

Point-of-care ultrasonography for *S. haematobium* associated urinary tract morbidity evaluation in the adult population of Mozambique

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Introduction

- Ultrasound is the most widely used tool for the assessment of schistosomiasis structural urinary tract complications.
- The World Health Organisation's Niamey ultrasound protocol has been used since 1996.
- Point-of-care ultrasound (POCUS) aims to use ultrasound performed at the patient's bedside to answer objective clinical questions.

Objective

- ✓ Describe POCUS findings based on a modified Niamey protocol and assess how structural abnormalities identified by ultrasound were associated with the detection of *S. haematobium* infection.

Methods

- Cross-sectional study conducted between April and October 2018 at the Chókwè Health Research and Training Center.
- Two-stage cluster sampling (30x30) = 570 random households.
- Development a simplified POCUS ultrasound protocol for the classification of urinary tract *S. haematobium* associated findings.
- All individuals aged 15 years or older living in the household were invited for a real-time field POCUS urinary tract ultrasound.
- Infection determined by urine filtration and microscopic identification of *S. haematobium* eggs and/or DNA detection.

Results

- The overall prevalence of urinary tract abnormalities was 37.9% (95% CI 34.8%-41.2%) of which 14.5% were positive for *S. haematobium*.
- Risk factors for an urinary tract ultrasound abnormality:
 - Being born in Chókwè district (p=0.007, aOR 0.608, 95% CI 0.423-0.875).
 - Reporting lower abdominal pain (p=0.017, aOR 1.599, 95% CI 1.089-2.349).
- Of the 912 ultrasounds performed:
 - 23.1% has a renal pelvis diameter ≥ 2mm
 - 20.4% had a ureter diameter > 3mm
 - 11.6% had a bladder wall thickening ≥ 5mm
 - 0.3% had an echogenic foci inside the bladder
- Of the 244 ultrasound images reviewed by an expert, Cohen's Kappa interobserver agreement was substantial for bladder (0.65) and ureters (0.78) and moderate for renal pelvis (0.59).

Conclusion

- ✓ The Niamey protocol in its current form is too complex to allow average clinicians to use it quickly and easily in daily practice. A revised protocol that accounts for lower level of infections would be helpful to standardize population screening for anatomical abnormalities from schistosomiasis.



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