Accuracy of urine circulating cathodic antigen test for the diagnosis of Schistosoma mansoni in preschool-aged children before and after treatment

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The Kato-Katz technique is widely used for the diagnosis of Schistosoma mansoni, but shows low sensitivity in light-intensity infections. We assessed the accuracy of a commercially available point-of-care circulating cathodic antigen (POC-CCA) cassette test for the diagnosis of S. mansoni in preschool-aged children before and after praziquantel administration.; A 3-week longitudinal survey with a treatment intervention was conducted in Azaguié, south Côte d'Ivoire. Overall, 242 preschoolers (age range: 2 months to 5.5 years) submitted two stool and two urine samples before praziquantel administration, and 86 individuals were followed-up posttreatment. Stool samples were examined with duplicate Kato-Katz thick smears for S. mansoni. Urine samples were subjected to POC-CCA cassette test for S. mansoni, and a filtration method for S. haematobium diagnosis.; Before treatment, the prevalence of S. mansoni, as determined by quadruplicate Kato-Katz, single CCA considering 'trace' as negative (t-), and single CCA with 'trace' as positive (t+), was 23.1%, 34.3% and 64.5%, respectively. Using the combined results (i.e., four Kato-Katz and duplicate CCA(t-)) as diagnostic 'gold' standard, the sensitivity of a single Kato-Katz, a single CCA(t-) or CCA(t+) was 28.3%, 69.7% and 89.1%, respectively. Three weeks posttreatment, the sensitivity of a single Kato-Katz, single CCA(t-) and CCA(t+) was 4.0%, 80.0% and 84.0%, respectively. The intensity of the POC-CCA test band reaction was correlated with S. mansoni egg burden (odds ratio = 1.2, p = 0.04). CONCLUSIONSSIGNIFICANCE: A single POC-CCA cassette test appears to be more sensitive than multiple Kato-Katz thick smears for the diagnosis of S. mansoni in preschool-aged children before and after praziquantel administration. The POC-CCA cassette test can be recommended for the rapid identification of S. mansoni infections before treatment. Additional studies are warranted to determine the usefulness of POC-CCA for assessing drug efficacy and monitoring the impact of control interventions.

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