidazoles is often required.

6. SYPHILIS

6.1 Acquired syphilis

6.1.1 Early syphilis

(This includes primary, secondary and early latent infection upto 2 years duration).

Recommended regimens

i. benzathine benzylpenicillin, 2.4 million IU deep IM in a single session (two equally divided doses in each buttock) after doing intradermal sensitivity test for penicillin

or

ii. procaine benzylpenicillin, 1.2 million IU (3 vials, each having combination of 1 lakh units of benzyl penicillin G sodium +3 lakh units of procaine benzylpenicillin), IM once daily for 10 days

NB. Jarisch-Herxheimer reaction (mild fever, body aches and exacebation of symptoms within hours of injection) should be treated with paracetamol tablet, 500 mg thrice daily on 1st day. Patient should be preferably forewarned of the possibility of the reaction.

Alternative regimens for pencillin hyper- sensitive, non pregnant patients

i. doxcycline, 100 mg orally twice a day for 15 days

or

ii. minocycline, 100 mg orally twice a day for 15 days

or

iii. erythromycin base / stearate, 500 mg orally 4 times a day for 15 days

or

iv. tetracycline HCl, 500 mg orally 4 times a day for 15 days

6.1.2 Late latent (asymptomatic) and late benign syphilis of more than 2 years duration or of

indeterminate duration)

Recommended regimens

i. benzathine benzylpenicillin, 2.4 million IU deep (vide supra) IM weekly for 3 consecutive weeks

or

ii. procaine benzylpenicillin, 1.2 million IU (vide supra) IM once daily for 20 consecutive days

Alternative regimen for penicillin – allergic, non-pregnant patients

i. doxycycline, 100 mg orally twice daily for 30 days.

ii. tetracycline HCL, 500 mg orally 4 times daily for 30 days.

iii. erythromycin base / stearate, 500 mg orally 4 times a day for 30 days.

6.1.3 Cardiovascular syphilis

Recommended regimens

i. procaine benzylpenicillin, 1.2 million IU (3 vials, each having a combination of 1 lakh units of benzylpenicillin G soduim + 3 lakh units of procaine benzylpenicillin) IM, daily for 20 consecutive days.

Alternative regimen for penicillin – allergic, non pregnant patients

i. doxycycline, 100 mg orally twice daily for 30 days.

ii. tetracycline HCl, 500 mg orally 4 times daily for 30 days.

iii. erythromycin base / stearate, 500 mg orally 4 times a day for 30 days

NB. To prevent complications of Jarisch-Herxheimer reaction in cardiovascular syphilis, 3 tablets of prednisolone (5 mg each) in a single oral dose should be given daily in the morning, after food, for two days prior to treatment, and 3 days after. Cardiologists should be associated while treating cardiovascular syphilis.

6.1.4 Neurosyphilis

Recommended regimens

i. aqueous benzylpenicillin, 12-24 million IU daily intravenously administered as 2-4 million IU 4 hourly for 14 days

or

ii. procaine benzylpenicillin,1.2 million IU IM once daily for 4 weeks

or

iii. procaine benzylpenicillin,1.2 million IU IM once daily + probenecid, 500 mg orally 4 times daily for 4 weeks

NB. The latter recommended regimen (ii & iii) should be used only for patients whose out-patient attendance can be assured.

Benzathine benzylpenicillin has no role in the treatment of neurosyphilis as it does not cross the blood – brain barrier in sufficient quantity.

6.1.5 Alternative regimens for pencillin hyper- sensitive patients

i. doxycycline, 100 mg orally twice a day for 30 days

or

ii. tetracycline HCl, 500 mg orally 4 times a day for 30 days

or

iii. erythromycin base / stearate, 500 mg orally 4 times a day for 30 days

6.1.6 Syphilis in pregnancy

Pregnant women should be regarded as a separate group that requires close surveillance, especially to identify possible re-infection after treatment has been completed.

All pregnant women reporting for first antenatal check up should be serologically screened for syphilis. Serological tests should ideally be repeated in 3rd trimester.

Recommended regimens

Pregnant women who are not hypersensitive to penicillin should be treated with benzathine benzylpenicillin in the same dosage as recommended for non-pregnant patients at the same stage of disease (vide supra)

Penicillin hypersensitive pregnant women should be treated with erythromycin stearate in the dosage and duration as recommended for non-pregnant patients at the same stage of the disease (vide supra)

NB. Erythromycin estolate is contraindicated in pregnancy

Follow up:

For pregnant women, quantitative VDRL should be repeated in treated patients at 3 monthly intervals, until delivery. After delivery, the follow-up of the mother is as for non-pregnant patients.

