Animal Reproduction

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Does combining estradiol cypionate and GnRH for ovulation induction in recipient cows increase pregnancy rate after timed embryo transfer?

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Resumo

Estradiol cypionate (EC) or GnRH have been widely used for ovulation induction in timed embryo transfer (TET). EC administration increases the proportion of cows that show estrus, whereas GnRH promotes more synchronized ovulations. The study aimed to evaluate the effect of the association of EC and GnRH on luteal function and pregnancy rate after TET in taurine cows. In Experiment 1, 12 cyclic non-lactating cows (Jersey and Holstein) received a progesterone (P4) intravaginal device (IVD) (1g, Primer, Agener União, Brazil) and 2mg of estradiol benzoate (EB; Agener União, Brazil) im on D -11. On D -4, 482µg of sodium cloprostenol (Agener União, Brazil) and 300IU of eCG (Ourofino, Brazil) were administered im. On D -2, the IVDs were removed, and half of the cows received 0.6mg EC (Zoetis, Brazil) im (EC+GnRH group), while GnRH group was not treated. On D0, cows received 10µg of buserelin acetate (Ourofino, Brazil) im and the diameter of the preovulatory follicle was assessed by ultrasound. On D6 and D13, the presence of corpus luteum (CL) was confirmed and blood samples were collected to measure P4 levels. In Experiment 2, 184 suckling crossbred cows (predominantly Angus), between 35 and 80 days postpartum and with BCS 3 to 4 (1 to 5 scale) received an IVD (1g P4, GlobalGen, Jaboticabal, Brazil) and 2mg EB (Biogénesis Bagó, Brazil) im on the D-10. On D-2, the IVDs were removed and 150µg of d-cloprostenol (Biogénesis Bagó, Brazil) and 400IU of eCG (Biogénesis Bagó, Brazil) were administered im. On the same day, half of the cows received 0.6mg EC (Cipiotec, Agener União, São Paulo, Brazil) im (EC+GnRH group), while GnRH group was not treated. On D0, all cows received 10µg of buserelin acetate (Gonaxal, Biogénisis Bagó, Curitiba, Brazil). On D7, cows with a CL and absence of reproductive disorders received a fresh or frozen-thawed in vivo produced embryo (grade 1 or 2; morula or early blastocyst). The diagnosis of pregnancy was performed by transrectal ultrasound 56 days after embryo transfer (ET). For statistical analysis, the data were evaluated using paired Student's T test or logistic regression with the SAS package, considering $p<0.05$ as significant. In Experiment 1, there was no difference in P4 concentration on Days 6 and 13 after GnRH treatment between the GnRH and EC+GnRH groups ($p=0.09$). However, cows from EC+GnRH group had greater CL diameter ($p<0.05$) compared to GnRH group. In Experiment 2, the utilization rate of recipients did not differ ($p=0.55$) between GnRH (84.8%) and EC+GnRH (81.5%) groups. The pregnancy rate per ET did not differ ($p=0.46$) between GnRH (62.8%) and EC+GnRH (58.7%) groups and no significant effect of embryo source (fresh or thawed) was observed. Therefore, the association of EC+GnRH does not increase P4 production and pregnancy rate in taurine recipient cows after TET with fresh or frozen-thawed embryos.

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