Trichomonas vaginalis risk and cofactors in pregnant/postpartum Kenyan women

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for the Mama Salama Study Team

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Disclosures

• No conflicts of interest to declare

T. vaginalis infection


• Unclear epidemiology in pregnancy/postpartum

Aims

• Estimate T. vaginalis prevalence and incidence in pregnant/postpartum HIV-uninfected women
• Determine cofactors for incident T. vaginalis infection

Methods

• Design: Prospective
• Setting: 2 facilities in Western Kenya
• Population: HIV-uninfected >14 years old; >14 weeks gestation

[Graph showing weeks of gestation and postpartum]
**Statistical analysis**

- **Incident infections**
  - Excludes women with prevalent *T. vaginalis* at enrollment
  - Excludes recurrent infection

- **Cox proportional hazards models**
  - Time-to-first-event
  - Adjustment for cofactors (alpha = 0.10) in univariate

**Results**

1,271 (97% of total study population)
Excl. HIV seroconverters (n=25); no *T. vaginalis* assessment (n=8)

- **Median**
  - Age 22 years (IQR 19-27)
  - Gestational age 22 weeks (16-26)
  - Follow up time 0.9 years (IQR 0.8-1.1)

- **Frequency**
  - 78% married
  - 55% reported condomless sex
  - 9% other curable STIs

**Cofactors for incident *T. vaginalis***

<table>
<thead>
<tr>
<th>Cofactor</th>
<th>Incidence rate (per 100 person-years)</th>
<th>Adjusted Hazard Ratio (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy (vs postpartum)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postpartum Pregnant</td>
<td>4.6 (Ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other curable STIs (vs none)</td>
<td>7.2 (Ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crowded living (vs uncrowded)</td>
<td>6.8 (Ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;3 people/room</td>
<td>10.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed (vs unemployed)</td>
<td>9.3 (Ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circumcised partner (vs uncirc)</td>
<td>6.8 (Ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncircumcised male partner</td>
<td>4.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circumcised male partner</td>
<td>8.8</td>
<td></td>
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</tr>
</tbody>
</table>

**T. vaginalis incidence**

7.8 (95% CI 6.3-9.6) per 100 person-years

<table>
<thead>
<tr>
<th>Pregnancy</th>
<th>Postpartum</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.3 (95% CI 16.6-29.9) per 100 person-years</td>
<td>4.6 (95% CI 3.4-6.2) per 100 person-years</td>
</tr>
</tbody>
</table>

**Cofactors for incident *T. vaginalis***

<table>
<thead>
<tr>
<th>STI</th>
<th>Incidence rate (per 100 person-years)</th>
<th>Adjusted Hazard Ratio (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syphilis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>7.6 (Ref)</td>
<td>3.91 (1.00-15.20)</td>
<td>0.049*</td>
</tr>
<tr>
<td>Yes</td>
<td>30.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. trachomatis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>7.7 (Ref)</td>
<td>2.05 (0.78-5.36)</td>
<td>0.143</td>
</tr>
<tr>
<td>Yes</td>
<td>16.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N. gonorrhoeae</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>7.6 (Ref)</td>
<td>1.40 (0.56-3.46)</td>
<td>0.468</td>
</tr>
<tr>
<td>Yes</td>
<td>10.8</td>
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</tbody>
</table>
Main findings & Implications

- Appreciable incidence, frequently asymptomatic
  - 72-88% of peripartum infections asymptomatic (Kurewa 2010; Moodley 2015)
- Increased incidence in pregnancy, with other STIs
- Reduced incidence with male partner circumcision
  - adjPRR 0.52 (95% CI 0.05-0.98) (Gray 2009)
  - adjHR 1.05 (95% CI 0.80-1.36) (Turner 2008)

Limitations

- Wet mount – low sensitivity
  - Prevalence/incidence likely underestimated (Garber et al 2005)
- Women-reported male partner characteristics
  - Potential over-reporting of male circumcision (Hewett et al 2012)
  - <10% misreport male partner circumcision status (Kong et al 2013)

Conclusions

- Incidence of T. vaginalis was common, higher in pregnancy
- Improved detection of asymptomatic infections is needed
- Male circumcision may confer benefits for female partners against T. vaginalis infection

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