6.2 CONGENITAL SYPHILIS

6.2.1 Early congenital syphilis (upto 2 years of age)

Recommended regimens

i. aqueous benzylpenicillin, 100,000 ~ 150,000 IU/kg/day IV in two divided doses daily for 10

days

or

ii. procaine benzylpenicillin, 50,000 IU/kg IM in a single daily dose for 10 days

In infants with normal cerebro-spinal fluid, the following can be recommended:

i. benzathine benzylpenicillin, 500,000 units/kg IM in a single dose

For penicillin hypersensitive patients (after the first month of life)

ii. erythromycin base / stearate, 7.5-12.5 mg/kg/day orally 4 times a day for 30 days

6.2.2 Late congenital syphilis (more than 2 years duration)

i. aqueous benzylpenicillin 2 to 3 lakh units/kg/day IV or IM in divided doses for 14 days

or

ii. erythromycin base / stearate, 7.5-12.5 mg/kg/day orally 4 times a day for 30 days

NB. Dosage should not exceed than that of late acquired syphilis

6.3 Follow up and treatment

Patients with early syphilis treated adequately should be evaluated clinically and serologically after 3 months. A repeat evaluation should be performed 6 months and 13 months after treatment to reassess the condition of the patient and to detect possible re-infection.

Patients with cardiovascular and neurosyphilis, both acquired and congenital should be followed up for many years. This should include clinical, serological and where necessary, radiographic examinations.

For pregnant women quantitative VDRL should be repeated in treated patients at 3 monthly intervals, until delivery. After delivery, the follow-up of the mother is as for the non-pregnant patients.

Repeat treatment may be considered when:

- Clinical signs or symptoms of active syphilis still present or recur;
- There is a sustained four-fold increase in the titre of the VDRL test; or
- If a high titre (1/8 or more) persists for a year

6.4 Syphilis and HIV infection

Patients with syphilis should be encouraged to be tested for HIV infection because of the frequent association of the two diseases, and the implications for clinical assessment and management. Neurosyphilis should be considered in the differential diagnosis of neurological disease in HIV infected persons. When clinical findings suggest that syphilis is present, but serological tests are negative or inconclusive, alternative tests such as biopsy of the lesion/s, dark field examination and direct fluorescent antibody staining of materials

obtained from lesion/s should be used. In cases of congenital syphilis, the mother should be encouraged to be tested for HIV infection, and if her test is positive, the infant should be referred for follow-up.

Therapy for early syphilis in HIV infected patients is the same as for non- HIV patients. However, certain authorities recommend examination of cerebrospinal fluid or late syphilis therapy for early syphilis in HIV co-infected patients. Careful follow-up is necessary to ensure adequacy of treatment.

7. CHANCROID

7.1 Recommended regimen

i. erythromycin stearate / erythromycin base, 500 mg orally 4 times a day for 7 day

ii. rythromycin ethyl succinate, 800 mg orally 4 times a day for 7 days

N.B In case of concomitant syphilis, treatment can be given for 15 days

iii. ciprofloxacin, 500 mg orally twice a day for 3-5 days or till the clearance of lesions

or

iv. ceftriaxone, 250 mg IM as a single dose

or

v. azithromycin, 1 g orally as a single dose

or

vi. doxycycline, 100 mg orally twice daily for 7 days

or

vii. trimethoprim (80 mg) + sulphamethoxazole (400 mg), 2 tabs orally twice a day for 2 weeks

NB. Treatment should be given for the period indicated, or until such time, the lesions heal.

7.2 Management of lesions

Fluctuant bubo should be aspirated through the surrounding healthy skin. Aspiration should not be done from the dependent side. Incision and drainage or excision of bubo delays healing and is contra-indicated.

7.3 Chancroid and HIV infection

In patients with concomitant HIV infection, these regimens are often found to be inadequate. Increased dose and a more prolonged duration of therapy might be necessary. Patients should be followed up weekly till there is complete clearance of chancroid lesions.

8. LYMPHOGRANULOMA VENEREUM

8.1 No controlled trials on treatment of lymphogranuloma venereum are available. However, the following are the recommended regimens

i. *doxycycline, 100 mg orally twice a day for 21days

or

ii. *tetracycline, 500 mg orally 4 times a day for 21 days

or

iii. trimethoprim (80 mg) + sulphamethoxazole (400 mg) 2 tabs twice daily for 21 days

or

iv. erythromycin stearate or base, 500 mg orally 4 times a day for 2 weeks

* In pregnant and lactating females, erythomycine base / stearate, 500 mg orally 4 time a day for 21 days

NB. Some cases may require longer treatment than the 2 weeks recommended. Sequelae of disease, such as rectal, inguinal, urethral strictures/fistulae may require surgery. Tetracyclines are contra-indicated in pregnancy.

8.2 Bubo

Hot fomentation. Buboes should not be incised, but aspirated with a wide bore needle. Aspiration should be done through the surrounding normal skin, from the non-dependent area.

9. GRANULOMA INGUINALE (DONOVANOSIS)

Recommended regimen

i. doxycycline, 100 mg orally twice a day for 14 days

or

ii. tertracycline HCL, 500 mg orally 4 times a day for 14 days

or

iii. erythromycin stearate or base, 500 mg orally 4 times a day for 14 days

or

iv. trimethoprim (80 mg) + sulphamethoxazole(400 mg), 2 tabs twice a day orally for 14 days or until lesions have completely healed

Lesions should be kept clean.

