Animal Reproduction

OPU and ET

Transcervical embryo recoveries in Santa Inês ewes subjected to short- or long-term superovulatory protocols

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This study compared short- and long-term estrus synchronization in 16 cycling Santa Inês ewes. All ewes were submitted to the two protocols in a cross-over design resulting in replicates #1 and #2 with 16 ewes, each one. Ewes were synchronized with intravaginal sponges containing 60 mg medroxyprogesterone acetate (Progespon®, Schering Plough, São Paulo, Brazil) for 6.5 (G-6.5d) or 14.5 (G-14.5d) days, followed by a superovulation (SOV) of 4 or 3 days with decreasing doses of pFSH (Folltropin®-V, Bioniche Animal Health Canada Inc., Belleville, Canada), respectively. Non-surgical embryo recovery (NSER) was performed 6-7 days after estrus onset with 60 d interval. All ewes were administered i.m. injections of 1 mg estradiol benzoate (Estrogin®, Farmavet, São Paulo, Brazil) and 37.5 mg d-cloprostenol (Prolise®, Tecnopec, São Paulo, Brazil) 16 h plus 50 IU oxytocin (Ocitocina forte®; UCB, Jaboticabal, Brazil) i.v. 20 min before NSER. Blood samples were collected into heparinized tubes for measurements of plasma progesterone (P4) and estradiol (E2) concentrations, quantified respectively using the solid phase radioimmunoassay kits (Beckman Coulter®, Immunotec, Marseille, France) and commercial radioimmunoassay kit (ImmuChem™ Coated Tube, 17β- Estradiol CT, MP Biomedicals, LLC – Orangeburg, NY, USA). Statistical analyses were performed using the SAS software and SigmaPlot®. ANOVA and Tukey test were used for parametric data comparisons and simple linear regression was used for correlation analyses. Proportions were analyzed using a chi-square test. Differences were considered to exist when $P<0.05$. P4 concentrations were greater ($P<0.05$) in G-6.5d than G-14.5d at the time of first pFSH injection, sponge removal and NSER. Estrus onset was delayed ($P<0.05$) in ewes during the #2 compared with #1 replicate by approximately 14 h. NSER could be performed in 11/15 ewes that were in estrus, with an average of 3 viable-embryos/donor. NSER success was similar ($P>0.05$) in G-6.5d (86.7%; 13/15) and G-14.5d (81.3%; 13/16). SOV yields (structures and viable embryos recovered) were similar ($P>0.05$) between G-6.5d (5.8±1.3 and 2.9±1.0) and G-14.5d (7.0±2.0 and 4.1±1.3), but degenerated embryos were only found in G-6.5d animals. Embryo viability was similar ($P>0.05$) between G-6.5d (46.3±12.3%) and G-14.5d (56.2±11.6%) and in replicates #1 (47.1±10.2%) and #2 (65.6±13.6%). In G-6.5d, mean P4 concentrations from sponge removal until NSER were positively correlated with the numbers of degenerated embryos, whereas E2 concentrations at NSER were positively correlated with embryo viability rates. In summary: i. the duration of progestin-priming and multiple-dose pFSH treatment had a limited effect on SOV yields in cyclic Santa Inês ewes; ii. the duration of SOV regimen may alter the influences that endogenous steroids exert on ova/embryo quality in ewes. Acknowledgments: Embrapa (SUPEROV–22.13.06.026.00.03/22.13.06.026.00.04), CNPq (314952/2018-7), Fapemig (CVZ-PPM00042-14).