

Sexually Transmitted Infections

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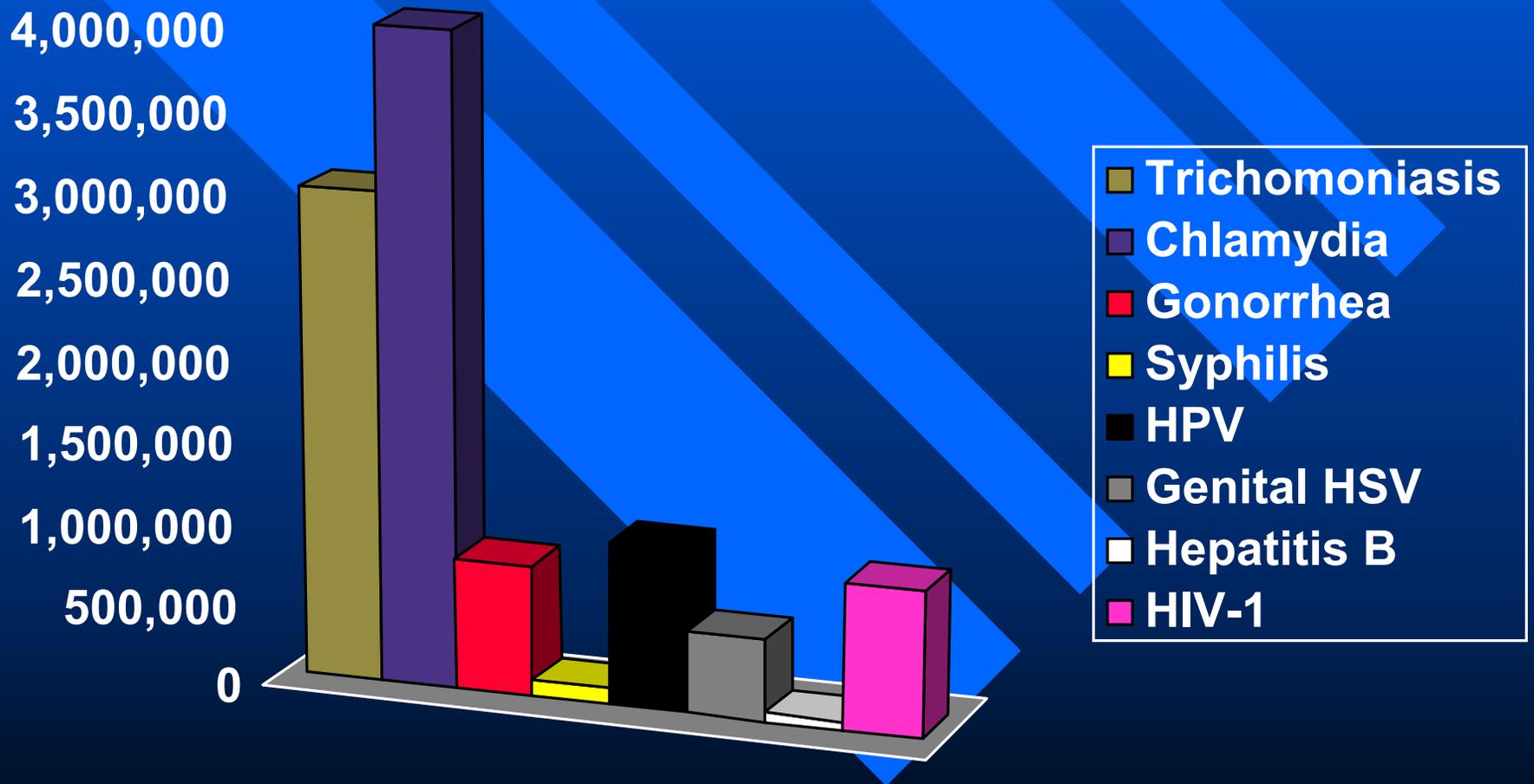
Impact of STDs on Women

- Potentially devastating effect on life and reproduction
- Frequently asymptomatic, delaying diagnosis
- Women disproportionately affected
- Increased biologic susceptibility
- More susceptible to serious complications
- Increased incidence of poverty in women

Impact of STDs on Women

- Complications include:
 - increased risk of genital cancer
 - loss of reproductive capability
 - complications of pregnancy (PTL, ectopic)
 - transmission to fetus
 - increased risk of HIV transmission