NB. Some patients might require longer treatment that the 14 days as recommended above

10. PELVIC INFLAMMATORY DISEASE (PID) / LOWER ABDOMINAL PAIN

Because of the multi-causality of PID, and the difficulties in establishing an etiology for individual infection/s, it is recommended that PID is to be treated for concurrent treatments for gonorrhoea, non-gonococcal (C. trachomatis, Mycoplasma hominis) and anaerobic infections.

10.1 OUT PATIENT THERAPY

Recommended regimen

i. Azithromycin, 2g orally single dose under supervision(to treat both gonococcal and chlamydial infections)

PLUS

ii. metronidazole, 400 mg orally twice a day for 2 weeks(to treat anaerobic bacteria)

Alternative regimen

i. cefixime, 400mg orally single dose under supervision (to treat gonococcal infection)

PLUS

*doxycycline, 100mg orally, twice a day for 2 weeks(to treat chlamydial infection)

PLUS

metronidazole, 400 mg orally twice a day for 2 weeks(to treat anaerobic bacteria)

ii. ceftriaxone, 250mg I.M. single dose(to treat gonococcal infection)

PLUS

*doxycycline, 100mg orally, twice a day for 2 weeks(to treat chlamydial infection)

PLUS

metronidazole, 400 mg orally twice a day for 2 weeks(to treat anaerobic bacteria)

* In individuals allergic/intolerant to doxycycline and in all pregnant women, erythromycin base / stearate , 500 mg orally 4 times day for 14 days is to be used.

These regimens can be used as ambulatory treatment. For some patients admission may be required. Sexual partner(s) should be treated for gonorrhoea and chlamydia.

NB. Since IUD is a risk factor for the development of PID, its removal is recommended after the start of anti microbial therapy. In place of IUD, other contraceptive measures should be advised.

10.2 IN PATIENT THERAPY

Out patients with PID should be followed up for 72 hours and admitted if there is no improvement in their condition.

Recommended Regimens

i. ceftriaxone, 250 mg IM injection once daily

PLUS

doxycycline, 100 mg orally twice daily or tetracycline HCl, 500 mg orally 4 times daily

PLUS

metronidazole, 400 mg orally or by IV twice daily

ii. ciprofloxacin, 500 mg orally or by IV twice daily

or

spectinomycin, 2g IM twice daily

PLUS

doxycycline, 100 mg orally twice daily or tetracycline HCl, 500 mg orally 4 times daily

PLUS

metronidazole, 400 mg orally or by IV twice daily

NB. Therapy in both the above mentioned regimens is to be continued until 2 days after the patient has improved, to be followed up by doxycycline, 100 mg orally twice daily for 14 days or tetracycline HCl, 500 mg orally 4 times daily for 14 days. and metronidazole, 400 mg orally twice daily for 14 days. Patients on metronidazole must avoid alcohol consumption while on treatment. Tetracyclines are contra - indicated in pregnancy and should be replaced by erythromycin base / stearate / ethyl succinate.

11. HERPES PROGENITALIS/ GENITAL HERPES

There is no known cure, but the course of symptoms can be modified if oral or systemic therapy with acyclovir is started as soon as possible, preferably within 72 hours following the onset of symptoms. Topical therapy with acyclovir produces only minimal shortening of the duration of symptomatic episodes and is not recommended.

11.1 FIRST CLINICAL EPISODE

Recommended regimen

i. acyclovir, 200 mg orally 5 times a day for 7 days

or

acyclovir, 400 mg orally 3 times daily for 7 days

11.2 Recurrent infections

Most patients of genital herpes will have recurrence of genital lesions. Recurrences can be managed by keeping the genital area clean by using saline or soap and water washes. If there is evidence of bacterial infection, a short course of erythromycin stearate / base / ethyl succinate or trimethoprim-sulphamethoxazole may be given. Occasionally severe symptomatic disease can occur. These patients may require treatment with oral acyclovir, if available.

i. (i) acyclovir, 200 mg orally 5 times daily for 7 days

or

acyclovir, 400 mg orally 3 times daily for 7 days

or

acyclovir, 800 mg orally twice daily for 7 days

Treatment may reduce the formation of new lesions, the duration of pains, time required for healing and viral shedding. It does not influence the natural course of the recurrent disease.

N B. Educate the patient about the natural course of disease, as often the patients are greatly distressed by recurring lesions. Reassurance and proper counseling are often helpful. Where patients experience severe pain especially early, give analgesics and reassure the patient that it is a part of the natural course of the disease.

Sexual contact should be avoided as long as there are active lesions.

Cervical cytology should be routinely done in females with herpes genital infection.

acyclovir systemic therapy should not be used in pregnant women.Caesarian section is normally indicated if the mother has active lesions at the time of birth, to avoid infection and development of complications in the neonate.

