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TITLE

ACTIVE SURVEILLANCE: INVESTIGATION OF SCHISTOSOMIASIS CASES AND VECTORS IN A HISTORICAL ENDEMIC MUNICIPALITY OF ALAGOAS, BRAZIL

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ABSTRACT

In Brazil, schistosomiasis is exclusively caused by Schistosoma mansoni and presents high endemicity where mollusk species, the intermediate hosts, are distributed, and where basic sanitation is considered inadequate. Alagoas is one of the Brazilian states with historical endemicity, recording 70 endemic municipalities out of 102. The aim of this study was to assess the frequency of schistosomiasis in a rural population in the municipality of Viçosa-AL and to check for the presence of the parasite in the environment through malacological investigation. The study area is located along the banks of the Paraíba River. A total of 169 stool samples were collected and analyzed by Kato-Katz (KK) and Helmintex (HTX) methods. These techniques are considered the gold standard and highly sensitive, respectively, for the diagnosis of schistosomiasis. The collection of mollusks occurred along the riverbanks, near the residences of the studied population. A total of 120 snails were collected, of which 24 died during transport to the laboratory, leaving 96 animals for experimentation. The analysis of the snails consisted of 6 weeks of photo exposure followed by crushing for malacological diagnosis. The taxonomic identification of the specimens was performed according to the dissection method and evaluation of the morphological parameters indicated by the Ministry of Health. The results showed that the use of two direct coprological techniques allowed for more efficient screening of positive human cases: 18.7% of the samples were positive by KK and 72.29% were positive by HTX. The overall prevalence of schistosomiasis reached 66.28% (112/169) in the studied population, a high rate even for an endemic region. The evaluation of parasitic load using two KK slides in the analyzed samples showed that most positive cases had low parasitic load (87.1% or 27/31), while 12.9% (4/31) presented moderate parasitic load, and no cases of high parasitic load were identified. Therefore, the studied region maintains the epidemiological pattern seen in most other endemic areas for this parasitosis, where interventions by the PCE (Schistosomiasis Control Program) occur repeatedly but without total elimination of the infection. No snail was identified releasing cercariae of S. mansoni, nor were any sporocysts found in the crushed animals. The specimens were identified as belonging to the Biomphalaria straminea complex, which groups the species B. straminea, B. kuhniana, and B. intermedia, due to their great morphological similarity. Resources from integrative taxonomy, such as the use of molecular methodologies, are needed for species confirmation. Based on the results obtained, it was possible to identify the infected population but not the identification of positive Biomphalaria sp. Therefore, new malacological and environmental analyses are needed in a spatiotemporal dynamic to locate the potential transmission focus of the disease in the studied area.

KEYWORDS

Epidemiology; Diagnosis; Helmintex; Biomphalaria Straminea

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