



The Aetiology of Genital Discharge Syndromes in Zimbabwe

Machiha A¹, Mugurungi¹, Tshimanga M², Kilmarx P³, Mungati M¹, Nyakura J¹, Shambira G², Gonese E³, Herman-Roloff A³, Kupara V⁴, Lewis D⁵, Handsfield H⁶, Rietmeijer C⁷

¹Ministry of Health and Child Care, Zimbabwe, ²University of Zimbabwe Department of Community Medicine

³Centers for Disease Control and Prevention, Harare, Zimbabwe, ⁴ZiCHIRE, Harare Zimbabwe

⁵The University of Sydney, Western Sydney Sexual Health, Sydney, Australia

⁶University of Washington, Seattle, USA, ⁷Rietmeijer Consulting, Denver, USA

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 discharge syndromes (GDS).
- Findings from aetiological studies inform the development of STI syndromic treatment guidelines.

Objectives

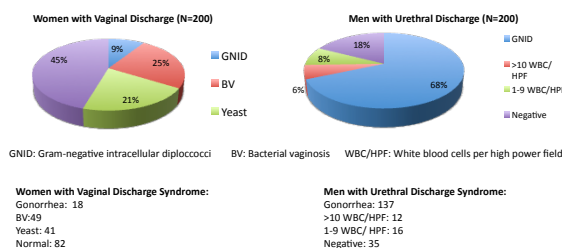
To determine the etiology of GDS among men (urethral discharge) and women (vaginal discharge) presenting with these conditions in a regionally diverse sample of clinics in Zimbabwe.

Methods

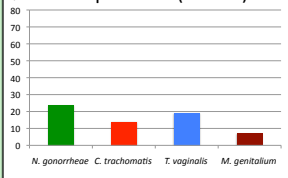
- Between June 2014 and April 2015, a mobile team recruited 400 men and women with GDS in 6 clinics:
 - Harare
 - H-1 (N=157)
 - H-2 (N=55)
 - Bulawayo
 - B-1 (N=106)
 - B-2 (N=105)
 - Beitbridge
 - D-1 (N=166)
 - Gutu
 - G-1 (N=11)
- The following patients were enrolled:
 - 200 women with vaginal discharge
 - 200 men with urethral discharge
 - 200 men and women with genital ulcer disease (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 (ZiCHIRE)

Results

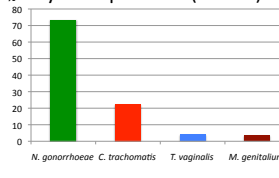
Gram Stain Results



Aetiology of Vaginal Discharge syndrome by Multiplex PCR (N=200)



Aetiology of Male Urethral Discharge Syndrome by Multiplex PCR (N=200)



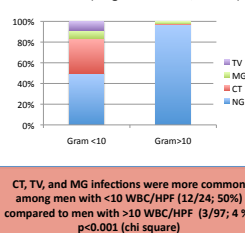
Aetiology of Female Discharge

- Single infection: 62 (31%)
 - NG: 24
 - CT: 9
 - TV: 21
 - MG: 8
- Dual infections: 18 (9%)
 - NG+CT: 7
 - NG+TV: 6
 - CT+MG: 3
 - NG+MG: 1
 - TV+MG: 1
- 3 infections: 10 (5%)
 - NG+CT+TV: 9
 - NG+MG+TV: 1
- 4 infections: None
- No infection: 110 (55%)

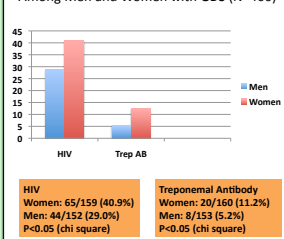
Aetiology of Male Discharge

- Single infection: 121 (60.5%)
 - NG: 106
 - CT: 9
 - TV: 2
 - MG: 4
- Dual infections: 40 (20%)
 - NG+CT: 34
 - NG+TV: 4
 - NG+MG: 1
 - TV+MG: 1
- 3 infections: 2 (1%)
 - NG+CT+TV: 1
 - NG+CT+MG: 1
- 4 infections: None
- No infection: 37 (18.5%)

Male GDS Aetiology in Relation to Gram Stain Results (Single Infections; N=121)



Prevalence of HIV and Treponemal Antibodies Among Men and Women with GDS (N=400)



Laboratory Tests

- Genital Discharge Syndromes:
 - Probetec (Becton Dickinson)
 - C. trachomatis and N. gonorrhoeae
 - Xpert CT/NG (Cepheid)
 - C. trachomatis and N. gonorrhoeae
 - Multiplex polymerase chain reaction (M-PCR, NICD*)
 - C. trachomatis
 - N. Gonorrhoeae
 - T. vaginalis
 - M. genitalium
- Genital Ulcer Disease:
 - M-PCR (NICD*)
 - T. pallidum
 - H. ducreyi
 - Herpes simplex virus (HSV)
 - C. trachomatis (LGV strains)
- HIV Serology
 - First Response
 - Determine
- Syphilis Serology
 - Treponemal: SD Bioline
 - Non-treponemal: RPR

* National Institute of Communicable Diseases, Johannesburg, South Africa

Conclusions

- Gonorrhea was the most common cause of male genital discharge syndrome, followed by chlamydial infections
- Bacterial vaginosis and yeast infections were the most common causes of female genital discharge syndromes
- The aetiological distribution among men with genital discharge was significantly different among men with lower white blood cell counts on Gram stain
- HIV prevalence was high across STI syndromes

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: 1U2GGH000315-01



The Zimbabwe STI Aetiology Study
More Information and Poster Copies:
Kees Rietmeijer, MD, PhD
kees@rietmeijer.us