

Categoria: Leptospirose em Animais de Produção e Equinos

Production of IL-6 and IL-1 β in ex vivo bovine endometrium cultures inoculated with *Leptospira interrogans* serovar Hardjoprajitno

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Leptospirosis is a zoonosis caused by bacteria of the genus *Leptospira* spp. There are reports of the isolation of this bacterium in the genital tract of females, associated with abortion and infertility in cattle herds, as it triggers high levels of cytokines during the initial phase of infection. However, studies on the pathogenesis of this microorganism in the bovine endometrium are still lacking, especially in models that explore this mechanism using *Leptospira* spp. stimulation. The objective of this study was to evaluate the profile of inflammatory cytokines after a challenge with *Leptospira interrogans* serovar Hardjoprajitno and *Escherichia coli* LPS produced by ex vivo uterine tissue collected from pregnant and non-pregnant cows that were serologically reactive or not to the Microscopic Agglutination Test (MAT). A total of 43 uteri were collected from mixed-breed cows, of which 19 were non-pregnant (19/43) and 24 pregnant (24/43). The stage of gestation was determined through fetal measurements. Anti-*Leptospira* antibodies were evaluated via MAT to analyze previous infections. After endometrial exposure, 8 mm punch biopsies were taken from intercaruncular regions. The endometrial explants were processed in 24-well cell culture plates with the following solutions: a) control medium with 2 mL of RPMI solution; b) RPMI medium with 1 μ g/mL of *E. coli* LPS; c) EMJH medium with *Leptospira interrogans* serovar Hardjoprajitno. Afterwards, the tissues were weighed, and supernatants for testing of IL-1 β and IL-6 production. In the control group, endometrial tissues showed no alterations, while tissues from cows challenged with *Leptospira interrogans* exhibited mild inflammatory lesions, vascular changes, and periglandular inflammatory infiltration. Of the 43 serum samples tested, 69.8% (30/43) were reactive to *Leptospira* spp. serovars. Both non-pregnant and pregnant cows' endometrial tissues showed a significant increase in IL-6 production in response to LPS after 24 hours, while non-pregnant cows also had higher IL-6 levels with *Leptospira interrogans* serovar Hardjoprajitno, whereas pregnant cows did not show increased IL-6 production with either challenge and had lower IL-6 levels compared to non-pregnant cows. The study concluded cytokine production is higher in reactive cows challenged with LPS or *Leptospira*, lower in pregnant cows with *Leptospira*, and elevated in early/late pregnancy with *E. coli* LPS, with no gestational stage difference for *Leptospira*.

Keywords: leptospirosis; cows; cytokines; endometrial

Funding: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) – Código de Financiamento 001 e Fundação de Amparo a Pesquisa do Estado de Minas Gerais (FAPEMIG), projeto APQ-00937-15 e projeto APQ-03740-1