Obstetrics and HIV
An Update

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Obstetrics and HIV

• Perinatal transmission
• Testing
• Antiretroviral therapy
• Antepartum management
• Intrapartum management
• Postpartum management
Perinatal Transmission
Estimated Numbers of Perinatally Acquired AIDS Cases by Year of Diagnosis, 1985–2007—United States and Dependent Areas

Note: Data have been adjusted for reporting delays and missing risk-factor information.
Decrease Perinatal Transmission

- Universal screening
- Antiretroviral therapy
- Appropriate use of Cesarean delivery
- Bottle feeding
<table>
<thead>
<tr>
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<th>Risk</th>
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<tbody>
<tr>
<td>Antepartum</td>
<td>6-13 %</td>
</tr>
<tr>
<td>Intrapartum</td>
<td>12-26 %</td>
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<tr>
<td>Breast feeding</td>
<td>10-15 %</td>
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<tr>
<td>Cumulative</td>
<td>18-39 %</td>
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Perinatal Transmission

Viral load is primary determinant of perinatal transmission
HIV Testing
HIV Testing

• Past
  – Elisa: HIV antibodies
  – Confirmatory Western Blot

• Recommended
  – Fourth generation combined antibody/antigen
  – HIV-1/HIV-2 antibody differentiation immunoassay
Diagnosis of HIV Infection

![Graph showing the timeline and diagnostic tests for HIV infection.]

- **Anti-HIV Ab**
- **HIV p24 Ag**

**1st Gen. Ab Assay**
**3rd Gen. Ab Assay**
**p24 Ag Assay**
**4th Gen. Ag/Ab Assay**

**Window: 3-5 days**
**‘Sensitive’ Combo assays**
**HIV RNA vs HIV Provirus DNA**

**Min 3 d to resolve the pool**

1. Laboratories should conduct initial testing for HIV with an FDA-approved antigen/antibody combination immunoassay.

- (+) indicates a reactive test result.
- (-) indicates a nonreactive test result.

HIV-1 and HIV-2 antibodies and p24 Ag:
- (-) indicates negative for HIV-1 and HIV-2 antibodies and p24 Ag.

HIV-1/HIV-2 antibody differentiation immunoassay:
- HIV-1 (+) or HIV-2 (+) indicates indeterminate.
- HIV-1 (-) or HIV-2 (-) indicates negative.

HIV-1 antibodies detected:
- HIV-1 (+) indicates positive for HIV-1.
- HIV-1 (-) indicates negative for HIV-1.

HIV-2 antibodies detected:
- HIV-2 (+) indicates positive for HIV-2.
- HIV-2 (-) indicates negative for HIV-2.

HIV antibodies detected:
- HIV-1 NAT (+) indicates acute HIV-1 infection.
- HIV-1 NAT (-) indicates negative for HIV-1.

NAT: nucleic acid test.
Advantages of Algorithm

• Earlier diagnosis
  – P 24 antigen appears prior to antibodies
  – Earlier treatment

• Eliminates false negative and indeterminate Western blots

• Accurate diagnosis of HIV-2
  – Slower progression, less infectious
  – NNRTI not active
  – HIV-1 viral assays not accurate
  – No validated resistance testing
HIV Screening: Pregnant

- Universal screening first trimester
- Third trimester screening
  - Risk factors
    - Patient/partner uses injection drugs
    - Partner with HIV
    - Exchange sex for money or drugs
    - New/multiple partners
  - Prevalence greater than 1:1000
- Rapid screen if undocumented status at time of labor (24 hour availability, results within 1 hour)
Antiretroviral Therapy
Pregnancy and ART

• All pregnant women should receive combination ART regardless of viral load and CD4 level
• Transmission has been observed across the range of viral loads (including low and undetectable)
• Initiate as early in pregnancy as possible
• Goal: maintenance of undetectable viral load
Pregnancy and ART

• Administer at all points: antepartum, intrapartum, and postnatally to infant
• Antiretroviral Pregnancy Registry
• No increase in birth defects
• Possible small increase in preterm delivery (OR 1.2 to 3.4), but studies not comprehensively controlled
• Benefits outweigh risk
Pregnancy and ART

• Continue current ART regimen if viral suppression and well tolerated

• Initiation of ART
  – Two NRTIs
    +
  – PI or integrase inhibitor

• Insufficient suppression: resistance testing, adherence, drug interactions
Antepartum Management
Antepartum Management

• Hepatitis C, liver and renal function testing

• Ultrasound
  – First trimester for dating
  – Second trimester for anatomy

• No increased risk of transmission with amniocentesis in women on ARV

• Glucose screening 24-28 weeks (earlier if PI)

• Antepartum surveillance for usual obstetric indications
Laboratory Monitoring

- **Viral load**
  - Initial visit
  - 2-4 weeks after initiating or changing therapy
  - Monthly until undetectable then at least every 2 months
  - 36 weeks to assess mode of delivery
- **CD4**
  - Initial visit
  - At least every 3-6 months
- **Resistance testing (>1000 copies/mL)**
  - Prior to initiation of ART
  - Suboptimal viral suppression
Intrapartum Management
Intrapartum Management

- Continue antepartum ART during labor and delivery
- Intravenous ZDV
  - 2 mg/kg/hr load followed by 1 mg/kg/hr
  - Administered viral load > 1000 copies/mL
  - Not required viral load < 50 copies/mL
  - Consider viral loads 50-999 copies/mL
  - Administer 3 hours prior to C-section
- Cesarean delivery
  - 38 weeks viral load > 1000 copies/mL
  - 39 weeks for obstetric indications
Intrapartum Management

• Rapid HIV test if undocumented status
  – Available 24 hours, results within hour
  – Rapid HIV 1 / 2 antibody test
  – If positive initiate ZDV, order confirmatory test and HIV-1 RNA assay

• Women at term on ART with viral load <1000 copies/mL no association between duration of ruptured membranes and transmission

• Ruptured membrane <37 weeks
  – Administer steroids, deliver based on current obstetric practice
Intrapartum Management

• AROM in setting ARV and viral suppression not associated with transmission (avoid in setting of viremia)
• Avoid scalp electrodes
• Limited data on operative vaginal delivery
  – Potential risk of transmission
  – Likely no increased risk transmission in patients on ART and virally suppressed
Postpartum Management
Intrapartum Management

• Delayed cord clamping not contraindicated
• Methergine
  – Increased serum levels/vaso-constrictive response with protease inhibitors
  – Decreased serum levels/efficacy with nevaripine and efavirenz
Postpartum Management

• Newborn Treatment
  – All newborns should receive ART
  – Mothers on ART with viral suppression: ZDV x 4 weeks
  – Mothers not receiving ART or with viremia: combination therapy for 6 weeks
  – HIV testing birth, 4-6 weeks, 3 months, 6 months
  – HIV nucleic acid amplification until 18 months

• Breast feeding contraindicated
  – Neither infant nor maternal ART prophylaxis completely eliminates risk

• Contraceptive plan
Resources

National Perinatal HIV Hotline
1-888-448-8765

aidsinfo.nih.gov (DHHS Perinatal Guidelines)

Antiretroviral Pregnancy Registry
1-800-278-4263