Adolescence and STDs

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1. Epidemiology in Canada

15-19 y.o.	women	men
Gonorrhea		
1991	119/100,000	60/100,000
1989	337/100,000	156/100,000
Chlamydia		
1991	1550/100,000	236/100,000
Syphilis		
1991	3.1/100,000	0.7/100,000
AIDS		
1993	3	25

Young adolescent girls are more at risk: cervix of the uterus more sensitive.

There is a pool of infected at risk individuals and from there, spreading of infection to individuals at lower risks. The larger the pool, the bigger the spreading.

2. Evaluation

2.1 History and examination

Past history and history of present problem

Risk evaluation
- sexual partners
- sexual orientation
- type of sexual activities
- drug use

Most adolescents with STDs have as a risk factor:
- multiple partners

- partner at risk
- lower economic status
- prostitution
- drug abuse

Examination:
- Frequently no symptom, does not mean negative exam
- Some diseases were showing signs and symptoms but these have disappeared

2.2 Targeted Screening

Screening for adolescents at higher risk.

WHO

- Adolescent with STD in past year
- Adolescent with new sexual partner in last 2 months
- Adolescent with 2 partners or more in past year
- Adolescent for whom partner's risks are unknown
- Drug users
- Street living
- Adolescents who have had sexual intercourse with one of the above
- Women asking for abortion
- Sexual abuse victims
- Adolescent asking for screening even without risk factors

When, how long after exposure

Every 6 months, and/or when new partners

Cervical-urethral	3-6 weeks after exposure (majority positive after 2 weeks)
Serology	3-6 months after exposure (majority positive after 3 months)

Which Tests

Gonorrhea, chlamydia, HPV-condyloma-pap test, HIV, syphilis, Hepatitis B

2.3 Tests

In women, proceed in the following order for cervical/vaginal culture and tests:
1. pH by vaginal swab
2. endocervix:
    - pap test,
    - gonorrhea (take sample of secretion if any),

- chlamydia: zyme
- chlamydia: culture

3. vaginal swab

Sensitivity of the tests: number of true positive
Specificity of the tests: number of true negative

When the prevalence is low, there are more false positive.

3. Chlamydia

Incubation period: 7-21 days
No immunity. Can have repeated infection

Detection in 25-50% of men from infected female partners
Detection in 60-75% of women from infected male partners

3.1 Clinical presentation

50% cervicitis and rectal infection are asymptomatic.
30% of urethritis are asymptomatic.
Known chronic carrier status.

Cervicitis, urethritis, proctitis, epididymitis (no known association with infertility in men)
PID: 8-25% of non treated chlamydial infection
(25% of PID will lead to complications: infertility, ectopic pregnancy...)
Reiter syndrome: urethritis, arthritis, conjunctivitis and dermatitis

3.2 Laboratory test

For chlamydia, the culture is the golden standard but this could be questioned (100% specificity).

The chlamydiazyme with elisa technique has a sensitivity and a specificity of about 90-95% (more sensitive in women, in symptomatic)??. With the PCR technique, the specificity is higher, up to 99%.

4. Gonorrhea

Incubation period: 3-5 days (could be up to 30 days)
High risk of associated chlamydial infection (30-70%)
No immunity
Risk of transmission from infected person:
from infected women to men: 20% per intercourse, 60-80% after 4 intercourse
from infected men to women: 50% per intercourse

4.1 Clinical presentation

Estimated 75% asymptomatic in women and 10-40% in men.
Cervicitis (yellow, thick secretions), urethritis, proctitis, pharyngitis, epididymitis
PID: 10-15% of non-treated infection (25% of PID will lead to complications: infertility, ectopic pregnancy...)
Gonococcemia (fever, migratory arthritis, vesicular lesions on skin, hands)

4.2 Laboratory tests

For gonorrhea, the culture is the golden standard. A PCR technique is also available.
In women, anal culture frequently positive by direct self- contamination

5. Herpes

Incubation of 2-21 days (mostly 2-7 days)
Transmission through direct contact, by a symptomatic or asymptomatic individual, through oral or genital secretion.

5.1 Clinical presentation

Symptomatic or asymptomatic.
First episode: most severe infection
Recurrence in 80% of symptomatic first infection
Asymptomatic recurrence (explain that prevention is difficult)

5.2 Laboratory tests

Culture or Immuno Enzymatic Assay
Clinical diagnosis can be sufficient

6. Human Papilloma Virus

Condyloma or genital warts.
Incubation of 2-3 months or more
Type 6,11 (non cancerigenous); Type 16, 18, 31, 33 (known cancerigenous)

Cancer of cervix: one of the most common in women
More women with cervical cancer had condyloma (or their partners)
Cause cancer of penis, anus

6.1 Clinical presentation

Lesions could be visible, acuminated (elevated with spikes), flat, or subclinical (invisible).
Anal wart not necessarily related to penetration.
Lesions on cervix are usually subclinical.

Visible lesions are more contagious.

6.2 Laboratory tests

Domestic vinegar can identify some unseen lesions.
Abnormal pap smear.
Colposcopy.

