


Follicular wave dynamics after estradiol-17 β treatment of heifers with or without a progestogen implant

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RESUMEN

Two experiments were designed to evaluate the effects of estradiol-17 β (E-17 β) on follicular wave dynamics and gonadotropin in cattle. The first experiment was designed to evaluate the effect of 5 mg E-17 β administered on Day 1 (ovulation=Day 0) in heifers with or without a progestogen (SMB) ear implant. The dominant follicle in heifers treated with E-17 β +SMB ceased to grow 1 d after E-17 β treatment and subsequently regressed resulting in early emergence of the next follicular wave. Conversely, E-17 β treatment of non-implanted heifers resulted in transient or incomplete suppression of the dominant follicle, and delayed emergence of the next follicular wave ($P<0.05$). A post-treatment surge in plasma LH concentration was detected in 5 of 6 heifers treated with E-17 β alone versus 1 of 6 treated with E-17 β +SMB ($P<0.05$). In all but 1 heifer, the LH surge was accompanied by a concurrent FSH surge (18 to 36 h after E-17 β). The second experiment was designed to determine an effective dosage regimen of E-17 β for suppression of follicular growth in SMB-implanted heifers and to test the hypothesis that estradiol-induced follicle suppression will result in a synchronous emergence of the subsequent follicular wave. On Day 0, 48 heifers were implanted with SMB and allocated to 1 of 7 treatment groups: control heifers, and those that received 10 mg or 5 mg E-17 β i.m. on Day 1 or Day 3; or 2.5 mg E-17 β b.i.d. on Days 1 to 3 or Days 3 to 5. The growth of the dominant follicle of the first follicular wave was suppressed in all the E-17 β treated groups. Emergence of the second follicular wave was later ($P<0.05$) in control heifers than heifers treated with a single injection of E-17 β on Day 1, but was not different from heifers treated on Day 3. Furthermore, the day of wave emergence was less variable ($P<0.05$) in heifers treated with 5 mg of E-17 β than in control heifers. It was concluded that E-17 β and progestogen treatment may be used to suppress follicular growth and cause the synchronous emergence of a new follicular wave in cattle.

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