The Aetiology of Genital Ulcer Disease and Association with HIV Infection in Zimbabwe

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This project was approved by the Medical Research Council of Zimbabwe

Background

- In resource-constraint countries like Zimbabwe, sexually transmitted infections (STI) are treated syndromically.
- Periodic surveys are necessary to determine current etiology of most prevalent STI syndromes, including genital ulcer disease (GUD).
- Findings from aetiological studies inform the development of STI syndromic treatment guidelines.

Objectives

To determine the etiology of genital ulcer disease (GUD) among men and women with this condition in a regionally diverse sample of clinics in Zimbabwe and assess the association with HIV infection in this population.

Methods

- Between June 2014 and April 2015, a mobile team recruited 600 men and women with STIs in 6 clinics:
  - Harare
  - H-1 (N=157)
  - H-2 (N=55)
  - Bulawayo
  - B-1 (N=106)
  - B-2 (N=105)
  - Beitbridge
  - D-1 (N=166)
  - Gutu (N=11)
  - G-1

  The following patients were enrolled:
  - 200 women with vaginal discharge*
  - 200 men with urethral discharge*
  - 200 men and women with GUD

  Demographic, and STI/sexual history data were collected using a standardized questionnaire and entered in an online database.

  Specimens collected:
  - Blood (all patients)
  - Urethral Smears (Men)
  - Urine (men with GDS)
  - Vaginal Smears (women)
  - Vaginal swabs (women with GDS)

  All specimens were shipped by courier to the study receiving laboratory in Harare (ZCHIRE)

Results

- Genital Ulcer Disease - Multiplex PCR Results

  - 200 Men and 200 Women with GUD
    - HSV: 68 (34%)
    - T. pallidum: 30 (15.5%)
    - F. tularensis: 23 (11.5%)
    - C. trachomatis (LGV): 2 (1%)
    - 1 co-infected with Tp
    - H. ducreyi: 0
    - None: 98 (49%)
    - Of those with pathogens detected (n=102)
      - HSV: 56.6%
      - Tp: 22.5%
      - C. trachomatis (LGV): 1.9%

- Distribution of Multiplex PCR Results by Clinic

  Multiplex PCR results varied significantly (p<0.05) by recruitment clinic with lower rates of HSV at the Harare clinics

- Distribution of Multiplex PCR Results by HIV Status

  Multiplex PCR results varied significantly (p<0.01) by HIV status.

  HSV rates were 51.6% for persons with HIV infection compared to 25.6% for those uninfected with HIV

Predictors of HSV Infection – Multivariate Analysis

<table>
<thead>
<tr>
<th>Predictor</th>
<th>AOR</th>
<th>95% C.I.</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV+</td>
<td>3.3</td>
<td>1.7 - 6.4</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Harare Sites</td>
<td>0.3</td>
<td>0.2 - 0.7</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>0.5</td>
<td>0.2 - 1.1</td>
<td>0.09</td>
</tr>
<tr>
<td>Chlamydia</td>
<td>0.3</td>
<td>0.1 - 1.1</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Funding

This project has been supported by the President’s Emergency Plan for AIDS Relief (PEPFAR) through Cooperative Agreement between the Centers for Disease Control and Prevention and the University of Zimbabwe Department of Community Medicine SEAM Project under the terms of Cooperative Agreement Number: 1U02GH003315-01

Conclusions

- HSV infection was the most common cause of GUD in this sample followed by primary syphilis
- No cases of H. ducreyi infection found
- The association of HSV infection with HIV infection and the negative association with gonorrhea and chlamydia suggests a subgroup of patients with GUD experiencing a recurrence of a symptomatic HSV outbreak related to their HIV status rather than a recently acquired infection
- The lower rates in the Harare clinics will be further investigated

The Zimbabwe STI Aetiology Study

More Information and Poster Copies:

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Results of the GDS aetiology analyses are presented in Poster 09.23