

kg) there after PO) and gabapentin (6.8 mg/lb; 15 mg/kg PO) on days 0 through 4. Bulls were weighed on days 0 and 56, and average daily gain (ADG) for the duration of the study was assessed. All bulls received breeding soundness evaluations including scrotal circumference measurement, transrectal palpation of accessory sex glands, and semen collection and evaluation on days 0, 14, 28, 42, and 56. In each evaluation, sperm motility and morphology were analyzed via light microscopy by the same veterinarian. Daily high and low temperatures were also recorded. Bulls were comingled and managed identically for the duration of the study. SAS for Windows 9.3 was used for statistical analyses. Gain was analyzed via the TTEST procedure, and measures of sperm morphology were analyzed using the MIXED procedure. All data are presented as mean \pm SEM.

Results

No negative side effects were observed in TREAT bulls following the administration of meloxicam and gabapentin. Initial BW for TREAT and CON bulls was not different ($P > 0.05$) as bulls weighed 1300 ± 52.5 and 1390 ± 40.7 lb (589.6 ± 23.81 and 630.5 ± 18.46 kg), respectively. There was no difference in ADG between TREAT and CON bulls ($P > 0.05$). No significant main effects of group or day or interactions thereof were ob-

served on the incidence of abnormal sperm morphologies ($P > 0.05$). All bulls displayed at least 70% morphologically normal sperm (the minimum for obtaining satisfactory potential breeder status per Society for Theriogenology (SFT) standards) at each collection. Furthermore, all bulls maintained acceptable motility ($>30\%$ progressively motile, per SFT standards) for the entirety of the study. Daily high and low temperatures ranged from 86 to 89° F and 63 to 70° F (30 to 31.7° C and 17.2 to 21.1° C), respectively.

Significance

Administration of meloxicam and gabapentin did not adversely affect bull semen quality. Clinical observations and previous studies indicate that, when administered simultaneously, these drugs may be useful in alleviating inflammatory and neuropathic pain due to lameness. Our findings that the combination of meloxicam and gabapentin does not induce subfertility or infertility in breeding bulls is significant as these analgesics are frequently used in lame bulls, especially in AI studs. Further studies evaluating the fertility decline in lame bulls can now be performed with the knowledge that these analgesics do not play a role in the pathogenesis.

Comparison of cardiopulmonary effects of 5 degree reverse Trendelenburg and horizontal positions in dorsally recumbent sevoflurane-anesthetized calves: preliminary data

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Introduction

The purpose of the study was to compare the cardiopulmonary effects of 5 degree reverse Trendelenburg ("head-up") to the horizontal position in dorsally recumbent calves anesthetized with sevoflurane.

Materials and Methods

Five healthy male Holstein calves weighing 340 ± 46 lb (154 ± 21 kg) were included in the study. Each animal was anesthetized 2 times, 1 for each experimental group: control group (CG), table with no tilting (horizon-

tal position); and treatment group (TG), table positioned with 5 degrees of inclination (reverse Trendelenburg). Calves were physically restrained and positioned in the supine position on the operating table in the slope determined for each group. Anesthesia was induced via facial mask with 8% sevoflurane in oxygen (5 L minute⁻¹) and maintained at 1.3% MAC, which was previously determined for each animal. A period of 40 minutes was awaited in order to obtain stability of anesthetic concentration and to allow the preparation of the animals. Cardiopulmonary variables (heart rate; systolic, diastolic, and mean arterial pressure, central venous pressure, cardiac output, end-tidal carbon dioxide, respiratory rate, respiratory minute volume, tidal volume, and core temperature) were recorded immediately after the stabilization period (T 0), and then at 30, 60, 120, and 180 minutes. Derived cardiovascular variables (cardiac index, stroke volume, pulmonary and systemic

vascular resistance index) were calculated. Mean values were compared through ANOVA for repeated measures and Bonferroni's *post-hoc* test or through Friedman's test with Dunn's *post-hoc* test. Statistical significance was set at $P < 0.05$.

Results

There were no significant differences in cardiopulmonary parameters between groups.

Significance

The 5 degree reverse Trendelenburg position in dorsally recumbent sevoflurane-anesthetized calves did not improve the cardiopulmonary parameters evaluated in this study.

Comparison of 2 gonadorelin formulations and 2 luteolytic agents on pregnancy rates in beef cattle synchronized with a 5-d CO-Synch + CIDR program

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Introduction

Improving reproductive performance in beef cattle is paramount to maximize beef operations productivity and sustainability. Gonadotropin releasing hormone (GnRH) and luteolytic agents (dinoprost tromethamine and cloprostenol sodium) are commercially available to be used in synchronization programs to allow timed artificial insemination (TAI) of cattle. Recently, a Synchronization Pack™ (Parnell) containing a combination of cloprostenol sodium and gonadorelin acetate was approved by the Food and Drug Administration to be used in TAI synchronization programs in both beef and dairy cattle. However, little research-based evidence on the pregnancy rates that can be achieved in beef cattle using these hormones is available. The objective of the present study was to compare the effect of 2 gonadorelin formulations and 2 luteolytic agents (PGF) injected as part of a 5 day CO-Synch + CIDR program on fixed TAI (FTAI) pregnancy rates (PR) in beef cattle.

Materials and Methods

Postpartum beef cows (n = 473) and heifers (n = 78) from 2 herds received GnRH and a CIDR insert on day 0; 5 days later, at CIDR removal, animals received 2 doses of PGF. On day 8, cows and heifers received a second injection of GnRH and were FTAI. At the initiation of the breeding program, cows were blocked by age and days postpartum (DPP) and randomly assigned into 1 of 2 treatment groups. For animals in the control group (CON = 280), the hormones used for the synchronization program were gonadorelin diacetate tetrahydrate (100 µg; Cystorelin®) and dinoprost tromethamine (50 mg (2-25 mg doses); Lutalyse®); while animals in the Parnell group (PAR = 271) received gonadorelin acetate (100 µg; GONAbreed®) and cloprostenol sodium [1000 µg (2-500 µg doses); estroPLAN®]. Determination of pregnancy status was performed by transrectal ultrasonography at 35 to 45 days after FTAI and after the conclusion of the breeding season.