Chlamydia Trachomatis

Background

1. Definition
   o Genitourinary infection
   o Common cause of bacterial STD in the US
   o Manifestations
     ▪ Asymptomatic (85-90%)
     ▪ Pelvic inflamnm disease (PID)
     ▪ Acute urethral syndrome
     ▪ Fitz-Hugh-Curtis syndrome (Perihepatitis)
     ▪ Septic arthritis
     ▪ Lymphogranuloma venereum

2. General information
   o Most frequent reported infectious disease in US
   o Untreated infections and complications
     ▪ Annual cost: > 2 billion
   o Screening recommendations
     ▪ USPSTF
       • All sexually active nonpregnant women ≤ 24 yo and older nonpregnant women at incr risk
       • All pregnant women ≤ 24 yo and older pregnant women at incr risk
       • If not at incr risk, do not routinely screen women ≥ 25 yo
       • Men: insufficient evidence to make screening recs
     ▪ CDC
       • Annual screen
         o Sexually active women ≤ 25 yo
         o >25 yo w incr risk factors
         o Men sexually active with men (MSM)
       • Men: if sexually active in high prevalence areas
         o Adolescent clinics
         o Correctional facilities
         o STD clinics

Pathophysiology

1. Pathology of disease
   o Infection of columnar epithelium of the genital tract

2. Incidence/prevalence
   o 1.2 million cases reported in US (2008)
   o 4.2% prevalence among young adults
   o Incidence rising
   o Race
     ▪ 8x in African Americans vs Caucasians

3. Risk factors
   o Age: < 25 yo
   o New/multiple sexual partner in last 3 months
o Inconsistent use barrier contraceptives
o Unmarried status
o History of STI
o Low SES or education not beyond high school

4. Morbidity/mortality
   o Untreated infection
     ▪ Women
       • PID
       • Assoc w/ 2/3 cases of tubal-factor infertility
       • Assoc w/ 1/3 cases of ectopic preg
       • Chronic pelvic pain
     ▪ Men
       • Reactive arthritis (Reiter's syndrome)
       • Epididymitis
   o Pregnancy-assoc adverse outcomes
     ▪ Preterm labor
     ▪ Premature rupture of membranes
     ▪ Low birth weight
     ▪ Neonatal death
     ▪ Postpartum endometritis
   o Neonatal infection
     ▪ 50-75% transmission rate in mothers w/ active infection
     ▪ Chlamydial conjunctivitis
       • 30-50% transmission rate in mothers who are chlamydia positive
     ▪ Nasopharyngeal infection
       • Develops in 50% of infants with conjunctivitis
     ▪ Chlamydia pneumonia
       • 30% of infants with nasopharyngeal infection

Diagnostics
1. History
   o Often asymptomatic
   o Women
     ▪ Lower genital tract infection
       • Dysuria
       • Abnormal vaginal discharge
       • Postcoital bleeding, dyspareunia
     ▪ Upper genital tract infection
       • Endometritis
       • Salpingitis
       • Irregular uterine bleeding
       • Abdominal / pelvic pain
   o Men
     ▪ Dysuria
     ▪ Urethral discharge
2. Physical examination
   o Pelvic exam
     • Cervix
       • Friable, erythematous
       • Mucopurulent discharge
       • Adnexal tenderness
   o Men: Urethral discharge, testicular tenderness

3. Diagnostic testing
   o Laboratory evaluation
     • Nucleic acid amplification test (NAAT) - preferred screening method
       • Antigen detection chlamydia DNA and RNA specific
       • Methods: PCR, LCR, transcription-mediated amplification of RNA
       • Sensitivity 80-91%
       • Specificity 94-100%
       • Gonorrhea and chlamydia simultaneous detection
     • Collection
       o Urine specimen
       o Endocervical / urethral swab
     • Endocervical tissue culture - not recommended
       • "Gold standard"
       • Lower sensitive assay
     • Direct Fluorescent antibody
     • Enzyme immunoassay (EIA)
     • Leukocyte esterase testing
     • Test both patients and partners
       • Gonorrhea, syphilis and HIV
     o Rescreen after successful treatment regimen
       • Women: 3-4 months
       • Pregnant: 3 months

