

## Publication

### Accuracy of urine circulating cathodic antigen (CCA) test for *Schistosoma mansoni* diagnosis in different settings of Côte d'Ivoire

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**BACKGROUND:** Promising results have been reported for a urine circulating cathodic antigen (CCA) test for the diagnosis of *Schistosoma mansoni*. We assessed the accuracy of a commercially available CCA cassette test (designated CCA-A) and an experimental formulation (CCA-B) for *S. mansoni* diagnosis. **METHODOLOGY:** We conducted a cross-sectional survey in three settings of Cote d'Ivoire: settings A and B are endemic for *S. mansoni*, whereas *S. haematobium* co-exists in setting C. Overall, 446 children, aged 8-12 years, submitted multiple stool and urine samples. For *S. mansoni* diagnosis, stool samples were examined with triplicate Kato-Katz, whereas urine samples were tested with CCA-A. The first stool and urine samples were additionally subjected to an ether-concentration technique and CCA-B, respectively. Urine samples were examined for *S. haematobium* using a filtration method, and for microhematuria using Hemastix dipsticks. **PRINCIPAL FINDINGS:** Considering nine Kato-Katz as diagnostic 'gold' standard, the prevalence of *S. mansoni* in setting A, B and C was 32.9%, 53.1% and 91.8%, respectively. The sensitivity of triplicate Kato-Katz from the first stool and a single CCA-A test was 47.9% and 56.3% (setting A), 73.9% and 69.6% (setting B), and 94.2% and 89.6% (setting C). The respective sensitivity of a single CCA-B was 10.4%, 29.9% and 75.0%. The ether-concentration technique showed a low sensitivity for *S. mansoni* diagnosis (8.3-41.0%). The specificity of CCA-A was moderate (76.9-84.2%); CCA-B was high (96.7-100%). The likelihood of a CCA-A color reaction increased with higher *S. mansoni* fecal egg counts (odds ratio: 1.07,  $p > 0.001$ ). A concurrent *S. haematobium* infection or the presence of microhematuria did not influence the CCA-A test results for *S. mansoni* diagnosis. **CONCLUSION/SIGNIFICANCE:** CCA-A showed similar sensitivity than triplicate Kato-Katz for *S. mansoni* diagnosis with no cross-reactivity to *S. haematobium* and microhematuria. The low sensitivity of CCA in our study area precludes its use for *S. mansoni* diagnosis

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