CO-ENDEMICITY OF SCHISTOSOMIASIS AND TEGUMENTARY LEISHMANIASIS: SPATIAL CO-CLUSTERING IN ENDEMIC AREAS

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Schistosomiasis and tegumentary leishmaniasis simultaneously affect areas in tropical and subtropical regions. Co-infected individuals show a less-than-optimal response to treatment and increased regulatory immune responses. However, no study has determined where *Schistosoma-Leishmania* co-infections are more likely to occur. To determine co-endemic areas at a local level, an ecological study was conducted on confirmed cases of American tegumentary leishmaniasis (ATL) and schistosomiasis in the State of Minas Gerais, Brazil, between 2013 and 2017. Autochthonous cases of ATL were retrieved from the Information System for Notifiable Diseases (SINAN), while cases of schistosomiasis were recovered from both SINAN and the Information System of the Schistosomiasis Surveillance and Control Program. Local Indicators of Spatial Association (LISA) analyses were used to search for co-endemic hotspots, using a queen contiguity spatial weight matrix. Univariate LISA indicated 13 municipalities as high-high clusters for both ATL and schistosomiasis in Minas Gerais. Furthermore, bivariate LISA analyses identified 61 municipalities as high-high clusters, grouped in seven co-endemic hotspots, distributed among the mesoregions of Norte de Minas, Jequitinhonha, Metropolitana de Belo Horizonte, Vale do Mucuri, Vale do Rio Doce, and Zona da Mata. LISA analyses are a useful tool for identifying areas where co-infection cases are more likely to occur. Similar analyses will assist authorities and healthcare providers when formulating policies and treating *Schistosoma-Leishmania* co-infected patients and will provide valuable data to enable researchers to explore the impact of this and other co-infections.

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