EFFICACY OF VACCINES BASED ON CHIMERIC OR MULTIEPITOPE ANTIGENS FOR PROTECTION AGAINST VISCERAL LEISHMANIASIS: A SYSTEMATIC REVIEW

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Leishmania (Leishmania) infantum and *Leishmania (Leishmania) donovani* are the primary causative agents of visceral leishmaniasis (VL). Vaccines that incorporate chimeric or multiepitope antigens have shown promise in triggering a potent and lasting immune response against this disease. This review systematically evaluates the efficacy of these antigens and identifies potential immunogenic targets for vaccine development. A systematic search was registered (PROSPERO: CRD42023449370) and conducted by independent reviewers across four databases to assess the efficacy of vaccines based on chimeric or multiepitope antigens against VL. The review included original studies that reported parasite load or positivity rates in animals immunized with these vaccines and subsequently challenged or exposed to *L. infantum* infection in preclinical and clinical studies. Key information was extracted, tabulated, and analyzed, with the risk of bias being assessed using the SYRCLE Risk Tool. A total of 22 studies were selected, with only one being a randomized clinical trial. Seventeen distinct antigens were constructed, including eleven multiepitope antigens, five chimeric antigens, and one pool of three synthetic peptides designed with selected epitopes from *L. infantum* proteins by epitope prediction analyses. Although there was no consensus on the evaluation methodology, the evaluated organs, or the best way to present the results, the reduction in parasite load varied from 14% to 99.6% and from 1.7 to 9.0 log orders. Limiting dilution was the most used method for assessing parasite load, followed by quantitative real-time polymerase chain reaction (qPCR). This systematic review underscores the promising potential of chimeric and multiepitope antigens as VL vaccine candidates and presents information to guide the rational development of new research for vaccination against VL.

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