RESUMO SIMPLES - PROTOZOÁRIOS E AGENTES TRANSMITIDOS POR VETORES DE IMPORTÂNCIA EM SAÚDE

MOLECULAR DETECTION OF TRYPANOSOMA SPP. IN FREE-LIVING MARMOSETS CALLITHRIX SPP. FROM A NATURAL RESERVE IN ESPÍRITO SANTO STATE, BRAZIL

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Trypanosomes are among the most frequent parasites reported in neotropical non-human primates. They comprise a group of ubiquitous multi-host parasites widely distributed in nature, some of them are zoonoses, like T. cruzi. Due to environmental degradation, remaining urban forests serve as refuge for these animals, but they can also pose a risk to these species, including the transmission of zoonotic diseases. The main diagnostic methods for these

infections are through molecular biology tests, such as the polymerase chain reaction (PCR) and its variations. The goal of this study is to identify neotropical free-living primates of the genus Callithrix spp. infected with Trypanosoma spp. in a Private Natural Heritage Reserve in Espírito Santo state, Brazil. The study was conducted in the Barbado Monkey Private Natural Heritage Reserve, located in the municipality of Santa Maria de Jetibá, in the state of Espírito Santo, Brazil. Animals were captured using tomahawk traps and baited sites, which were employed to increase attraction and capture success. Anesthesia was performed by ketamine hydrochloride (10mg/kg) and midazolam (0,5mg/kg), injected intramuscularly. Blood samples were collected from each animal (1% of body weight at maximum) in femoral vein. Blood samples were stored in tubes coated with EDTA and frozen at -20°C until subsequent molecular analysis. DNA was extracted from blood samples using automated magnetic billing method (Loccus®). A nested PCR targeting the variable region of the 18SSU gene was performed. The first amplification used the external primers TRY927F/TRY927R, and the second used the internal primers SSU561F/SSU561R, following the same reaction conditions and cycling parameters. Samples were considered positive when a band of approximately 600 bp was observed. Four animals were captured, all adult male and hybrids individuals. The animals were clinically healthy, active, free of ectoparasites, and without noticeable lesions. All samples (100%, n=4) were positive at PCR. Primates of distinct taxa may act as important reservoirs of Trypanosoma species. In this study we detect this agent in genus Callithrix spp. All captured individuals were hybrids, a condition that may intensify ecological disruption, as hybrid marmosets can outcompete native species, reduce biodiversity, and facilitate pathogen transmission to non-endemic wildlife populations that may be susceptible to disease. The species T. lewisi, T. rangeli, T. minasense, and T. cruzi have already been described infecting neotropical primates, which shows that these animals can act as silent reservoirs, since they can maintain the infection asymptomatically, especially in the chronic phase of the disease. Transmission of Trypanosoma spp. most commonly occurs through contact with feces of infected triatomine insects, although oral infection through ingestion of the vector may also occur and is considered one of the most relevant routes for non-human primates. The destruction, fragmentation, and degradation of natural habitats, along with anthropogenic processes such as wildlife trafficking, the introduction of exotic species, and the reduction of barriers between wildlife, humans, and domestic animals, increase opportunities for the emergence and spread of zoonotic agents. Although the area is an environmental protection

unit, there are residences surrounding the reserve, and the captured animals were frequenting a feeding site where the residents themselves fed them. This artificial proximity, favored by the availability of food, further reduced the barrier between wildlife and the human population, increasing the risk of disease transmission and highlighting the importance of integrated management measures within the One Health perspective. The present study reports the detection of Trypanosoma in free-living Callithrix spp. in a Private Natural Reserve in the state of Espírito Santo. The detection of infected animals emphasizes their role in maintaining transmission cycles that may affect nearby wildlife communities and elevate exposure risks for human populations living around forest fragments.

Palavras-chave: wildlife reservoirs; zoonotic; nested pcr; disease; ecology.