Anti-LJM11/17 antibodies as biomarkers of susceptibility to canine visceral leishmaniasis in dogs followed for 2 years in an endemic area

Autor(es): Manuela da Silva Solcà[1], Maiara Reis Arruda[2], Kaenna Barauna Campos[2], Gabriela Portugal Ferraz Pereira[2], Rafael da Cruz Morais[1], Matheus Silva de Jesus[2], Miriam Flores Rebouças[2], Patrícia Sampaio Tavares Veras[2], Claudia da[2], Deborah Bittencourt Mothé Fraga[2]

Instituição(es): [1]UFBA - Universidade Federal da Bahia, [2]IGM/FIOCRUZ - Instituto Gonçalo Moniz (Salvador, Bahia)

Vector saliva plays an essential role in the transmission of Leishmania. We aimed to evaluate reactivity for recombinant proteins rLJM11 and rLJM17 and immune response profile in sera from dogs followed for two years in a Visceral Leishmaniasis (VL) endemic area. The animals were clinically reevaluated every 6 months and biological sample were collected. Canine VL (CVL) diagnosis was performed by ELISA and qPCR for parasite load quantification. rLJM11+17 ELISA assessed vector exposure and reexposure. Immunological biomarkers were assessed by Luminex and ELISA techniques. According to clinical and laboratorial assessment, infected dogs were classified as susceptible and resistant to CVL. A total of 247 animals were included in the study. At the baseline evaluation, 108 dogs were unexposed to saliva and 39 were also negative for CVL. After 6 months, 70% of these animals were exposed to the vector, and after two years only 2% remained unexposed. The exposure dynamic during the cohort was followed by an increase in the incidence of CVL. Most of the 247 animals (68%) were reexposed to the vector at some point. After analyzing patterns of susceptibility and resistance to CVL in these dogs, susceptible ones had greater exposure to sand flies. Reexposed dogs, especially susceptible ones, showed higher antibody levels against L. infantum and higher parasite loads when compared to unexposed. In reflection, dogs reexposed to vector had 1.7 more risk of Leishmania infection and reexposed dogs were twice as likely to become susceptible. Furthermore, susceptible animals showed higher levels of CXCL1 and CCL2 after infection when compared to resistant ones. These chemokines are biomarkers of inflammation and are related to CVL severity. In conclusion, we observed an association between the intensity of vector exposure and greater susceptibility to CVL. Therefore, the detection of anti-rLJM11 and rLJM17 antibodies could be a useful susceptibility marker.