Incidence of STDs (1994)



Mortality associated with STDs

- 9200 cases of STD related mortality in 1992
 - Cervical carcinoma - 57%
 - HIV - 29%
 - Hepatitis B and C - 10.5%
 - PID - 2.2%
 - Syphilis - 1%
 - Ectopic pregnancy - 0.2%

Gonorrhoea

- Gram-negative intracellular diplococci
- Detected by culture of endocervix
- Asymptomatic colonization frequent (50%)
- Co-infection with chlamydia 40-50%

Gonorrhoea

- Upper tract infection
 - Symptomatic early in infection
 - Tubal damage usually greater than with chlamydia
- 15-40% with untreated endocervical colonization will develop PID
 - Acute risk of TOA; long term risks include chronic pain, ectopic pregnancy, impaired fertility

Treatment of Gonorrhoea

- Ceftriaxone 125 mg IM single dose or
- Cefixime 400 mg PO single dose or
- Ciprofloxacin 500 mg po single dose or
- Ofloxacin 400 mg po single dose plus
 - Azithromycin 1 gm po single dose or
 - Doxycycline 100 mg po bid x 7 days
- Pregnancy treatment - spectinomycin 2 gm IM

Chlamydia

- Obligate intracellular pathogen
- Mandatory to obtain endocervical cells
- DNA probe (used at NHCP)
 - Rapid and accurate

Chlamydia

- Insidious onset
 - 70% asymptomatic colonization
 - May only have slight vaginal discharge
 - “Silent PID”
- Tubal mucosal damage
 - Associated, like GC, with long term risks of chronic pain, ectopic pregnancy, impaired fertility

Treatment of Chlamydia

- Doxycycline 100 mg po bid x 7 days or
- Azithromycin 1 gm po single dose

- Alternative Regimens
 - Erythromycin base 500 mg po qid x 7 days or
 - Erythromycin ES 800 mg po qid x 7 days or
 - Ofloxacin 300 mg po bid x 7 days or
 - Sulfisoxazole 500 mg po qid x 10 days

Chlamydia Treatment - Pregnancy

■ Azithromycin 1 gm po x 1 dose (category B)

or

■ Erythromycin base 500 mg po qid x 7 days

or

■ EES 800 mg po qid x 7

Pelvic Inflammatory Disease

- Occurs annually in 1-2% of reproductive age, sexually active women in the U.S
- Most common serious infection in women age 16-25 years
- Approximately \$3.5 billion are spent annually on diagnosis and treatment
- Approximately 1 million new cases a year in the U.S.

Pelvic Inflammatory Disease

- Comprised of a spectrum of inflammatory disorders of the upper genital tract
 - Endometritis, myometritis, parametritis, acute and chronic salpingitis, pyosalpinx, hydrosalpinx, oophoritis, peritonitis, tubo-ovarian abscess
- Usually polymicrobial

PID: Diagnosis

- All three of the following:
 - Lower abdominal pain and tenderness
 - Adnexal tenderness
 - Cervical motion tenderness

PID: Diagnosis

- One of the following:
 - WBC count > 10.5
 - ESR > 15 mm/hr
 - Temperature $> 100.4^{\circ}$
 - Pelvic abscess or inflammatory complex detected by exam or U/S
 - Purulent material (WBCs, bacteria) in the peritoneal cavity by culdocentesis or laparoscopy
 - evidence of GC or chlamydia
 - » gram stain with gram negative intracellular diplococci
 - » mucopurulent cervicitis
 - » positive chlamydia antigen test
 - » >10 WBC/hpf on gram stain

Parenteral Regimens for PID

Regimen A

- Cefotetan 2 g IV q 12 hrs
or
- Cefoxitin 2 g IV q 6 hrs
plus
- Doxycycline 100 mg IV
or po q 12 hrs

Regimen B

- Clindamycin 900 mg IV
q 8 hrs plus
- Gentamycin loading dose
followed by maintenance
dose q 8 hrs

Parenteral Regimens for PID

- Parenteral therapy may stop 24 hrs after patient improves clinically
- Continue oral therapy of Doxycycline or Clindamycin for total of 14 days therapy

Oral Regimens for PID

Regimen A

- Cefoxitin 2 g IM plus Probenecid 1 g po or
- Ceftriaxone 250 mg IM once or
- Other 3rd generation cephalosporin *plus*
- Doxycycline 100 mg po bid x 14 days