11.3 SUPPRESIVE THERAPY

Daily suppressive anti-viral therapy may be employed in patients with frequent recurrences of genital herpes (six or more recurrences per year). Since daily anti-viral suppressive therapy reduces the recurrence rate of herpes genitalis by more than 75%, option for daily suppressive therapy may be discussed with all such patients suffering from recurrent herpes genitalis. Safety and efficacy of daily suppressive therapy with acyclovir (as long as six years) is well established. Suppressive therapy has not been found to be associated with emergence of clinically significant acyclovir resistance. However, it does not eliminate asymptomatic viral shedding.

Recommended Regimen

i. acyclovir, 400 mg orally twice a day continuously for at least one year; recurrence rate should than be re- assessed after the stoppage of acyclovir.

11.4 SEVERE HERPES GENITALIS INFECTION

i. acyclovir, 5-10 mg/ kg IV every 8 hours for 5 to 7 days

11.5 GENITAL HERPES IN PREGNANCY

First clinical episode of genital herpes should be treated with oral acyclovir. Neonatal herpes can develop in babies born to mothers, who develop primary herpes genitalis shortly before vaginal delivery. Babies born to women with recurrent disease are at very low risk. Caesarian section is indicated if mother has active lesions at the time of birth.

11.6 TREATMENT FOR NEONATES

i. acyclovir, 10 mg/kg IV 3 times a day for 10 days

11.7 HERPES AND HIV CO – INFECTION

Persistent and /or severe muco-cutaneous ulcerations involving large areas of perianal, scrotal or penile skin is indicative of HIV co – infection. Doses and duration of treatment with acyclovir should be increased.

Recommended Regimens

i. acyclovir, 400 mg orally 3–5 times daily until complete clinical healing of lesions

12. GENITAL WARTS

Human papilloma virus is a common sexually transmitted pathogen; specific types of which may give rise to invasive carcinoma of the uterine cervix or to benign exophytic genital warts. The virus types causing these two conditions are distinct. Patients with genital warts are no more likely than patients with other STIs to develop cervical carcinoma. However, it is a recommended practice to examine the cervix in all females STI patients and to perform the regular cervical smears in the in the population for Papanicolaou examination.

Recommended regimen

(a) Chemical cauterization

i. 20% podophyllin in compound tincture of benzoin applied to the warts, while carefully protecting the surrounding area with vaseline, to be washed off after 1~ 3 hours. It is recommended that podophyllin, 0.5 ml or less per session be applied and /or 10 cm^2 or less of warts per session be cauterized.

Treatment to be repeated weekly till lesions resolve completely. Podophyllin application should be done under medical supervision. Patients should be warned against self- medication.

iii. podofilox (podophyllotoxin) 0.5% solution or gel twice daily for 3 days, followed by 4 days of no treatment; the cycle repeated up to 4 times. Not more than 0.5 ml of podofilox should be applied per day.

iv. imiquimod 5% cream applied with a finger at bed time, to be washed in the morning with soap and water. It should be applied three times a week up to 12 to 16 weeks.

v. trichloroacetic acid (TCA) 50 to 75% can be applied carefully to the warts, excess of TCA may be removed by applying ordinary talk or sodium bicarbonate. TCA application should be done at weekly interval.

NB. Podophyllin and podophyllotoxin are contra-indicated in pregnancy and lactation. They should preferably be avoided as a treatment modality for anal warts.

(b) **Physical**

i. Cryo therapy with liquid nitrogen, solid carbon dioxide or cryoprobe, if available. Repeat application at 1~2 weeks interval. Cryo therapy is preferred by many consultants. It is non-toxic, does not result in scarring if done properly and does not require any anesthesia.

ii. Electrocautery

iii. Surgical excision

NB. No treatment is completely satisfactory. In most clinical situations, podophyllin (or podophyllotoxin) or trichloroacetic acid (TCA) are used to treat external genital lesions.

Vaginal warts

Recommended Regimens

i. podophyllin, 10~25%, using vaginal speculum

ii. trichloroacetic acid (TCA), 50~75%, using vaginal speclum

Cervical warts

i. electrocautery or cryotherapy is the treatment of choice

ii. podophyllin or podophyllotoxin and TCA applications are contra-indicated

iii. biopsy of warts to rule out malignant change

iv. cervical cytology should be done before starting the treatment

13. MOLLUSCUM CONTAGIOSUM

Individual lesions usually regress without treatment in 9-12 months. Each lesion should be thoroughly opened with a fine needle or scalpel. The contents should be expressed and the inner wall touched with 30% trichloro acetic acid or phenol solution.

