Sexually Transmitted Diseases

I. Syphilis

- Treponema pallidum is the spirochete bacteria that cause syphilis
- It causes primary syphilitic lesions, or chancres, male (right) and female (left)
- Three stages of syphilis

Primary syphilis

a. Three week incubation period between exposure and appearance of lesion (chancre)
b. Chancre may be internal or external, is painless, and goes away in 2-6 weeks without treatment
c. Fluid from chancre is infectious (contains bacteria)
d. Can diagnose by using special microscopic technique to look at the bacteria (blood test not useful)
e. Bacteria transferred to another person by direct sexual contact (contact with fluid from lesion)
f. Person may be asymptomatic for 2-24 weeks before next stage

Secondary syphilis

g. Skin rash typical of secondary syphilis
h. Rash is systemic, may occur on thighs or trunk, with many lesions
i. Secondary syphilis is contagious, but treatable
j. Rash goes away in 2-6 weeks regardless of treatment
k. Blood test for anti-bacterial antibodies useful in diagnosis during secondary stage
l. Person may be asymptomatic for 3 to 30 years or more after secondary stage
Tertiary syphilis

m. 50% of stage 2 never develop tertiary stage (or die of something else first)

n. 25% develop serious tertiary stage symptoms

o. 25% develop less serious symptoms

p. Bacteria no longer detectable in tertiary syphilis

q. Immune response made to bacteria causes damage to small blood vessels in various organs (brain, heart, kidney, liver, eyes, skin, bone)

r. Symptoms depend on organ damaged

s. Not treatable, not contagious, damage not reversible

t. Blood test for antibacterial antibodies useful in diagnosis

Table comparing stages of syphilis

<table>
<thead>
<tr>
<th>Stage</th>
<th>Blood test useful?</th>
<th>Contagious?</th>
<th>Treatable?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Yes (VDRL)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Yes (VDRL)</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

2. More than 50% of women pass through stages 1 and 2 without knowing it

3. Treatment: penicillin (100% curable in stages 1 and 2, within 2-3 days not contagious, but must complete treatment)

Congenital syphilis

a. 100% preventable if mother diagnosed and treated before 16th week of pregnancy
b. Bacteria can cross placenta to infect fetus before birth

c. Baby is born with stage 2 syphilis

d. 25% of infected fetuses die before birth, 25% die after birth, 25% born with stage 2 syphilis, and 25% not infected

e. Case frequency of congenital syphilis closely follows frequency in pregnant women--both have been declining since 1991

II. **Gonorrhea and Chlamydia** (both caused by bacteria, often found in mixed infections)

**Gonorrhea**

- Caused by small round bacteria often found in pairs, *Neisseria gonorrhoeae*
- 90% of women and 10% of men are asymptomatic
- Highly contagious
- Spreads rapidly through sexually active population
- In 1999, St. Louis was 3rd and Chicago 14th in case frequency of gonorrhea in large cities
- Transferred by direct sexual contact with infectious discharge
- Short incubation period--3 to 5 days
- Can be genital, anal/rectal, oral, or eye infection
- In men, it is most commonly a urethral infection; in women, cervical or urethral
- Symptoms in men: urethral discharge, burning urination, cloudy urine
- Symptoms in women (if any): inflammation of cervix, thick, yellowish discharge, possibly burning urination, cloudy urine
- Usually remains a local infection, causing little permanent damage
- If untreated in women, sometimes causes pelvic inflammatory disease (PID), which may lead to sterility
If disease becomes systemic (moves away from reproductive tract), may move into blood, then joints, heart, liver

Diagnosis

- Microscopic observation of discharge—should see white blood cells with bacteria inside (50% accurate)
- Observation of characteristics of discharge
- May grow and test bacteria in culture (slow)
- May use fluorescent antibody test to identify bacteria

Treatment

- Penicillin (or other antibiotics if person is allergic to penicillin)
- Complete the treatment, usually if no symptoms and another culture is negative, after 3-7 days safe to resume having sex
- If symptoms don't go away, bacteria may be resistant to penicillin or other drug—try another antibiotic
- Could also be a mixed infection with both gonorrhea and chlamydia (chlamydia not affected by penicillin)

1. Special cautions for women
   a. Women who are sexually active, especially with more than one partner, should have cultures done every three months
   b. Half of women who have gonorrhea also have chlamydia
   c. Half of women who have untreated gonorrhea develop PID
   d. Women should have a culture done before an IUD is inserted

2. Special cautions for pregnant women
a. Newborns are treated with silver nitrate to prevent gonococcal ophthalmia, an eye infection that can lead to blindness

b. 1/3 of women who have gonorrhea also have streptococcus B infections, which can be dangerous for newborns

3. Special cautions for men
   a. Female sexual partners may be asymptomatic, but infected and infectious
   b. Men who continue to have symptoms after treatment may have postgonococcal urethritis (PGU)--80% is caused by chlamydia
   c. 30% of men who have gonorrhea also have Chlamydia

B. Chlamydiosis

- Caused by bacteria called Chlamydia trachomatis
- In men, causes postgonococcal urethritis, nongonococcal urethritis, nonspecific urethritis
- In women, causes postgonococcal cervicitis
- Differences from gonorrhea
  - Different susceptibility to antibiotics (not susceptible to penicillin)
  - Longer incubation period (3 weeks)
  - Spreads more slowly through a population
  - Milder symptoms
  - More likely to cause scarring leading to infertility as a result of pelvic inflammatory disease (PID)
- 50-90% of PID is caused by chlamydia
Pregnant women who have an active chlamydia infection at the time of delivery may infect the newborn baby, leading to eye infections that can cause blindness or respiratory tract infections (pneumonia).

Complications: sterility due to PID or epididymitis, occasionally becomes systemic.

In women, cervical infection may move into uterus and Fallopian tubes.

In men, urethral infection may move into the epididymis.

Transfered by direct sexual contact.

Symptoms (often asymptomatic, milder than gonorrhea):

- Women: slight vaginal discharge, painful intercourse, fever, lower abdominal pain.
- Men: urethral discharge, burning urination.

Diagnosis:

- Slow, difficult to grow in culture.
- Can use fluorescent antibody test, which is faster.

Treatment:

- Tetracycline or sulfa drugs, for three weeks.
- Must treat both partners, disease "ping-pongs" between them.
- Well when there are no symptoms and treatment is completed.