A100 OPU-IVP and ET

Follicular wave synchronization on *in vivo* embryo production in Santa Ines sheep

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Keywords: embryo, superovulation, ovine.

This study aimed to evaluate two hormonal protocols for synchronization of follicular wave emergence on in vivo embryo production in Santa Ines sheep under tropical conditions. Twenty two nulliparous Santa Ines sheep, kept on intensive system, were used. Group one (GT, n = 10) received an intravaginal implant containing 0.33 g of progesterone (Eazi-Breed CIDR® Sheep and Goats, Zoetis Ltda, São Paulo, Brazil) for all period of hormonal protocol and 0.24 mg of cloprostenol (Estron®, Agener Union, São Paulo, Brazil) i.m.. Group two (GEm; n = 12) received the synchronization of the follicular wave emergence as proposed by Balaro et al. (2016). The superovulation started after 56 and 80 hours, from GT and GEm, respectively. For both groups, 200 mg of FSHp/per animal were administered (Folltropin®, National Pharmaceutical Chemistry Union S/A, São Paulo, Brazil) in six decreasing doses (25%/25%, 15%/15% and 10%/10%) every 12 hours. In GEm, at the first FSHp dose, an intravaginal sponge impregnated with 60 mg of medroxyprogesterone acetate (Progespon®, Schering Plough, São Paulo, Brazil) was inserted and at the fifth dose, ewes also received 0.24 mg of cloprostenol (Estron®, Agener Union, São Paulo, Brazil). The intravaginal implant (GT) or sponge (GEm) was taken at the last FSHp dose. Subsequently, estrus detection and mating occurred every 12 hours. Seven days after the last FSH dose, embryos were collected by surgical uterine flushing. An ultrasound (Sonoscape S6®, Sonoscape, Yizhe Building, Yuquan Road Shenzhen, China) equipment coupled to a 7.5 MHz linear transducer (transrectal) was used to assess the follicular population on the progestagen insertion (D0), in the first superovulatory dose and for CL count immediately before embryo collection. Furthermore, regardless of the occurrence of premature regression of CL (PRCL), all ewes were collected. Normal and non-normal parametric data were evaluated by t-test and Mann-Whitney, respectively. Frequency data were evaluated by Fisher's exact test. It was considered as significant when $P < 0.05$. No differences ($P > 0.05$) were detected, between GT and GEm, in the follicular population at the day of the progestagen insertion (7.8 ± 2.6 vs. 6.0 ± 1.6) and the first FSHp dose (8.1 ± 2.6 vs. 8.9 ± 2.3). The number of CL were also similar ($P > 0.05$) between G1 (6.9 ± 5.1) and G2 (7.1 ± 3.1). The number of animals with PRCL in GT was 60% (6/10), greater than the 8.3% (1/12) found in GEm ($P < 0.05$). The number of collected structures (6.6 ± 4.3 vs. 0.6 ± 0.7; $P < 0.01$) and viable embryos (4.6 ± 3.9 vs. 0.3 ± 0.5; $P < 0.01$) were greater in GEm compared to GT. The recovery rate also differed between groups, being greater in GEm than GT (75.6% vs. 8.1%; $P < 0.01$). The greater PRCL rate in GT probably contributed to the smaller number of viable embryos. Thus, it is suggested the appliance indicated the GEm protocol for in vivo embryo production in Santa Ines sheep under tropical conditions.

Financial Support: CNPq, FAPERJ and EMBRAPA (Project 02.13.06.026.00.00).