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Which is the best protocol for cervical dilatation in sheep embryo collection?

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The development of methodologies for the transcervical embryo collection in sheep is strongly encouraged by the sequelae caused by conventional surgical methodology. However, this technique is impaired by the fact that, on average, only 30-40% of the animals have a pervious cervix. Three transcervical approaches in ewes are described: prostaglandin E (PGE; Gusmão et al., 2007, Rev. Bras. Saúde Prod. An. 8, 1-10), estradiol+oxytocin (EO; Masoudi et al., 2012, Afr. J. Biotech. 11, 2803-2806) or subarachnoid anesthesia with ketamine (AK; DeRossi et al., 2009, Small Rumin. Res. 83, 74-78). However, there is no comparative information on what is the most efficient. Thus, this study was designed in order to compare the cervical dilator efficiency of treatment with PGE analogue (Misoprostol; Prostokos®, Hebron, BR), EO (Estradiol benzoate; Estrogin®, Farmavet, BR + Synthetic oxytocin; Placentex®, Agener União, BR) or AK (Ketamine; Dopalen®, Vetbrands, BR) in Crioula Lanada ewes. Initially, the cervical transposition of the animals (n=18) was evaluated under physiological dilation (estrus) using a Hegar's dilator № 2 in a maximum period of 7min. The cervixes were classified as fully pervious (FP, ≥6 cm), partially pervious (PP, from 4 to 5.9 cm) and non-pervious (NP, ≤ 3.9 cm) for homogeneous distribution of animals (n=6) across treatment groups in order to evaluate the effect of cervical dilator treatments at diestrus (Day 6). On Day 5, 12h before the evaluation, animals from PGE and EO groups received one intravaginal tablet of misoprostol (200μg) and an IM injection of estradiol benzoate (100μg), respectively. On the morning of Day 6, the animals from PGE group were immediately evaluated and those from EO and AK groups were evaluated 15min after an IM application of oxytocin (100 IU) and a subarachnoid injection of ketamine (1.5mg/kg), respectively. The evaluation during estrus determined that 44.4%, 22.2% and 33.3% of the animals had FP, PP and NP cervixes, respectively. During diestrus, in PGE group one animal maintained FP classification and another went from PP to FP while the others were NP. In this group it was observed that most of the intravaginal tablet was expelled by the animals, which probably impaired the effect on cervical dilatation. In the EO group, one of two FP animals went to PP and from two initially PP one had increased in the depth and the other became FP. From two NP animals one became PP and the other FP, resulting in 83% dilatation. In AK group, from three classified as FP, one became NP and the PP animal became NP. In this group, beyond the low cervical dilator response, one animal had complications from an unexpected reaction during insertion of the needle into the subarachnoid space. In conclusion, due to the increased possibility of cervical transposition, the treatment with a combination of estradiol benzoate + oxytocin is the most suitable for transcervical embryo collection in sheep.