Latest Findings From the Zimbabwe STI Etiology Study

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Collaboration

- Zimbabwe Ministry of Health and Child Care
- University of Zimbabwe, Department of Community Medicine
- President’s Emergency Plan for AIDS Relief
Zimbabwe STI Aetiology Study
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Background

• In resource-constraint countries like Zimbabwe, sexually transmitted infections (STIs) are treated syndromically.

• Periodic surveys are necessary to determine current etiology of most prevalent STIs:
  – Genital discharge syndromes (GDS)
    • Vaginal discharge syndrome (F)
    • Urethral discharge syndrome (M)
  – Genital ulcer disease (GUD)

• Findings from etiologic studies inform the development of STI syndromic treatment guidelines.
MANAGEMENT OF SEXUALLY TRANSMITTED INFECTIONS AND REPRODUCTIVE TRACT INFECTIONS IN ZIMBABWE

A Guide to Essential Practice

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Syndromic STI Management

Discharge Syndromes
Treatment covers:
• *N. gonorrhoea*  
  – Ceftriaxone or Kanamycin
• *C. trachomatis*  
  – Doxycycline or Azithromycin
• *T. vaginalis* (F)  
  – Metronidazole
• *Bacterial vaginosis* (F)  
  – Metronidazole

Genital Ulcer Disease
Treatment covers:
• *T. pallidum*  
  – Benzathine penicillin G
• *H. ducreyi*  
  – Erythromycin
• Herpes simplex virus  
  – Acyclovir
Zimbabwe: STI Burden - 2012

• Syndromic reporting
  – Women with vaginal discharge: 90,000
  – Men with urethral discharge: 50,000
  – Men and women with genital ulcer disease: 50,000
  – Pelvic Inflammatory disease: 40,000
  – Other STI’s: 60,000
  – Total reported burden: 290,000
Symptomatic and Reported

Asymptomatic and/or Unreported
Objectives

- To determine the etiology of STI syndromes among a sample of men and women presenting with STIs in a regionally diverse sample of clinics in Zimbabwe
- To explore the association between STI syndromes, their etiologic agents, and HIV infection in this population
Methods

Populations and Venues

• 600 patients presenting with STI syndromes:
  – 200 women with vaginal discharge
  – 200 men with urethral discharge
  – 200 men or women with genital ulcer disease

• Patients were recruited at 6 clinics:
  – Harare: Mbare and Budiriro clinics
  – Bulawayo: Nkulumane and Khami Road clinics
  – Beitbridge: Dulbadzimu clinic
  – Gutu: Gutu Road clinic
Methods

• Mobile team of 3 trained nurses visited clinics sequentially to enroll patients and collect:
  • Questionnaire data
    – Demographics
    – STI/HIV history
    – Risk behaviors
  • Blood samples for
    – HIV Serology (all patients)
    – Syphilis serology (all patients)
  • Specimens
    – Smear for Gram stain (male and female discharge)
    – Urine (all men)
    – Vaginal swab (all women, regardless of symptoms)
    – Ulcer swab (men and women with genital ulcer disease)
Laboratory Tests

• **All Patients**
  – ProbeTec (Becton Dickenson)
    • *N. gonorrhoeae*
    • *C. trachomatis*
  – GeneXpert (Cepheid)
    • *N. gonorrhoeae*
    • *C. trachomatis*

• **Men and women with genital discharge syndromes**
  – Multiplex PCR
    • *N. gonorrhoeae*
    • *C. trachomatis*
    • *M. genitalium*
    • *T. vaginalis*
Laboratory Tests

• Genital Ulcer Disease
  – Multiplex PCR
    • *T. pallidum*
    • *H. ducreyi*
    • *C. trachomatis (LGV)*
    • *Herpes simplex virus (HSV)*
Laboratory Tests

• HIV Serology – Rapid Test
  – Determine
  – First Response (if Determine positive)
  – Chembio (tie-breaker)

• Syphilis Serology
  – Treponemal: SD Bioline DUO (rapid)
  – Non-treponemal: RPR
Results
Enrollment (N=590)
### Aetiology of Male and Female Discharge Syndromes (N=137)

<table>
<thead>
<tr>
<th>Source</th>
<th>Male Discharge</th>
<th>Female Discharge</th>
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<tbody>
<tr>
<td>N. gonorrhoeae</td>
<td>60.3%</td>
<td></td>
</tr>
<tr>
<td>C. trachomatis</td>
<td>18.8%</td>
<td>13.2%</td>
</tr>
<tr>
<td>T. vaginalis</td>
<td>8.7%</td>
<td>4.4%</td>
</tr>
<tr>
<td>M. genitalium</td>
<td>14.5%</td>
<td></td>
</tr>
<tr>
<td>BV</td>
<td>2.9%</td>
<td>7.2%</td>
</tr>
<tr>
<td>Yeast</td>
<td>31.9%</td>
<td>20%</td>
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</table>
Aetiology of Male and Female Genital Ulcer Disease (N=70)

- HSV
- T. pallidum
- C. trachomatis
- H. ducreyi

<table>
<thead>
<tr>
<th></th>
<th>Male GUD</th>
<th>Female GUD</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSV</td>
<td></td>
<td>15%</td>
</tr>
<tr>
<td>T. pallidum</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>C. trachomatis</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>H. ducreyi</td>
<td></td>
<td>3%</td>
</tr>
</tbody>
</table>
HIV Prevalence Among Patients with STI Syndromes

Dr. Mungati will present detailed analyses on Thursday, 16:30 session
Treponemal and Non-treponemal Test Results by Syndrome

![Bar Chart]

- **GDS**: Treponemal 6, Non-treponemal 4
- **GUD**: Treponemal 22, Non-treponemal 22
Gonorrhea and Chlamydia Rate by STI Syndrome (N = 302)
Summary

- Most (60%) of male genital discharge syndromes caused by gonorrhea
- Most (65%) of female genital discharge caused by BV, Yeast, and trichomoniasis
- Gonorrhea more common than chlamydia among all STI syndromes, including GUD
- HSV and syphilis most common causes of genital ulcer disease; no chancroid found
- Gonorrhea and chlamydia common among patients with GUD and more common among women with GUD than women with discharge
- HIV prevalence high (>30%) among all patients with STU syndromes
Limitations

• Testing not complete
• Results limited to patients from Harare and Bulawayo
• Only patients with symptomatic STIs studied
• Selection of patients in clinics that provide HIV care could have resulted in over-sampling of HIV-infected patients
Conclusion

• Our data raise concerns about the appropriateness of syndromic management, particularly among patients with genital ulcer disease