

SUB-ÁREA: Leptospirose em animais de Produção e Equinos

Effect of bovine genital leptospirosis on the efficiency of *in vitro* embryo production

Paulo Victor dos Santos Pereira^a, Maria Isabel Di Azevedo^b, Eduardo Kenji Nunes Arashiro^a, Nathalia Oliveira Barbosa^a, Felipe Anibal Carvalho-Costa^c, Yeda Fumie Watanabe^d, Walter Lilenbaum^b, Joanna Maria Gonçalves Souza-Fabjan^a

^aFaculdade de Veterinária, Universidade Federal Fluminense, Rua Vital Brasil Filho, 64, Niterói, RJ, Brasil.

^bLaboratório de Bacteriologia Veterinária, Departamento de Microbiologia e Parasitologia, Universidade Federal Fluminense, Niterói, RJ, Brasil.

^cLaboratório de Epidemiologia e Sistemática Molecular, Instituto Oswaldo Cruz, Fundação Oswaldo Cruz, Rio de Janeiro, RJ, Brasil.

^dVitrogen e YVF Biotech, Cravinhos, São Paulo, SP, Brasil.

In ruminants, early embryonic death is one of the most observed consequences of *Leptospira* spp. colonization. The mechanisms of infection in bovine cumulus-oocytes complexes (COC) and embryos, as well as the direct and indirect relationship of genital infection with early embryonic death and the consequent damage to reproduction, need further elucidation. In this context, the present study aimed to evaluate the impact of bovine leptospirosis on *in vitro* embryo production (IVEP). A total of 251 adult and multiparous crossbred cows belonging to 17 different commercial dairy herds in Southeastern Brazil and without apparent clinical signs of acute leptospirosis were analyzed. The collection of follicular fluid was performed using the *ovum* pick-up technique. DNA was extracted and PCR performed based on the *lipL32* gene, present in pathogenic leptospires. Subsequently, positive samples were subjected to nested-PCR targeting the *secY* gene. The variables [viable rate (nb viable COC / nb of total COC); cleavage rate (nb of cleaved structures / nb of viable COC); blasto/cleaved rate (nb of blastocysts / nb of cleaved structures); blasto/viable COC rate (nb of blastocysts / nb of viable COC) and blasto/total COC rate (nb of blastocysts / nb of total COC)] were normalized by angular transformation (arccosine) and submitted to ANOVA, with $p < 0.05$ being considered significant. Of 251 samples analyzed, 67 (26.7%) were positive, confirming the presence of leptospires in the follicular fluid. The sequences were identified as *L. interrogans*, serogroup Sejroe. There was a statistical difference ($p < 0.05$) between positive and negative animals in Blasto/viable COC rate, where positive showed $22 \pm 21.7\%$ and negative $29 \pm 23.4\%$. There was a trend towards a decrease in the efficiency of the IVEP in relation to the variables blast/cleaved rate ($p = 0.06$) and blast/total COC rate ($p = 0.07$). Our results show a decrease in the efficiency of IVEP due to ovarian infection in cows. This decrease can be attributed to direct damage to oocytes, caused by the penetration of bacteria into the oocyte, or indirect damage, due to the presence of lipopolysaccharide (LPS) endotoxin, which is responsible for ovarian dysfunction. This dysfunction can negatively influence the nuclear and cytoplasmic maturation of the oocyte, compromising its arrival at the blastocyst stage.

Palavras-chave: *Leptospira* spp.; genetic enhancement; *lipL32*; IVEP

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