7. Syphilis

Incubation period of 3-90 days (average 21 days)

7.1 Clinical presentation

Primary syphilis
- ulcer with one adenopathy, non painful, sharp contour, of 3-6 weeks duration

Secondary syphilis
- 2-8 weeks after ulcer
- papular, pustular skin lesions, starting on the trunk and spreading to hands and feet
- fever, fatigue, anorexia, arthralgia
- could find: hepatic, renal, intestinal, and meningitic lesions

Latent syphilis
- Asymptomatic for up to 20 years

Tertiary syphilis
- neurosyphilis, cardiovascular syphilis

7.2 Laboratory test

Reagin: VDRL (can be positive, with tuberculosis, malaria, viral infection, pregnancy, collagen disease, intravenous drug use, chronic hepatitis, other treponema)
Reagin test: negative 3-24 months after treatment.
Antitreponemal antibodies (FTA-ABS, MHA-TP): stay positive

8. Viral Hepatitis

Hepatitis A
- incubation 15-45 days
- no chronicity

transmission, risk factors:
- fecal-oral, sexual contact with infected,
- close contact with infected (same home),
- drug use, institution (prison, nurseries, disabled...)

Hepatitis B
incubation 40-180 days
5-10% chronicity
transmission, risk factors:

- IV drug use, close contact with infected (same home),
- sexual contact with infected,
- institution (prison, nurseries, disabled...)
- bi-homosexuals with multiple partners
- heterosexuals with multiple partners
- transfusion, hemophiliacs, mother-child

Hepatitis C
incubation: 40-180 days
60% chronicity
transmission, risk factors:

- IV drug use, sexual contact with infected (low risk),
- transfusion, hemophiliacs, mother-child, tatoo

8.1 Clinical presentation

50% of infections are asymptomatic.
Vague symptoms of hepatitis: fever, malaise, nausea, vomiting, abdominal pain, jaundice, arthralgia, dark urine, pale stools.

8.2 Laboratory tests: serology

Hepatitis A

Anti-HAV IgM: recent infection, present early with symptoms, negative in 3-6 months
Anti-HAV IgG: long term protection (following vaccination or disease)

Hepatitis B

HBs-Ag:

- current infection or chronic carrier
- first detectable serologic marker
- preceed clinical symptoms
- negative in 6 months, unless chronic carrier

Anti-HBs:

- immunity following infection or vaccination
- vaccination: anti-HBs +, but anti-HBc -
- detectable few weeks after HBs-Ag disappear
- persist for years

Anti-HBc:
- positive 1-4 weeks after HBs-Ag
- positive before anti-HBs
- anti-HBC-IgM: recent infection, persist 3-6 months
- anti-HBc-total: recent or old infection, persist for life

HBe Ag:
- maximum contagion
- detectable soon after HBs-Ag
- persist 3-6 weeks (more if chronic hepatitis)

Anti-Hbe:
- in association with HBs-Ag, indicate a lower contagious state than HBe Ag

Hepatitis C

Anti-HCV:
- recent or old infection
- could be absent in acute phase
- does not indicate protection against infection or resolution of infection

9. Genital ulcers and adenopathy

Non-sexually transmitted diseases
- trauma
- erosion from candida infection
- dermatitis
- gastro-intestinal disease
- dermatitis

Syphilis
Herpes

Venereal lymphogranuloma
- One of the Chlamydia
- incubation: 1-12 weeks (7-12 days)
- Three stages: small single ulcer, non painful, self-limited, then painful inguinal-rectal adenopathies with possible fistula to skin. Fever, myalgia, arthralgia, (spontaneous healing sometimes). Then scars of untreated lesions.

Chancroid
- Hemophylus Ducreyi
- Incubation: 1 day to few weeks (5-7 days)
- red papules that become ulcerative, painful

Inguinal granuloma
- Calymmatobacterium granulomatis
- incubation: 8 days to 12 weeks (30 days)
- subcutaneous nodules that become ulcerated to form granuloma, no pain, beet red ??

10. Vulvo-vaginitis

If vaginal discharge present, proceed to following tests:

- pH and KOH test (one drop KOH 10%, fishy odor)

pH <4.5 and KOH - normal or candida
pH >4.5 and KOH + bacterial vaginosis
pH >4.5 and KOH - trichomonas

- Fresh mount (one drop saline, microscope 400X)

trichomononas look for other STD
clue cells bacterial vaginosis
hyphes candida

Candida
white thick, itching discharge

Trichomonas vaginalis
- incubation:1-4 weeks
- foul smelling vaginal discharge, bullous secretions, yellow-green, pruritus (50%),
- dysuria (50%), more symptoms during menses, often asymptomatic in men

Bacterial vaginosis
pH > 4.5, KOH +, clue cells

11. PID (pelvic inflammatory disease)

Polymicrobial infection
If within 14 days after menses, more chances of Gonorrhea or Chlamydia

Consequences
- infertility after one mild episode: 6%
- infertility after one moderate episode: 13%
- increased chances of second PID
- ectopic pregnancy

