

# Epidemiology of tegumentary leishmaniasis in the municipality of Juruti, Pará State, Brazil

Epidemiologia da leishmaniose tegumentar no Município de Juruti, Pará, Brasil

Epidemiología de la leishmaniasis tegumentar en el Municipio Juruti, Pará, Brasil

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**Introduction:** The cases of tegumentary leishmaniasis have increased in Pará State. Juruti is one of the 143 municipalities in the state. It is currently the scenery of great environmental changes due to bauxite mining activities, which could influence the transmission period. **Objective:** This research aimed to clarify significant epidemiological aspects for control of tegumentary leishmaniasis in Juruti. **Materials e Methods:** The frequency rate of tegumentary leishmaniasis and the profile of the patients in the municipal hospital "Francisco Barros" were determined from January through December 2007. Species of phlebotomi from the neighboring area of a bauxite mining site were also described during the entomological survey carried out in January 2008 (Shannon trap/18 to 20h/2 nights). Biopsy of the skin in 21 carriers of cutaneous lesions suspect of tegumentary leishmaniasis were executed between February and June 2007. We executed a parasitic and a molecular (stained smear and culture), as well as the Montenegro's test, in this group. Gender-specific (S4, S12; S17, S18) and G6PD ribosomal DNA probes (PCR-SSUrDNA) were used to distinguish the subgender *Viannia* (ISVC, ISVA: ISVC, ISVG) and the species *L. (V.) braziliensis* (ISVC, ISVA; ISVC, ISVB). **Results:** In 2007, 42 new cases of tegumentary leishmaniasis were confirmed. This counts for a monthly average of less than four cases ( $3.5 \pm 0.8$ ) – the highest frequency rate was verified in July (11) and the lowest frequency rate in June and November (0). Most of the patients were male (41/42, 98%) with less than 20 years of age (10 years: 30%; 10-20: 57%; 20-40: 12%). The majority lived in rural localities (33/42, 79%), including areas affected by mining activities (19/42, 45%), who reported e performed risky activities (28/42, 67%). Twelve individuals worked at companies (29%). The molecular analysis of the 21 samples identified 12 positive results for the gender *Leishmania* (57%), and 11 (52%) were parasitically confirmed. PCR-G6PD identified 75% of the samples as *L. (V.) braziliensis*. The other ones (9/12, 75%) did not hybridize with the PCR-G6PD oligonucleotides and, therefore, the products of the nested-PCR SSUrDNA reaction were cloned and sequenced, which confirmed they were *Leishmania (Viannia)* sp. Only 9/12 (75%) cases confirmed by parasitic and/or molecular methods presented delayed hypersensitive reactions in response to the Montenegro antigen, whose diameters ranged from 7 to 40 mm ( $16.3 \pm 3.2$ ). A total of 105 phlebotomi from 13 species were captured with the following frequency rates: 1-*Lutzomyia (Ps.) geniculata* (23, 22%), 2-*Lutzomyia (Ps.) paraensis* (21, 20%), 3-*Lutzomyia (Ps.) complexa* (18, 17%), 4-*Lutzomyia (Ps.) davisii* (10, 10%), 5-*Lutzomyia (N.) flaviscutellata* (13, 13%) and other eight species (20, 18%). **Discussion:** Species of *Leishmania* of the subgender *Viannia*, mainly *L. (V.) braziliensis* are prevalent in Juruti. This fact is compatible with the diameter of the cutaneous reactions to the Montenegro antigen observed and with the usual reports of continuity and recurrence, despite the specific treatment. Among the anthrophilic phlebotomi we can point out *L. (Ps.) complexa* (17%) and *L. (Ps.) flaviscutellata* (10%) because they are vectors of *L. (V.) braziliensis* and *L. (L.) amazonensis*, respectively, which are associated with the severe forms of human tegumentary leishmaniasis. **Conclusion:** Control measures in Juruti must prioritize the reduction of morbidity, early diagnosis, active search of human tegumentary leishmaniasis, entomological surveillance and surveillance of microenvironments in the surroundings of the areas impacted by mining activities.

**Keywords:** tegumentary leishmaniasis, epidemiological surveillance, PCR, phlebotomi.

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