

## **Evaluation of urine Point-Of-Care Circulating Cathodic Antigen test (POC-CCA) for detection of *Schistosoma mansoni* infection before and after treatment in a low endemic area in Northeast of Brazil**

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Currently, schistosomiasis is still a public health problem in Brazil. The Kato-Katz is the most used diagnostic method for *Schistosoma mansoni* infection. However, it lacks sensitivity in low transmission zones. We have assessed the prevalence of *S. mansoni* infection by use of a urine point-of-care test for determination of circulating cathodic antigens (POC-CCA), and compared the findings with those of the Kato-Katz technique for egg detection in stool before and one and two years post-treatment. Additionally, POC-CCA strips were utilized for testing follow-up urine samples from 3 and 6 weeks after treatment. The study was carried out in Bananeiras community located in Capistrano city, Ceará, Brazil. Overall, 258 individuals were investigated at baseline. Among them 45.7% (n=118) were men and the median age was 30 years (age range 2-87 years). The POC-CCA test detected 30 (11.6%) and 10 (3.9%) CCA positives, considering trace readings as positive (t+) or negative (t-), respectively. The Kato-Katz technique revealed only four positive stool samples (1.6%). The agreements observed between POC-CCA and the (triplicate) Kato-Katz were poor (Kappa indexes < 0.20). There was no association between infection and sex (19 females vs. 14 males; p=0.683). Highest prevalences as determined by CCA or Kato-Katz were found in older age groups (20-39 years). Among the 128 individuals re-examined at three and six weeks posttreatment by a single urine CCA (t+) test, 5 (3.9%) and none tested positive, respectively. Of the 28 cases treated only on the basis of POC-CCA positivity (egg-negative), 100% became CCA-negative at 6-weeks after treatment, being 26 (93%) already at 3-weeks after treatment. These latter data suggest that the trace at baseline are probably to be positive results. One year posttreatment, of the 175 individual evaluated by the triplicate Kato-Katz thick smears and POC-CCA test, just one (0.6%) was 'trace' for *Schistosoma* CCA and all individuals were negative for microscopic examination. Similarly, all individuals were negative by the triplicate Kato-Katz thick smears again and eleven (5.9%) of the 185 individuals evaluated were 'trace' by POC-CCA test at two years posttreatment. Our results indicate that a single POC-CCA test detects a greater number of infected cases than the Kato-Katz technique for the diagnosis of *S. mansoni* in a low-endemicity setting and it also have the potential to assess cure. Finally, these findings reinforce that it is needed the association of different tools for the improvement of diagnosis of schistosomiasis for individuals with low parasite burdens, which are hard to detect.