



Hormonal treatment to improve embryo survival in beef cows after fixed time artificial insemination

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Introduction

Successful maternal recognition of pregnancy (MRP) is directly involved with early survival of the bovine embryo(1). This study evaluated strategies to enhance ovarian function of cows submitted to fixed time artificial insemination (FTAI) and thereby optimize MRP.

Material and Methods

Twenty-eight cycling non-suckled Nelore (*Bos taurus indicus*) cows received one progesterone (1.9g) intravaginal device and 2mg estradiol benzoate. Seven days later received 250 µg of Dinoprost Trometramine (PGF2alpha). The device was removed two days later and 0.5 mg of estradiol cypionate was given. FTAI (D 0) occurred 48 hours after device removal (2). Females were assigned to receive either no further treatment (Control, n=14) or 200mcg of gonadorelin (GnRH, im) on D5 and 2500 IU of hCG (im) on D12 (Treated, n=14). Cows were submitted to ultrasound examination of ovaries and plasma progesterone determination (P4) on D5, D12, D18 and D28 (3). Categorical data were analyzed by Chi-square test and continuous variables were assessed by ANOVA in a 2x2 factorial design (pregnancy status taken as presence or absence of conceptus vs. treatment group).

Results and Discussion

Conception rate was not different ($P>0.05$) between control (36%) and treated cows (50%). All treated cows developed at least one accessory corpus luteum and had greater P4 on D12, D18 and D28 than control cows ($P<0.05$) regardless of pregnancy status. Treated non-pregnant cows (n=7) had greater ($P<0.05$) dominant follicle diameter on D18 ($13.7\pm 3.2\text{mm}$) than pregnant contemporaries ($10.5\pm 2.2\text{mm}$, n=7). A similar trend was observed among control non-pregnant cows ($11.9\pm 3.0\text{mm}$, n=9) and pregnant cows ($9.7\pm 2.2\text{mm}$, n=5). Hormonal treatment did not influence ($P>0.05$) size of original CL on D12 or D18 as compared with control cows on D12 and D18. Treated cows that were detected as non-pregnant (D28, n=7) had greater ($P<0.05$) P4 on D18 ($6.28\pm 3.74\text{ ng/mL}$) than control cows regardless of their pregnancy status. Among pregnant cows, treated cows (n=7) had greater ($P<0.05$) P4 on D18 ($8.63\pm 3.44\text{ ng/mL}$) and D28 ($9.09\pm 4.87\text{ ng/mL}$) than control cows (n=5; 5.02 ± 2.24 and $5.79\pm 3.30\text{ ng/mL}$, respectively). In summary, hormonal treatment induced the formation of accessory corpus luteum and increased P4 around the time of MRP regardless the pregnancy status determined through the presence of a conceptus.

References

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