Differential Diagnosis
1. N. gonorrhoea
2. Vaginitis
   o Trichomoniasis
   o Bacterial Vaginosis
   o Candidiasis
3. HSV
4. UTI
5. Non-gonococcal urethritis
   o Mycoplasma hominis
   o Ureaplasma urealyticum
   o Chemical exposure
Therapeutics

1. Acute treatment
   - Treat promptly w/ low threshold for institution of therapy
   - 95% cure rate
   - Treat assumed concomitant gonococcal inf
   - Same therapy for Sx and aSx pts
   - Recommended regimens
     - Azithromycin 1 g PO x1 or
     - Doxycycline 100 mg PO BID x 7d
   - Alternative regimens
     - Erythromycin base 500 mg PO QID x 7d ³ or
     - Erythromycin ethylsuccinate 800 mg PO QID x 7d ³ or
     - Ofloxacin 300 mg PO QID x 7d ³ or
     - Levofloxacin 500 mg PO QID x 7d ³
   - Pregnancy
     - Azithromycin 1 g orally (single dose)
     - Amoxicillin 500 mg PO TID x7d
     - Erythromycin base, 500 mg PO QID x7d
   - PID (out-patient)
     - Ofloxacin 400 mg PO BID x14d, or
       - Levofloxacin 500 mg PO qD x14d
       - +/- Metronidazole 500 mg PO BID x14d
     - Ceftriaxone 250 mg IM x1, or
       - Cefoxitin 2 g IM x1, plus probenecid 1 g PO, plus
         doxycycline 100 mg PO BID x14d
       - +/- Metronidazole 500 mg PO BID x14d
   - PID (in-patient)
     - Cefotetan 2 g IV q12hr, or cefoxitin 2 g IV q6hr, plus doxycycline
       100 mg PO/IV q12hr or
     - Clindamycin 900 mg IV q8hr, plus gentamicin 2 mg/kg loading dose
       IV, then 1.5 mg/kg q8hr (daily administration of a single dose may
       be substituted) or
     - Ampicillin/subactam 3 g IV q6h plus doxycycline 100 mg PO BID
       or IV q12h ³

2. Further management (> 24 hrs)
   - Sexual partners
     - Should be notified, examined, and treated for Chlamydia and other
       STDs
     - Gonorrhea, syphilis, HIV
     - Empiric tx of partners dx w/ chlamydia or GC using expedited
       partner therapy decr risk of persistent or recurrent inf in pt
   - To minimize reinfection: abstain sexual intercourse until all partners treated
     and until 7d after regimen
Follow-Up

1. Return to office
   - Indications for rescreening after treatment
     - Question compliance
     - Symptomatic
     - Suspect reinfection
     - Pregnancy
       - 3 wks- if using NAAT PCR or LCR
       - 2 wks- using antigen/antibody test
       - 1 wk - using culture medium

2. Admit to hospital
   - Suspect PID
   - "High risk" patient
     - Poor follow-up
     - Suspect compliance issues
     - Minor

Prevention

1. Consistent use of condoms lowers risk
2. Spermicide (nonoxynol 9) not effective
3. Diaphragm plus lubricant may not be effective
4. Counselling for risk reduction can help decr new STIs

Patient Education


Evidence-Based Inquiry

1. What are the most effective treatments for chlamydia during pregnancy?
2. What is the best treatment for chlamydia in pregnancy?
3. How does amoxicillin compare with other treatments for Chlamydia trachomatis cervicitis in pregnant women?
4. What is the best way to manage asymptomatic chlamydia in nonpregnant women?
5. Should sexual partners of patients with gonorrhea or chlamydia be treated empirically or tested first?
6. What other STI testing should we do for a patient with chlamydia?
7. Should you test or treat partners of patients with gonorrhea, chlamydia, or trichomoniasis?

References

3. Centers for Disease Control and Prevention. MMWR August 4, 2006 / Vol. 55 / No. RR--11

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