HIV Prevention in Serodiscordant Couples

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Background

• Sub-Saharan Africa
  – Three quarter of adults are in cohabiting relationships
  – Up to half of HIV-infected in stable relationships have an HIV negative partner

• Knowledge of HIV status is still low
  – 37.5% among males and 52.6% among females in 2012 in South Africa

Couples HIV counselling and testing

- HIV prevention – increased condom use
- PMTCT and decrease in HIV infected infants
- Safer conception
- Increased uptake and adherence to family planning services
- Increased psychosocial support
- Marital cohesion and decrease in IPV
- Increased uptake and adherence to ART

CHCT
Treatment as Prevention

• HPTN 052: Reduction in HIV transmission of 96% in serodiscordant couples with early ART in the HIV-infected partner\(^1\)
• Most effective single strategy in reducing HIV transmission risk
• ART is a recommended intervention for the HIV-infected partner regardless of CD4 count

Does ART eliminate transmission risk?

- Review of studies in **virally suppressed** patients estimated the lifetime risk of HIV transmission to be approximately 1 in 204 to 1 in 50 (i.e. 2–5%; which is equivalent to 1% risk per 10 years of relationship and sexual activity).¹
- Per-act risk of heterosexual HIV transmission <13:100 000²
- Small transmission risks per sex act translate into substantial cumulative probability of HIV transmission over time³

<table>
<thead>
<tr>
<th>With ART for positive partner</th>
<th>1 year transmission risk</th>
<th>10 year transmission risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heterosexual couples</td>
<td>0,2%</td>
<td>2%</td>
</tr>
<tr>
<td>Male couples</td>
<td>3%</td>
<td>25%</td>
</tr>
</tbody>
</table>

3. Lasry et al. AIDS 2014, 28:1521-1529
Does ART eliminate transmission risk?

- HIV transmission in serodiscordant couples varies substantially
  - Type and frequency of sexual activity
- Trial studies may overestimate real life effectiveness of Treatment as Prevention
- Adherence to treatment and viral load of infected partner
  - Viral suppression 12months on ART in LMIC was 84%¹
  - Of patients attending a safer conception service in South Africa only 47% were virally suppressed on treatment²

Condoms

- Consistent condom use reduces HIV transmission by 80% compared to non use

<table>
<thead>
<tr>
<th></th>
<th>1 year transmission risk</th>
<th>10 year transmission risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heterosexual couples,</td>
<td>1%</td>
<td>11%</td>
</tr>
<tr>
<td>condoms only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterosexual couples,</td>
<td>0,05%</td>
<td>0,5%</td>
</tr>
<tr>
<td>condoms plus ART</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male couples, condoms</td>
<td>13%</td>
<td>76%</td>
</tr>
<tr>
<td>only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male couples, condoms</td>
<td>1%</td>
<td>6%</td>
</tr>
<tr>
<td>plus ART</td>
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</tbody>
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Lasry et al. AIDS 2014, 28:1521-1529
Male Medical Circumcision

• Reduces risk of HIV acquisition by 54% in the HIV-uninfected male partner
• Adds additional preventative benefit if the male partner is negative
Pre Exposure Prophylaxis (PrEP)

- Daily use of ARVs in HIV-uninfected partner to prevent HIV transmission
- Daily, oral TDF 300mg + FTC 200mg (Truvada)
- Recommended for individuals at substantial risk of HIV acquisition
- Adherence is critical to PrEP efficacy
- Reduction in risk of HIV acquisition 44% (iPrEx), 63% (TDF2) and 75% (Partners PrEP)
- Futility in two other large trials
- Possible additional intervention for the uninfected partner

## Summary of HIV Prevention Options

<table>
<thead>
<tr>
<th>HIV-infected partner</th>
<th>HIV-uninfected partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>STI diagnosis and treatment</td>
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</tr>
<tr>
<td>Condoms</td>
<td>Condoms</td>
</tr>
<tr>
<td>Antiretroviral Therapy</td>
<td>Male Medical Circumcision (MMC)</td>
</tr>
<tr>
<td></td>
<td>Pre Exposure Prophylaxis (PrEP)</td>
</tr>
</tbody>
</table>
Conclusion

- HIV serodiscordancy is common
- Cumulative risk of HIV transmission over time
- HIV Prevention strategies are essential in this population
- Adherence to interventions is critical
- Combination of preventative strategies in consultation with the couple