EVALUATION OF MACROPHAGE ACTIVITY AND ANTIBODY PRODUCTION IN GENETICALLY SELECTED MICE INFECTED WITH Leptospira SEROVAR POMONA

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ABSTRACT: The aim of the present study was to evaluate the role of macrophage activity and antibody production in experimental infection with Leptospira Pomona in mice genetically selected for high (H) or low (L) humoral immune response. To evaluate macrophage activity, reactive oxygen and nitrogen intermediates were determined. Also, the production of tumor necrosis factor (TNF-α) and the recovery of Leptospira-specific antibodies in the kidneys and liver were assessed; histological lesions were analyzed using the hematoxylin-eosin technique, and Leptospira antigens in tissues were determined by immunohistochemistry. Results showed that recovery of microorganisms from the analyzed organs was lower in L IV-A mice. However, H IV-A animals showed total restraint since the 14th day after infection, whereas L IV-A mice still had bacteria in the liver at the 21st post-infection day. Immune response against Pomona serovar in those lineages was characterized as high production of antibodies, mainly in late periods of the infectious process. The production of reactive oxygen and nitrogen intermediates also contributed to the elimination of Leptospira Pomona in all two lineages; H2O2 production was an important factor in H IV-A mice, as well as NO production in the L IV-A animals, mainly at the latest post-inoculation periods. The same occurred regarding TNF-α production. Severe renal lesions were observed at periods in which larger numbers of leptospires were isolated using the culture technique. Tissue alterations persisted in L IV-A mice, even at periods in which leptospires were not recovered. Immunohistochemistry showed to be more sensitive than culturing. However, both techniques were appropriate for the agent identification in the studied lineages. Results suggest that such lineages could represent an important model to investigate pathogenesis and immune response against the varied serovars of leptospires.

KEY WORDS: immunological tests, Biozzi mice, experimental infection, Leptospira interrogans serovar Pomona, macrophages.

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