Regimen B

- Ofloxacin 400 mg po bid x 14 days *plus*
- Metronidazole 500 mg po bid x 14 days or
- Clindamycin 450 mg po qid x 14 days

Herpes Simplex Virus (HSV)

- One of the most prevalent STDs in the U.S.
 - Annual U.S. prevalence: 10 - 30 million
 - Annual U.S. incidence (1° HSV): 0.5 - 2 million
- Highly contagious
 - 75% of sexual partners will contract
- Ulcerations facilitate HIV transmission

HSV

■ Primary HSV

- Local and systemic disease; occasionally subclinical
- Incubation 3-7 days
- Prodromal symptoms (e.g. parasthesias)
- Vesicles: multiple, coalescing
- Shallow, exquisitely painful ulcers
- Inguinal adenopathy
- 70% will have systemic symptoms (fever, myalgia, malaise)
- Acute urinary retention common
- Peak symptoms at 7-11 days, lasts approximately 14 days
- Viral shedding for 2-3 weeks after initial lesions

HSV Latency

- Virus resides in dorsal root ganglia of S2-4
- Immunologically privileged site
- Remains dormant until triggered to enable expression

Recurrent HSV

- Local disease, symptoms less severe
- Lesions tend to be fewer and smaller
- Sometimes asymptomatic
- 55-80% recurrence within one year
- Frequently related to menses or emotional stress
- Attacks last 7 days on average
- Viral shedding for approximately 5 days
- Prodrome of parasthesia, pruritis, burning

Treatment of HSV

Primary HSV

Treatment reduces time of viral shedding, healing of lesions, and local pain and systemic symptoms. Does not affect latency time, will not eradicate virus.

- Acyclovir 400 mg po tid x 7-10 days or
- Acyclovir 200 mg po 5x daily x 7-10 days or
- Famciclovir 250 mg po tid x 7-10 days or
- Valacyclovir 1 gm po bid x 7-10 days

Treatment of HSV

Recurrent HSV

*Shortens duration of ulcers, reduces length of viral shedding.
Should administer within 24 hours of prodrome or lesions.*

- Acyclovir 400 mg po tid x 5 days or
- Acyclovir 200 mg po 5x daily x 5 days or
- Famciclovir 125 mg po bid x 5 days or
- Valacyclovir 500 mg po bid x 5 days

HSV Suppression

Daily suppressive therapy

Reduces frequency 75%. Use when >6 episodes/year.

- Acyclovir 400 mg po bid or
- Famciclovir 250 mg po bid or
- Valacyclovir 250 mg po bid or
- Valacyclovir 500 mg po qd or
- Valacyclovir 1000 mg po qd

Syphilis

- Spirochete *Treponema pallidum*
- Chronic bacterial disease
- Moderately contagious: 3-10% with single exposure
- Contagious during 1°, 2° and first year of latent stages

Syphilis: Clinical Stages

■ Primary

- Chancre: hard painless ulcer
- Incubation 10-100 days
- Heals within 2-6 weeks
- Can have primary chancres of cervix and vagina; often go undiscovered

Syphilis: Clinical Stages

■ Secondary

- Hematogenous dissemination of spirochetes
- Systemic disease
- 6 weeks to 6 months after chancre (mean - 9 weeks)
- Palmar and plantar rash; red papules and plaques
- Condyloma lata, painless adenopathy
- Mucosal surfaces form papules that coalesce and ulcerate

Syphilis: Clinical Stages

■ Latent

- Follows secondary stage 2-20 years
- Relapses of secondary syphilis are common

Syphilis: Clinical Stages

■ Tertiary

- Devastating systemic destructive potential
- CNS: optic atrophy, tabes dorsalis, generalized paresis
- CV: aortic aneurysm
- Musculoskeletal: gummas of skin and bone

Syphilis: Clinical Stages

■ Neurosyphilis

- CNS disease can occur at any stage
- Endarteritis, arterial occlusion, ischemia, infarction
- Direct neural invasion

Treatment of Syphilis

1°, 2° and early Latent (<1 year)

- Benzathine penicillin G 2.4 million units IM single dose
- Alternative Regimens (for PCN allergic)
 - Doxycycline 100 mg po bid x 14 days or
 - Tetracycline 500 mg po qid x 14 days or
 - Erythromycin 500 mg po qid x 14 days

