PROGESTIN REGULATION OF FOLLICULAR DYNAMICS IN CATTLE

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ABSTRACT

Progestins, such as melengestrol acetate (MGA) and Controlled Internal Drug Release (CIDR), can inhibit ovulation and synchronize estrus in cattle. However, long-term MGA treatment, in the absence of a corpus luteum, results in the formation of a persistent follicle (PF). Fertilization of a oocyte ovulated from a PF is associated with decreased pregnancy rates. The overall objectives were to determine the effect of 14 days of progestin (CIDR) treatment on follicular dynamics (length of follicular wave and maximum follicle diameter) and serum concentrations of progesterone (P4) in beef cattle treated with a new or previously used CIDR. Serum concentrations of P4 for heifers in the New and Used CIDR groups were similar ($P > 0.1$) throughout the 14 d treatment period but lower than in the Control group (normal luteal phase). Length of a follicular wave was longer ($P < 0.05$) in the progestin-treated groups compared to the Control group. For heifers, dominant follicle diameter was greater ($P < 0.05$) in the Used CIDR group compared to Control heifers; whereas, in cows maximum follicle diameter was similar in the New and Used CIDR groups and greater ($P<0.05$) than in the Control group. Serum estradiol concentrations were elevated ($P < 0.05$) in the progestin treated groups compared to control animals on most days of the treatment period. In summary, long-term CIDR treatment, in the absence of a CL, induced the formation of a PF in both heifers and cows based on increased length of follicular wave, increased follicle diameter, and increased serum estradiol concentrations.