

SUPEROVULATION USING DIFFERENT DOSES OF PMSG AND MONOCLONAL ANTI-PMSG IN CATTLE.

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The object of the experiment was to examine the effects of monoclonal anti-PMSG (Neutra-PMSG; Intervet UK), the dose level of pregnant mare serum gonadotropin (PMSG), and the timing of administering anti-PMSG on embryo yield and quality. Sixty-four Hereford X British Friesian heifers were assigned at random to one of thirty-two treatment groups in a 2 X 4 X 4 factorial design. The factors were PMSG or PMSG plus anti-PMSG (PMSG/APMSG) PMSG administered 4 dose levels and APMSG injected at 4 times after prostaglandin (PG) injection. Estrus was synchronized using two injections of PG as 2 ml Prosolvin (Intervet UK) given 11 days apart. Heifers were superovulated with 1000, 2000, 3000 or 4000 iu of PMSG (Folligon; Intervet UK) im on day 10±1 of their estrous cycle and given 2 ml PG im 48 h later. Animals were inseminated twice with two straws of semen 12 and 30 h after the onset of estrus. An equivalent dosage of PMSG-antiserum to the PMSG dosage (PMSG/APMSG group) or the anti-PMSG vehicle (PMSG group) was administered iv to heifers 60, 72, 84 or 96 h after PG injection. Embryos were collected nonsurgically on day 6 to 8 of the superovulated estrous cycle and numbers of corpora lutea (CL) and large follicles (LF) >10mm in diameter were counted visually by laparoscopy on the following day. Plasma estradiol (E₂) was measured by radioimmunoassay. Data were analyzed by ANOVA and means were compared by LSD. Preovulatory peak concentration of E₂ occurred 24 to 48 h after PG injection. In the PMSG group a second peak of E₂ occurred 5 days after estrus which was followed by a slow decline to basal levels. In the PMSG/APMSG group E₂ dropped to basal levels within 24 h after the injection of APMSG and remained low until the last day of the experiment. Overall, the numbers of CL, LF, total number of ova/embryos and the number of usable embryos were not significantly different (P>0.05) between PMSG and PMSG/APMSG group (8.5, 3.4, 5.7 and 4.1 v 9.0, 1.5, 5.0 and 4.1, respectively). The numbers of LF were, however, 2.3 times higher in PMSG than PMSG/APMSG treatment. When data were evaluated based on the time of APMSG administration, administering APMSG 60, 84 or 96 h after PG reduced significantly (P<0.05) the numbers of LF as compared to PMSG groups (2.3, 1.9 and 0.6 v 3.4, 5.3 and 2.1, respectively). When data were evaluated in respect of the PMSG/APMSG dose level, there were no significant differences (P>0.05) in the numbers of CL and usable number of embryos between APMSG treatment and the appropriate control dose level. Treatment with APMSG in the 3000 iu PMSG dose group reduced (P<0.05) the numbers of LF compared to control (1.3 v 5.5). In conclusion, despite reducing LF numbers and preventing the rise in E₂ after ovulation, Neutra-PMSG had no significant effect on the number of usable embryos recovered.