Treatment of Syphilis

Late Latent, CV, Gummatous

- Benzathine penicillin G 2.4 million units IM weekly x 3 weeks
- Alternative Regimens (for PCN allergic)
 - Doxycycline 100 mg po bid x 28 days *or*
 - Tetracycline 500 mg po qid x 28 days

Treatment of Neurosyphilis

- Aqueous crystalline penicillin G 2 -4 million units IV q4h x 10-14 days
- Alternative Regimen (compliance expected)
 - Procaine penicillin 2.4 million units IM daily plus Probenecid 500 mg po qid x 10-14 days
- No acceptable alternative to PCN

Treatment of Syphilis in Pregnancy

- PCN regimen for appropriate stage
 - Some experts recommend additional therapy
- PCN-allergic
 - No acceptable alternative to PCN
 - Skin testing / systemic desensitization

Chancroid

- Definitive diagnosis requires isolation of *H. ducreyi*; requires special media, recovery only 80%
- Probable diagnosis based on:
 - One or more painful ulcers and tender inguinal adenopathy is suggestive
 - Suppurative adenopathy is nearly pathognomonic
 - Culture negative for HSV, no e/o syphilis 7 days after ulcer onset

Treatment of Chancroid

■ Recommended:

- Azithromycin 1 gm po single dose or
- Ceftriazone 250 mg IM single dose or
- Erythromycin base 500 mg po qid x 7 days

■ Alternatives:

- Ciprofloxacin 500 mg po bid x 3 days or
- Augmentin 125 mg po tid x 7 days

Granuloma Inguinale

- Gram negative intracellular nonmotile, encapsulated rods; *Calymmatobacterium granulomatis* (Donovan bodies)
- Endemic in certain tropical/developing areas (Caribbean, New Guinea, central Africa)
- Painless, progressive, ulcerative lesions without regional lymphadenopathy
- Beefy red appearance, bleed on contact

Granuloma Inguinale - Treatment

- Tetracycline 500 mg po qid x 2-3 weeks
- Chloramphenicol 500 mg tid x 2-3 weeks
- Spectinomycin can be used if necessary

- Treatment should continue until all lesions completely healed

Lymphogranuloma Venereum (LGV)

- Serovars L1, 2, 3 of *C. trachomatis*
- Initial self-limited genital ulcer at inoculation site
- Progresses to tender unilateral inguinal lymphadenopathy
- Also progresses to proctitis, inflammatory involvement of perirectal/perianal tissues; fistulae, strictures
- Dx made serologically and by exclusion

Treatment of LGV

- Doxycycline 100 mg po bid x 21 days
- Alternative Regimens:
 - Erythromycin base 500 mg po qid x 21 days
 - Sulfisoxazole 500 mg po qid x 21 days

HIV

- Caused by infection with HIV-1 (or HIV-2)
- Spectrum of disease progressing from clinically latent to AIDS
- Median time between infection with HIV and AIDS is 10 years
- 87% of infected adults develop AIDS within 17 years of infection

Human Papillomavirus (HPV)

- More than 20 types infect genital tract
- Most HPV infections asymptomatic, subclinical, or unrecognized
- Types 6 and 11 usually cause external genital warts, rarely associated with SIL
- Types 16, 18, 31, 33, 35 strongly associated with cervical neoplasia

Patient-applied Treatment

- Podofilox 0.5% solution or gel bid x 3 days followed by 4 days without therapy, 4 total cycles or
- Imiquimod 5% cream at hs 3x/wk x 16 wks, followed by washing with mild soap 6-10 hrs after application

Provider-administered Treatment

- Cryotherapy with N₂ q 1-2 wks or
- Podophyllin 10-25% in benzoin weekly (washed off after 1-4 hrs) or
- TCA or BCA 80-90% weekly (powder with talc or baking soda to neutralize if excess applied) or
- Surgical removal

Ectoparasitic Infections

■ Pediculosis Pubis

- Lice, nits, itching
- Permethrin 1%
creme rinse x 10
minutes or
- Lindane 1%
shampoo x 4 min or
- Pyrethrins washed
off after 10 minutes

■ Scabies

- Sarcoptes Scabiei
- pruritis
- Permethrin cream
5% neck down x 8-
14 hrs or
- Lindane 1% neck
down x 8 hrs