XVII INTERNATIONAL SYMPOSIUM ON
SCHISTOSOMIASIS
PERSPECTIVES ON SCHISTOSOMIASIS ELIMINATION
NOVEMBER 10-13TH 2024 | SALVADOR - BAHIA

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TITLE

ANTI-SCHISTOSOMA MANSONI ANTIBODIES DETECTION IN INDIGENOUS COMMUNITIES LIVING IN LOW ENDEMICITY AREAS

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ABSTRACT

In Brazil, schistosomiasis is caused by Schistosoma mansoni and is present in 19 Federative Units. Around 1.5 million people live in areas at risk of contracting the disease. Transmission is focal in São Paulo and Paraná, not reaching large areas. The presence of transmitting mollusks, poor sanitation, and low human development index contribute to the spread of the disease. In Brazil, the main objectives of the schistosomiasis control program are to reduce human infection in endemic areas and to contain expansion to new geographic areas.
This research aimed to evaluate the prevalence of anti-S. mansoni antibodies in sera from six indigenous communities in Paraná State (n = 546) and one in São Paulo State (n = 349). The communities in Paraná, located in the Atlantic Forest, depend on natural resources such as fishing and agriculture and have poor hygiene conditions. In contrast, the community in São Paulo, located in the Cerrado biome, is less traditional, with adequate basic sanitation, an economy centered on agriculture, and many works outside the community.
Our research used S. mansoni adult worms to prepare a total extract (TE) and a trichloroacetic acid-soluble fraction (TCA). We then used TE to detect IgG and TCA to detect IgM. By testing a reference panel of 30 positive and 37 negative samples, we achieved a sensitivity (IC 95%) of 90.0% (74.4 - 96.5) and a specificity of 97.3% (86.2 - 99.9) for IgM. IgG showed a sensitivity of 92.6% (76.3 - 98.7) and a specificity of 97.4% (86.5 - 99.9).
In samples from Paraná indigenous communities, IgM-ELISA showed a positivity of 0.7% (0.2% - 1.8%), and in IgG-ELISA, a positivity of 0.5% (0.1% - 1.6%) was obtained. Regarding Indigenous from São Paulo, IgM-ELISA gave 1.4% (0.4% - 3.3%) positivity and 0.8% (0.2% - 2.5%) was obtained by IgG-ELISA. When we compared the positivity of the two groups, we found no significant differences between IgM (Chi-square with Yates correction test, p=0.7361) and IgG (Chi-square with Yates correction test, p= 0.5531). We highlighted that all positive samples by IgG-ELISA were also positive by IgM-ELISA. These seroprevalence results demonstrated the risk of Schistosoma mansoni infections among indigenous populations and the maintenance of the transmission of this parasitic disease.

KEYWORDS

Indigenous Communities; Schistosomiasis; Seroprevalence; ELISA; IgM Antibodies; IgG Antibodies

FINANCIAL SUPPORT

FAPESP #2021/12535-2; CAPES 88887.689454/2022-00; CAPES 88887.968326/2024-00; Laboratório de Investigação Médica (LIM 38); CNPq 404687/2021-0