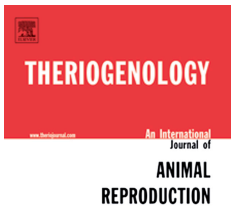

Extending the duration of treatment with progesterone and treatment with eCG improves fertility in suckled beef cows with low body condition score subjected to timed artificial insemination

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Extending the duration of treatment with progesterone and treatment with eCG improves fertility in suckled beef cows with low body condition score subjected to timed artificial insemination

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Abstract

The objective of this study was to evaluate the effect of an extended progesterone treatment on follicular development and fertility in postpartum**,** suckled beef cows subjected to timed-AI (TAI). In Experiment 1, cows (n=24) with body condition score (BCS) ≥ 4.5 received either a 2 g progesterone intravaginal device on Day -23 or a 0.558 g progesterone intravaginal device on Day -9. Then, all cows received 2 mg of estradiol benzoate on Day -9, removal of the device, 1 mg estradiol cypionate, and $PGF_{2\alpha}$ on Day -2 and TAI on Day 0. Metabolic status was assessed between Days -9 and -2. Ovarian structures and plasma progesterone were determined weekly from Day -23 to -9, daily from Day -9 to 0, and weekly until Day 28. In Experiment 2, cows (n = 302) with BCS ≥ 4.5 received identical treatment to cows in Experiment 1**,** but on Day -2 cows received 400 IU of two different commercial preparations of eCG. Ovarian structures were determined on Days -23 and -9 on a subset of cows (n = 40). Pregnancy was determined 39 days after TAI. In Experiment 3, multiparous cows (n = 244) with BCS < 5.0 received identical treatment as cows in Experiment 1 initiated on Day -18, and on Day -2 cows received 400 IU of eCG or no treatment. Ovarian structures were determined in a subset of cows (n = 31) on Days -3, -2, -1, 0, 1, and on Day 10. Pregnancy was determined 39 days after TAI. The results indicated that in Experiment 1, plasma progesterone was higher in treated than non-treated (control cows) during the first 14 days (P = 0.0001). The extended progesterone treatment increased the size of the largest follicle between Days -23 and Day -5 (Group by Day, P = 0.04), and tended to increase the size of the dominant follicle from Day -5 to Day -1 (Group by Day, P = 0.06). There was **no** effect of metabolic status or interaction between metabolic status and day on follicular growth. In Experiment 2, extended progesterone treatment tended to increase the size of the largest follicle between Day -23 and -9 (P = 0.06). There was no effect of Group, eCG, BCS and parity on pregnancy per AI. In Experiment 3, extended progesterone treatment combined with eCG increased the size of the dominant follicle (P = 0.01). Both extended progesterone treatment (P = 0.02) and eCG (P = 0.03) increased pregnancy per AI. In conclusion, an extended progesterone treatment stimulated follicular growth post partum and improved fertility only in cows with low BCS.

Key words: timed insemination, progesterone, eCG, beef cow, body condition

1. Introduction

Protocols for induction of estrus and synchronization of ovulation have facilitated the use of AI in large and free-ranged beef herds where detection of estrus is difficult to implement [1-3]. Delayed interval from calving to first ovulation (postpartum anestrus), and reduced fertility to first estrus (short luteal phase post-ovulation) are the two main problems that limit the use of AI in suckled beef cows [4]. Postpartum anestrus seems to be caused by the inhibitory effect of estrogen on LH release in postpartum nursing beef cows [5]. Treatment with norgestomet for