

Concordance between diagnostic tests for canine visceral leishmaniasis and its implication in the prevalence of disease in Teresina, Piauí, Brazil

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Canine visceral leishmaniasis (CVL) is the main cause of human visceral leishmaniasis in urban areas in Brazil. In countries where the disease is a zoonosis, Brazil is the only one who sacrifices the dogs, based on serologic criteria. Teresina, capital of the state of Piauí, was the site where the first epidemic of human disease was described in the mid-1980s. The Control Program of Visceral Leishmaniasis (PCLV) of the Ministry of Health recommends that for the diagnosis of canine visceral leishmaniasis (CVL), should initially make a serological screening with rapid testing (TR-DPP Biomanguinhos) and confirmation of seropositive dogs with Enzyme-Linked Immunosorbent Assay (ELISA Biomanguinhos). When the two tests are in agreement, the animals are collected to be euthanized. The aim of this study was to evaluate the concordance of ELISA with the TR-DPP, and to characterize the prevalence of canine disease in the city of Teresina. We evaluated the results of canine diagnosis January-May 2016 made by Leishmaniasis Laboratory of Zoonosis Control Center of Teresina. During this period, they collected and processed 6,800 canine serum samples, with 1,364 of these reactive to the TR-DPP, confirming 462 of them by the ELISA test. The prevalence of canine disease by TR-DPP would be 20.1%, but only as confirmed by ELISA are considered seropositive, the prevalence drops to 6.8%, a decrease of 13.3%. The prevalence of canine leishmaniasis during the study period ranged from 5.4% to 8.2%. Regarding the concordance among the diagnostics tests, only 33.9% of the samples reagents to TR-DPP were confirmed by ELISA. The concordance between tests ranged from 25.8% to 39.7%. In other studies, the concordance ranged from 0% to 69%, and the authors believe that this variation is due to the degree of training of field staff, because rapid testing should preferably be done in the house of animals, then it is confirmed by ELISA laboratory. In our case, the two tests were carried out at laboratory level by people trained in the national reference center, following the manufacturer's recommendations. The large discrepancy between tests may favor the transmission of the disease in Teresina because of the presence of many false negative dogs in the environment.

On the other hand the dogs that were negative in the screening test may be false-negative or not yet seroconverted. The results indicate that the high prevalence of canine leishmaniasis and the great discrepancy between the diagnostics tests tend to maintain the status of the disease in Teresina. There is need for more effective control measures focused on the environmental control and improving the population's quality of life.

Keywords: serology, control, zoonosis.

Support: We thank the Zoonosis Control Center for the availability of data and the University Center Uninovafapi for financial support for the implementation and dissemination of this study.