14. SCABIES

14.1 Recommended regimens

i. Benzyl Benzoate(BB) 25% lotion, to be applied all over the body below the neck, after a bath, for two consecutive nights. Patient should bathe 24 hours after the second application, and have a change of clothing. Bed linen is to be washed properly and dried under sunlight. A second course of drug application may be given after 7 - 10 days, if required.

or

ii. Gamma benzene hexachloride (GBH) 1% lotion or cream applied as a very thin film all over the body below the neck at night without taking a bath, to be washed off thoroughly next day morning, after 8 -10 hours. The application of the drug should be repeated after 7 days, if required. Clothes should be washed properly and dried under sunlight. This drug is contra-indicated in pregnant women, lactating mothers, infants and patients of scabies with secondary infection or with eczematization, as it increases the risk of absorption, leading to systemic toxicity, resulting in seizures and aplastic anemia. It should be applied with caution in the elderly.

or

iii. Permethrin 5% cream to be applied all over the body as a thin film and washed off after 8-10 hours. A second application is sometimes required.

or

Sulphur 6% in petrolatum applied to the entire body from the back< down for 3 nights after a bath. Patients may bathe before reapplying the drug and should bathe 24 hours after the final application.

iv. Crotamiton 10% cream to be applied to the entire body from neck< down at night for 2-5 nights and washed off thoroughly by taking a bath 24 hours after the last application.

14.2 Infants, children less than 10 years old, pregnant or lactating women

Recommended regimen

i. Crotamiton 10% cream to be applied as above

or

ii. Sulphur 6% in petrolatum to be applied as above

or

iii. Permethrin 5% cream to be applied as above

NB. Sexual and close household contacts must be treated simultaneously, even those who are not complaining of any itching or do not have any skin lesions.

Pruritus/itching may persist for few weeks after adequate therapy. Oral antihistamine should be given for the relief of itching.

A second course of local acaricide is needed if there is no clinical improvement.

All clothing, including bed linen, used by the patient and his contacts should be washed properly and well dried in sun light. Woolen clothes worn by the patient or the contacts should preferably be drycleaned.

15. PEDICULOSIS PUBIS (PHTHIRIASIS)

Recommended regimens

i. Gamma benzene hexachloride (GBH), 1% lotion or cream, to be< rubbed thoroughly with the fingers into the infested hairy and adjacent areas, near the roots of the hair at night, Followed by bath the next morning or it can be applied at any time during the day and washed off after 8 hours.

or

ii. (ii) Benzyl Benzoate (BB) 25% emulsion or lotion to be applied as 15 (i)

or

iii. Permethrin 1% lotion, to be rubbed thoroughly with fingers into the infested and adjacent hairy areas and washed off after 10 - 30 minutes.

Special instructions

Re-treatment is indicated after 7 days if lice are found or eggs observed at the hair-skin junction. Clothing or bed linen that may have been contaminated by the patient within the past two days should be washed and well dried. Woolen clothes to be dry-cleaned.

Sexual partner must also be treated along the same lines.

N B. Gamma benzene hexachloride should be avoided in pregnant women, lactating mothers, children and patients of pediculosis pubis with secondary infection or with< eczematization. It should not be applied near the eyes. Pediculosis of the eyelashes should be treated by the application of occlusive ophthalmic ointment to the eyelid margins daily for 10 days to smother lice and nits.

16. STI AND HIV INFECTION

The relationship between STIs and HIV infection is three-fold. Firstly, STIs and HIV infection are associated with the same risk behavior, that is, unprotected sexual intercourse with multiple partners. Thus, the same measures that prevent STIs also prevent sexual transmission of HIV infection.

Secondly, the presence of STIs has been found to facilitate the acquisition and transmission of HIV infection. A 10 fold increased risk for HIV transmission has been associated with diseases that cause genital ulcers, such as syphilis, chancroid and genital herpes. The risk associated with diseases causing discharge, especially gonorrhoea, chlamydial infection and trichomoniasis is up to 4-fold. Thus, early diagnosis and effective treatment of STIs can contribute significantly towards the reduction in HIV transmission.

There is mounting evidence that some STI pathogens are more virulent in the presence of HIV related immune-deficiency. This might have consequences for treatment recommendations for STIs, although more studies need to be carried out before changes can be proposed.

The following is recommended

i. No HIV testing should be done routinely for all STIs patients. HIV testing may be considered in patients with severe or therapy-resistant forms of STIs and should be done only after obtaining the consent and with proper pre-and post-test counseling. There should be guarantee for confidentiality.

   If STI patients are screened for HIV surveillance purposes, then unlinked anonymous testing only should be done, on blood samples drawn for other purposes (VDRL testing)

ii. In some cases of STIs in the presence of HIV infection, larger doses and longer treatment duration of the drugs listed under the different< STIs may be required. These patients should be followed up regularly for longer duration.

iii. Excessive use of anti-microbials should be avoided, as it is likely to lead to more rapid development of antibiotic resistance.

iv. Although counselling of individual patients on risk reduction and prevention of transmission to partners should be done with all STI< patients, this is of vital importance for those infected with HIV.

PRACTICAL CONSIDERATIONS IN CASE MANAGEMENT

Following are the main components in STI control:

1. Promotion of safe sex behavior
2. Condom promotion for safe sex including planning and management of its easy availability
3. Promotion of health care seeking behavior
4. Integration of STI prevention and its managements in to the primary health care, reproductive health care centers and private clinics
5. Education of individuals at risk (females and male sex workers, adolescents, truck drivers, army personnel and prisoners, on modes of disease transmission and means of reducing the risk of transmission
6. Early detection of infection in asymptomatic subjects and in subjects who are symptomatic but unlikely to seek diagnostic and therapeutic services
7. Effective management of STI infected individuals
8. Treatment and education of the sexual partners of STI infected individuals
9. Prevention and care of congenital syphilis and neonatal conjunctivitis, more so in population at risk.

