Avoid toxicity for baby
Avoid maternal toxicity
Avoid compromising future maternal options
Aim for a normal vaginal delivery
Avoid HIV infection
Managing ART during pregnancy
Antiretroviral medication

WHAT ?

WHEN ?

DO YOU STOP OR CHANGE ANYTHING ?
Antiretroviral medication

WHAT ?

WHEN ?

DO YOU STOP OR CHANGE ANYTHING ?
BHIVA pregnancy guidelines
Women conceiving on HAART

• Women conceiving on effective ART should continue this even if it contains efavirenz or does not contain zidovudine

• Exceptions are:
  • Protease inhibitor monotherapy (intensify if possible)
  • The combination of stavudine and didanosine
Women not yet on HAART

• All pregnant women should start ART
• Women can take *temporary* HAART and stop after delivery
• *But* START study results in 2015 showing clinical benefit of HAART at all CD4 counts **NOW WHO recommendation**
• Over recent years *more* women continuing
Antiretroviral medication

WHAT?

WHEN?

DO YOU STOP OR CHANGE ANYTHING?
Which NRTIs?

• Abacavir/lamivudine (Kivexa)
  • Not if hepatitis B carrier/HIV VL>100,000/HLA +ve
• Tenofovir/emtricitabine (Truvada) or
• Tenofovir/lamivudine
  • NRTIs of choice if HBV +ve
• Zidovudine/lamivudine (Combivir)
  • Not if hepatitis B carrier/HIV VL>100,000/HLA +ve
Issues for the newly diagnosed pregnant woman

• Her own diagnosis
• Existing children
• Disclosing to partner/family
• Immigration issues
• Housing issues
• Breastfeeding
• Teenager
• IVDU
What about drug safety during pregnancy
### Antiretroviral Pregnancy Registry 1/89- 7/14: First Trimester Prospective Cases

<table>
<thead>
<tr>
<th>Antiretroviral</th>
<th>Rating</th>
<th>Cases/Exposures</th>
<th>% Birth Defect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamivudine</td>
<td>C</td>
<td>140/4485</td>
<td>3.3% (2.6-3.7)</td>
</tr>
<tr>
<td>Ritonavir</td>
<td>B</td>
<td>60/2542</td>
<td>2.4% (1.8-3.0)</td>
</tr>
<tr>
<td>Tenofovir</td>
<td>B</td>
<td>58/2330</td>
<td>2.3% (1.7-3.0)</td>
</tr>
<tr>
<td>Emtricitabine</td>
<td>B</td>
<td>41/1721</td>
<td>2.3% (1.6-3.2)</td>
</tr>
<tr>
<td>Lopinavir</td>
<td>B</td>
<td>29/1216</td>
<td>2.2% (1.6-3.4)</td>
</tr>
<tr>
<td>Nevirapine</td>
<td>B</td>
<td>23/993</td>
<td>2.9% (1.9-4.0)</td>
</tr>
<tr>
<td>Atazanavir</td>
<td>B</td>
<td>17/957</td>
<td>2.2% (1.4-3.3)</td>
</tr>
<tr>
<td>Abacavir</td>
<td>C</td>
<td>7/293</td>
<td>2.7% (1.0-4.9)</td>
</tr>
</tbody>
</table>

**Note:**
- **C** general birth defect surveillance
- **B** 1st trimester any ARV exposure
## Antiretroviral Pregnancy Registry 1/89- 7/14: First Trimester Prospective Cases

<table>
<thead>
<tr>
<th>Drug</th>
<th>Category</th>
<th>Cases</th>
<th>% Birth Defect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamivudine</td>
<td>C</td>
<td>140/4485</td>
<td>2.3% (2.6-3.7)</td>
</tr>
<tr>
<td>Ritonavir</td>
<td>B</td>
<td>60/2542</td>
<td>2.4% (1.8-3.0)</td>
</tr>
<tr>
<td>Tenofovir</td>
<td>B</td>
<td>53/2330</td>
<td>2.3% (1.7-3.0)</td>
</tr>
<tr>
<td>Emtricitabine</td>
<td></td>
<td></td>
<td>2.4% (1.7-3.2)</td>
</tr>
<tr>
<td>Lopinavir</td>
<td></td>
<td></td>
<td>2.2% (1.6-3.4)</td>
</tr>
<tr>
<td>Nevirapine</td>
<td></td>
<td></td>
<td>2.9% (1.9-4.0)</td>
</tr>
<tr>
<td>Atazanavir</td>
<td></td>
<td></td>
<td>2.2% (1.4-3.3)</td>
</tr>
<tr>
<td>Abacavir</td>
<td></td>
<td></td>
<td>2.9% (1.9-4.2)</td>
</tr>
<tr>
<td>Efavirenz</td>
<td></td>
<td></td>
<td>2.3% (1.4-3.6)</td>
</tr>
<tr>
<td>Darunavir</td>
<td></td>
<td></td>
<td>2.7% (1.0-4.9)</td>
</tr>
</tbody>
</table>

