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Porcine FSH dose affects the efficiency of in vivo embryo production in Santa Inês sheep

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Resumo

This study compared the effectiveness of two pFSH doses on the in vivo embryo production in Santa Inês ewes subjected to the Day 0 protocol. Estrous cycles of 36 multiparous ewes were synchronized with intravaginal sponges impregnated with medroxyprogesterone acetate (60 mg; Progespon, Syntex, Argentina), and the superovulatory treatments began 80 h after the intravaginal sponge removal. Ewes received either 133 mg (G133, n=18) or 200 mg (G200, n=18) of pFSH i.m. (Folltropin-V®, Bioniche Animal Health, Canadá), divided into six decreasing doses (25, 25, 15, 15, 10, 10%) every 12 h. Simultaneously with the first dose of pFSH, a intravaginal device of progesterone (P4; 0.36 g; Primer PR, Agener União Saúde Animal, Brazil) was inserted to all ewes, remaining in situ until the fifth dose of pFSH. Simultaneously with the last dose of pFSH, cloprostenol sodium was given (0.24 mg i.m.; Estron, Agener União Saúde Animal, Brasil; and after 24 h the ewes received lecoreline (25 µg i.m.; TEC-Relin, Agener União Saúde Animal, Brasil). All animals were checked for estrous behavior and mated naturally every 12 h, from the sixth dose of pFSH until the end of estrus. Ewes previously received a hormonal protocol for cervical dilatation (Leite et al., Arq Bras Med Vet Zootec, 70:1671-1679, 2018), the corpora lutea (CL) were counted by B-mode ultrasonography, and the non-surgical embryo recovery (NSER) was performed on Day 10. The recovered structures were checked regarding their development stage and quality. Data were tested for normality by Lilliefors test. The variables in percentage were evaluated by the Fisher exact probability test, and the other variables were compared with the Mann-Whitney or the student tests; data are presented as mean ± SD. A total of 97.2% (35/36) of the ewes showed estrus and it was possible to transpose cervix and perform NSER in 80.6% (29/36) of the ewes, with no differences between groups. There were no effects of the treatments on the number of CLs/ewes (G133: 8.5±1.1 vs G200: 10.2±1.2), recovery rate (G133: 47.7% vs G200: 64.2%), embryo viability rate (G133: 50.8% vs G200: 69.1%), and the number of recovered structures/ewes (G133: 4.8±1.1 vs. G200: 7.5±1.7). However, the number of viable embryos per donor was greater in the G200 than in the G133 ewes (G133: 2.29±0.67 vs. G200: 6.47±1.60; P=0.04). In conclusion, the use of 200 mg of pFSH resulted in a greater number of viable embryos, suggesting that this dose should be preferred for ewe superovulation using Day 0 protocol.

Keywords: embryo collection, embryonic quality, follicle stimulating hormone, sheep, superovulation

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