The treatment of STIs is based primarily on changing the sexual behaviour that put people at risk and on promoting the use of condoms.

CLINICAL CONSIDERATIONS

Routine STI care should be delivered through general health services. For individuals requesting health services for evaluation of an STI, appropriate care consists of the following components. (The order in which interventions are carried out may vary, depending on the specific case and diagnosis)

(i) History taking

The importance of a proper history cannot be overemphasized. Patients with problems relating to the genitalia tend to be guarded and evasive in giving history in the short time available in a busy outpatient clinic.

- Adopt a polite, friendly and non-judgmental attitude that would encourage the client to develop confidence and trust in you.
- Ask an open-ended question such as “what brought you to the hospital?” to initiate a dialogue, but thereafter ask brief & precise questions which call a brief response mostly to the “yes” and “no” type to save time.
- In order to make an accurate diagnosis, it may be necessary to ask more questions during examination or, even after, giving the patients greater privacy.
- Do not show annoyance if the patient’s history has obvious discrepancies or he keeps changing the history.
- Phrase your questions in such a way to minimise the opportunity of the patient to mislead you. For example, “when did you have sex with someone” is preferable to “did you have sex with someone”

Medical and Behavioural Risk Assessment

Managing a patient/client with an STI involves not only proper diagnosis and appropriate treatment but also education, partner management and counseling, if needed. The basis of these components of patient management is medical and risk assessment. Medically, the presenting condition may not depict the full spectrum of STIs currently affecting the patients. Inquire about common symptoms like discharge from the urethra in a patient with genital ulcers or recurring genital ulcers in a patient presenting with a urethral discharge. If laboratory facilities permit, consider serological tests for syphilis. Inquire about the previous treatment as it may indicate whether patient has already had sub optimal medication. It is also necessary to assess risk of drug hypersensitivity and drug interactions. If the patient is to receive proper education and counseling, it has to be preceded by a behavioral risk

asessment. The questions that need to be answered are: is there a partner who may re-infect the client; is he unlikely to act irresponsibly because of an alcohol or drug abuse problem; does he engage in unprotected penetrative sex with multiple partners for economic reasons, etc.?"

Physical examination

This is an important step that will help you to arrive at a probable diagnosis and prevent you from making an incorrect diagnosis based on the patient's history alone.

- Approach examination with professionalism and confidence devoid of shyness and embarrassment.
- Provide privacy and confidentiality.
- Ensure adequate exposure to the genital area for making thorough examination. Even if pressed for time, do not rush through the examination. If the patient shows any reluctance take time to explain why an examination is necessary for correct diagnosis and treatment. Examination of genitals in some populations may be a sensitive issue.
- Have a female person in the room while examining a female patient.
- Ensure that universal precautions are observed in the clinic. All materials used should be sterile or disposable. After use all reusable gloves and other equipment should be sterilized and soft waste such as swabs, gauze and disposable gloves should be incinerated or burnt.

Laboratory investigations if available and indicated

Syndromic management of STIs is based on the presumption that laboratory facilities are not available. Do not delay or withhold treatment because laboratory investigations are incomplete or results of tests are not available. If available, clients engaging in high-risk activities should be offered the VDRL test and test for HIV accompanied by pre-test and post-test counseling. Treatment failures should be re-evaluated for possible re-infection and then referred to a facility providing adequate laboratory support.

Diagnosis

On the basis of the history you have taken and the physical examination you have carried out, use the flow chart for making a syndromic diagnosis. Be careful when confronted with lower abdominal pain and scrotal swelling. Make doubly certain that you are not dealing with a surgical emergency.

Curative or Palliative therapy

Treat the patient using the flow charts and the national treatment guidelines. While in most instances treatment will be curative, with viral STIs only palliative therapy is possible. Genital herpes is a good example where the therapy is only palliative. This fact must be properly explained to the patient and counseling provided if needed. Another condition where only palliation is possible is candidal vulvo-vaginitis, which can be very refractory to treatment in some instances. Where a patient is treated for syphilis on the basis of positive serological tests, it is important to explain to the patient that the tests may continue to show seropositivity even though the patient has received adequate therapy, hence it is important to do VDRL testing in dilutions.

Education and Counseling

The following issues should be addressed in the education and counseling of patients.

i. Present episode of STI.

   Educate the patient on his or her present STI, and how it was acquired. In conditions like recurrent genital herpes and recurrent vulvo-vaginitis, counseling is greatly needed, as the patients are very distressed.

ii. Prevention of STIs and HIV

   Explain to the patient the association between STIs and HIV and that it is the same risk behavior that is responsible for acquisition of these two conditions. Educate the patient on methods of risk reduction through safer sex including abstinence.

iii. Condom use

   Discuss and explain to the patient the use of condom for risk reduction. Issue free condoms if feasible. Demonstrate on a dildo or other suitable object the correct way of wearing a condom. Sensitize the patient about condom. If he is a regular risk taker, then he should be advised to be a consistent condom user.