**RECOMMENDED**

- atazanavir + ritonavir
- or darunavir + ritonavir
- or efavirenz/nevirapine

**C general**

- tenofovir + emtricitabine
- or
- abacavir + lamivudine

**1st trimester any ARV**
Single tablet regimens (STR) in pregnancy

- Well tolerated single tablet regimens should be considered in pregnant women with adherence or tolerability issues
Antiretroviral medication

WHAT ?  WHEN ?

DO YOU STOP OR CHANGE ANYTHING ?
When should women start HAART in pregnancy?

- As soon as is practical
- Start around 14 weeks if viral load >30,000c/ml
- Start by minimum of 24 weeks at the latest if viral load <30,000c/ml
- Consider starting before 14 weeks if viral load >100,000c/ml
Late presenters

- Include an integrase inhibitor in the regimen of a woman who presents:
  - Late (>28 weeks)
  - In labour

- This will result in a more rapid fall in the viral load
Efficacy differences of raltegravir vs. efavirenz through week 48
Which is the safest way to deliver the baby?
Caesarean versus normal vaginal?

BHIVA guidelines 2008
Viral load and mode of delivery

- If VL <50 c/ml a vaginal delivery is recommended
- If VL > 400 c/ml a PLCS is recommended
- If VL 50-399 c/ml a PLCS should be considered taking into account:
  - the actual viral load,
  - the trajectory of the viral load,
  - length of time on treatment,
  - adherence issues,
  - obstetric issues
  - woman’s wishes.
Viral load and vaginal delivery

- UK: < 50c/ml
- France: (50-399*)
- USA: <400c/ml
- USA: <1000c/ml
Mode of delivery for diagnosed women UK 2000-2014

Year of delivery

- Vaginal
- Emergency CS
- Elective CS
Potential reasons for high rate of emergency Caesarean sections

- Women commencing HAART too late
  - Viral load not yet low enough at onset of labour
- Increased rate of pre-term birth in HIV
  - Viral load not yet low enough at onset of labour
- Concern about length of time membranes are ruptured
  - Data from pre-HAART era
- Concern about artificial rupture of membranes
  - Data from pre-HAART era
Results: term deliveries

MTCT rates by duration of ROM among term deliveries

<table>
<thead>
<tr>
<th>Duration of ROM</th>
<th>All term infants</th>
<th>Term infants with VL &lt;50c/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;4 hour</td>
<td>0.34% (3/892)</td>
<td>0.12% (1/809)</td>
</tr>
<tr>
<td>4 to &lt;24 hour</td>
<td>0.69% (5/726)</td>
<td>0.15% (1/655)</td>
</tr>
<tr>
<td>≥24 hours</td>
<td>0.00% (0/60)</td>
<td>0.00% (0/55)</td>
</tr>
<tr>
<td>Total</td>
<td>0.48% (8/1678)</td>
<td>0.13% (2/1519)</td>
</tr>
</tbody>
</table>

For women with VL<50: no significant difference in MTCT for ROM ≥4 hr v ROM<4hr OR: 1.14 (95% CI: 0.07, 18.27)
Obstetric issues

• Women with a viral load of <50c/ml can be managed from the obstetric point of view as if they are HIV negative

• No concerns regarding length of time of rupture of membranes in women with a viral load of <50c/ml *

• Perform artificial membrane rupture if clinically indicated

• No need to wash the baby

Infant Treatment

- Initiated within 4 hours of birth for 4 weeks
- Zidovudine monotherapy if all goes according to plan
- Triple therapy (zidovudine, lamivudine, nevirapine) if maternal viral load not fully suppressed and/or uncontrolled situation
- All infants vaccinated for hepatitis B
What about breast feeding?
Infant feeding recommendations

• Formula feeding is recommended

• But if a woman on HAART with a viral load <50c/ml wishes to breastfeed, she will be supported
  • Exclusive breastfeeding
  • As short a period as possible
  • Not longer than 6 months
  • Infant and mother require monthly follow up

BHIVA and CHIVA position statement – Infant feeding in the UK 2010
Aim for today – contraception/HIV

• What are the benefits and effectiveness?
• Which are the recommended types?
• What is the potential for increased risk of HIV acquisition, transmission, and progression?
• What is the potential for ARV drug interactions?
Aim for today – MTCT

• ARV medication
  • Do you stop or change any ARV?
  • What to start?
  • When to start?

• Which is the safest way to deliver the baby?
• What about breast feeding?
Discussion and questions?