Only 20% present classic symptoms: severe abdominal pain, fever and general malaise
80% abdominal pain, bilateral, constant or intermittent, soon after last menstruation, dyspareunia, dysmenorrhea
50% vaginal discharge
40% irregular bleeding
20% dysuria
Pain at mobilization of uterus or adnexal tissues
Diagnosis: 80% accurate if fever, adnexal mass and high blood sedimentation rate

12. Partners notification

Period to cover to decide which partners to contact

Chlamydia and gonorrhea
- symptomatic 30 days before symptoms
- asymptomatic 60 days before diagnosis

Hepatitis B
- symptomatic 6 months before symptoms
- asymptomatic actual and regular partners

Herpes and condyloma actual and regular partners

Syphilis
- primary 3 months before symptoms
- secondary 6 months before symptoms
- latent (<1 year) 1 year before diagnosis
- latent (> 1 year) long time partners and children

13. Treatment

Oral unless written IV or IM

One dose unless # of days written

Chlamydia	**First choice**	**Alternative**
	Azithromycine 1 gm	Tetracycline 500 mg, QID, 7 days
	Doxycycline 100 mg, BID, 7 days	Ofloxcacine 300 mg, BID, 7 days
pregnant	Erythromycine*	Amoxicillin

	500 mg, QID, 7 days	500 mg, TID, 7 days

* if intolerant to doses, use 250 mg QID, 14 days, or use ethylsuccinate erythromycin, 400 mg QID, 14 days

Gonorrhea	**First cho ice**	**Alternative**
	Ceftriaxone* 125 mg IM	Cefuroxim axetil, 1 gm Ciprofloxacin, 500 mg Ofloxacine,?? 400 mg
	Cefixime,* 400 mg	Spectinomycin, 2 gm IM
pregnant	Ceftriaxone* IM Cefixime,* 400 mg	

Always add treatment for chlamydia

* Not to be used in persons allergic to cephalosporins or with a major reaction to penicillin

Clinical syndrome with suspicion of STD (cervicitis, urethritis):

In women, if cervical discharge, cervical erythema, pus on swab test (pus on swab after insertion in cervix)

In men, if urethral muco-purulent discharge or dysuria, if > 4 leucocytes on gram, if leucocytes on first 10 cc morning urine,

Treat like chlamydia in association with gonorrhea (if prevalent)

Pelvic inflammatory disease	**First choice**	**Alternative**
Outpatient**	Ceftriaxone 250 mg IM and Doxycycline 100 mg, BID, 14 days	Cefixime 800 mg* Ciprofloxacin 500 mg* Ofloxacin,?? 400 mg* and Doxycycline 100 mg, BID, 14 days

**Treatment in outpatient only if can be reevaluated in 2-5 days.
****In adolescents, consider strongly inpatient treatment.**

In women <25 y.o., or with previous PID, or with IUD,
could add metronidazole, 500 mg, BID, 14 days.

*If gonorrhea suspected or proved, cefixime 400 mg, ciprofloxacin 500 mg or ofloxacin 400 mg should be given BID, 14 days

Inpatient

cefoxitin 2gm IV q. 6 hrs, or cefotetan 2gm IV q 12 hrs,
plus doxycycline 100 mg BID orally or IV.
This regimen is given at least 48 hrs after patient improves. Doxycycline is continued for 14 days.
Regimen if chlamydia is suspected.

or

clindamycine 900 mg IV q 8 hrs,
plus loading dose of gentamicin of 2 gm/kg IV followed by a maintenance dose of 1.5 gm/kg q 8 hrs.
This regimen is given at least 48 hrs after patient improves. Doxycycline is then given for 14 days.
Regimen if anaerobic ?? are suspected.

Condyloma

External — Laser, cautery
podofilox 0.5%, BID, 3 days
repeat 1/week for 4 weeks max.

podophyllin 10-25%
once a week, wash 1-4 hr after

Vagina or anus — cryotherapy
5 FU (vaginal)
trichloroacetic ac 25-50%, once /week

Trichomonas	**First choice**	**Alternative**
	metronidazole 2 gm	metronidazole 500 mg, BID, 7 days
pregnant	same after first trimester	

Herpes

First episode	acyclovir, 200 mg, 5 times /day, 7-10 days
proctitis	acyclovir, 400 mg, 5 times /day, 7-10 days
Recurring episode	acyclovir, 200 mg, 5 times /day, 5 days
Prevention of recurrence	acyclovir, 400 mg, BID, 6-12 months

Bacterial vaginosis	**First choice**	**Alternative**
	Metronidazole 500mg, BID,7 days	Metronidazole 2gm
pregnant	Clindamycin 300mg, BID, 7 days	Amoxyl/clavulin 500mg, TID, 7 days

14. Prevention

Sexual counselling
number of partners
relative risk with different types of sexual partners
relative risk of sexual practices
safe sexual practices

Counselling on condom, spermicide, contraception
choices, how to use

Counselling on drug, alcohol use (inhibit fears of STD)

Why condoms tear
date of expiration
conservation (too hot)
unsafe transport (trauma in back jeans pocket)
opening of envelop: tear by teeth, nails
reservoir not collapsed
lubricant: avoid margarine, oil, vaseline (petroleum gel)