Official reporting of the case

Some form of reporting of STI cases is required though this is often neglected. Reporting by name is discouraged. The lack of data about incidence/prevalence of STIs in most countries of the region is due to poor reporting. Health care providers who manage STI cases should participate in STI surveillance including STI pre-sentinel surveillance when called upon to do so by providing the STI control program with the required data in the form provided for the purpose.

Identification, notification and evaluation of sexual partner(s)

This is an important public health activity by which the partners of those identified as having an STI are traced, informed of their probable exposure to infection and offered medical and counseling services; the objective of this exercise being to break the chain of transmission. Partner notification should be considered whenever an STI is diagnosed. In a specialized STI clinic, it may be sensible to limit partner notification to certain priority diseases and syndromes, and to depend on the patient (index patient) to notify his/her partners (patient referral)

Clinical follow-up when appropriate

The ideal situation would be to do a clinical follow-up on every case of STI to establish a cure. In some situations this is not feasible, such as where a bread winner has to forego a day's wages or where extensive travel has to be undertaken to attend the clinic or health facility.

Individuals who are seeking health care services for other reasons such as ante-natal care, but who are at risk of acquisition of STI should undergo the following as part of their routine health care, if resources permit:

i. STI risk assessment :

   STI risk assessment should be considered whenever sexually active persons such as ante-natal care attenders and family planning clinic attenders complain of symptoms suggestive of STIs or a patient in a surgical clinic complains of burning sensation on passing urine.

ii. Directed physical examination based on elicited symptoms :

   A woman attending a gynaecology clinic for irregular menstrual bleeding may be found to have low grade fever and tenderness in her fornices suggestive of a sub-acute PID. Such patients could be managed using the appropriate flow chart.

iii. (iii) Screening for asymptomatic infection :

This is often not cost-effective unless the exercise is limited to known risk behavior groups. For example, sex workers may be screened with the VDRL/RPR test for syphilis, HIV serology and gonococcal culture, if available.

HEALTH EDUCATION: ESSENTIAL FOR PREVENTION AND CONTROL OF STIs

Introduction

Now more than ever it is important to explore strategies for the prevention of STIs. With the HIV/AIDS epidemic, a patient with an STI may have acquired HIV infection or may get HIV infection in future. Therefore, treatment alone is not sufficient and health education to prevent sexually transmitted infections is of paramount importance. The goal should be to help people change their behavior. This will entail discussions on sex and sexuality from doctor to patient, from parent to child and from teacher to student.

Communicating about STI is extremely difficult as it is necessary to discuss sexual practices; a topic many people in several cultures would rather avoid. In order to prevent STI and spread of HIV infection, it is necessary for individuals to change their behavior. This might entail choosing not to have many partners, or to use condom.

Social aspects

STIs have been in existence for centuries. The risk factor for contracting an STI is having many sexual partners, or to have a partner who may be having many sexual partners. Although anyone can get a STI, certain groups of individuals are more prone due to their lifestyle and social or economic circumstances. These might include:

- Migrant workers who live away from their families.
- Men who travel as part of their work, truck drivers, people in hospitality industry.
- Those who resort to sell sex for financial reasons.
- Armed forces personnel who are posted away from their families.

The conditions in which many people live expose them to behavior options, which place them at increased risk of contracting a STI.

Abstinence or a mutually faithful relationship with one lifelong partner is very effective in preventing STI. For health education, the approach must be more practical. Those who habitually have STIs will not easily change their behavior. However, they may be convinced to use a condom and seek proper treatment for their STIs. In the era of HIV/AIDS, practical messages and approaches are essential.

Sex Education

Education on sex and sexuality should be imparted to school going children, more so in 11^{th} and 12^{th} class and students in colleges and it should preferably, be included as part of the teaching curriculum. An expert group should be formed to develop and appropriate curriculum, which would include special training for teachers on how to discuss sex and sexuality in an open and frank manner. Education on sex and sexuality should start at prepubertal age and continue through all formal educational settings.

The syllabus should focus on the social and psychological aspects of sex and sexuality to allow students to explore their own feelings, misconceptions, and attitudes. Sexually transmitted infections including HIV/AIDS should be introduced in the light of discussions on sex and sexual behavior. This will include discussions on methods of protections from disease and from undesirable pregnancy. The physiological aspects of sex and changes in the body during puberty should be a part of the syllabus.

Providing health education

Health education on STIs should be provided to the general public concentrating on promotion

of adequate health care seeking behaviour. General Information, Education and Communication materials on STIs should be developed for distribution in clinics and other public health facilities.

Every time a physician sees a patient with a STI it is an opportunity for health education. The physician commands respect from the community and from individuals, therefore, the impact of his message is greater.

Targeted materials and approaches should be developed for groups known to practice high-risk behaviors for contacting STIs. These groups might include: migrant workers, men who travel frequently, the defense forces, patients in STI clinics and those practicing commercial sex and their clients. These materials should be developed with the literacy levels, behavior patterns and ethnic consideration in mind.

Basic messages on STIs can be grouped in three areas: how one contracts STIs; how one can protect oneself against STIs; and appropriate health care seeking behavior for treatment.Messages on STI should be objective and provide imagination in straightforward manner. Moral overtones only turn away the very people, the public health officials are trying to reach. In addition, messages should aim at individual responsibility for sexual behavior and protection from diseases.

How one contracts an STI

STIs, including HIV infection are contracted through sexual contact. Most STIs are curable, with the exception of HIV infection and some other viral STIs.

The high-risk behavior for contracting an STI is having multiple sexual partners, or having a partner with promiscuous behavior. One is at particular high risk when having sex with someone who has STI/s. Many STIs are asymptomatic; one can have sex with someone who looks clean and still contract STI. HIV infection, the precursor of AIDS does not show symptoms for many years, yet can be contracted during the asymptomatic phase.

How to protect oneself against STIs

Use of good quality latex condoms for every sexual encounter is the best-known method for prevention of STIs, including HIV infection.

Appropriate health care seeking behavior

Taking prophylactic injections or oral medications and washing the genitalia and urinating after intercourse are all ineffective methods or prophylaxis.

Individual suspecting STI/s should seek treatment from qualified institutions and practitioners and avoid self-medication and reliance on quack and ‘sex doctors’.

The long-term health consequences of chronic STI/s should be emphasized.

Messages should be coordinated with the existence of good quality STI services and condom programming.

All health education programs for HIV/AIDS infection should include information on STIs, emphasizing the link between STIs and HIV. The same risk behavior predisposes for both STIs and HIV infections and the presence of STIs increases the risk of HIV transmission.

Health education and counseling for STI patients

Every time a physician sees a patient with STI infection, or with a suspected STI, it is an opportunity for health education and individual counseling. The patient has shown to be at risk for STI, and consequently is also at risk for HIV infection.

Health education and counseling in the health care setting should focus on the following messages:

a. **Treatment compliance.** For the treatment to be successful, it is important that the whole course of treatment is taken, even if the patient feels improved after a few days. Incomplete treatment might lead to chronic infection with potentially serious long-term

consequences. It can also lead to the emergence of resistant strains.

b. **Partner notification.** The patient was infected by a sexual partner and/or may have infected another partner. These people are at risk of being infected themselves and if so, will continue to spread the infection or reinfect the patient. Partner(s) of STI patients should, therefore, be medically examined and treated if found to be infected.

c. **Prevention of future infection.** Advice should be given to prevent future acquisition of STIs, including HIV infection. This includes recommendations on a reduction of the number of sexual partners and on the consistent use of condoms, and wherever possible one or more good quality condoms should be dispensed to the patient. Clear and simple instruction on condom use should be provided; a demonstration on the use of condom might be required.

d. **Health care seeking behavior.** The patient should be advised to return if the symptoms do not disappear and to seek adequate health care for any future episodes of STIs.

It is often necessary to include basic information on the fact that STIs spread through sexual contact, that many STIs are asymptomatic (so it is often not possible to know whether a sex partner is infected), and that most STIs are curable, with the exception of HIV infection and some other viral infections. Long term health consequences of chronic STIs should be emphasized

It will often not be possible for the treating physician to spend adequate time with each patient for health education and counseling. Health education and counseling can also be done by sympathetic male or female multipurpose workers or by nurses. Still, the treating physician usually commands respect from the community and the individual, and their message has often a great impact. So, even if little time is available, the physician should try to reinforce the health education and counseling done by other workers in the facility.

One of the most important aspects of management of patients with STIs, and of health education and counseling of STI patient, is a sympathetic and non-judgmental attitude. Moralistic messages and a condemning attitude of health care workers are counterproductive and will drive patients away. Privacy and confidentiality of the patient's disease including HIV infection are absolutely essential and an atmosphere of professionalism is required at STI clinics.

Condom instructions

1. Carefully open the package so that the condom does not tear. Do not unroll condom before putting it on. The condom should only be put on the erect penis.

2. If not circumcised, pull foreskin back. Squeeze the tip of condom and put it on the end of the hard penis.

3. Continue squeezing tip while unrolling the condom till it covers the entire penis.

4. Always put the condom on before sexual penetration.

5. After ejaculation, hold rim of condom and pull the penis out before it gets soft.

6. Slide condom off without spilling liquid (semen) inside.

7. Throw away or bury the condom.

Remember

Do not use grease, oils, lotions or petroleum jelly (Vaseline) to makeuage condoms slippery. These make the condoms break.
Use a condom each time you have sex.
Use a condom once only
Store condom in cool, dry place
Do not use condom that may be old or damaged
Do not use a condom if

- the package is broken

- the condom is brittle or dried out
- the colour is uneven or changed
- it is unusually sticky