Reduction in the pregnancy rate caused by the excitable temperament of Nelore cows can be circumvented by the administration of GNRH or long-acting P4.

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Resumo

This research aimed to determine the effect of temperament on reproductive parameters including cortisol and progesterone (P4) in Nelore cows. Additionally, two methods for increasing plasma progesterone (P4) levels in excitable animals to enhance pregnancy rate (P/AI) and reduce pregnancy loss were investigated. In total, 939 cows were subjected to timed artificial insemination (TAI) and divided into three groups: (P4LA; n = 305) 150 mg of injectable long-acting progestogen 7 days after TAI; (GnRH; n = 306), 10 µg of buserelin acetate on day 7 after TAI; control group (CG; n = 328) without hormonal treatment. Ultrasound evaluations of the preovulatory follicle (FL) (Mode B) were performed on the day of insemination and of the corpus luteum (CL) (Color Doppler) 7 and 16 days after TAI. Blood samples were obtained on the day of insemination and after 7 and 16 days to measure cortisol and progesterone, respectively. At the time of insemination, subjective temperament evaluations were performed with the animals being classified as excitable (EXC) or adequate (ADQ). The SAS GLIMMIX procedure was used to compare the pregnancy rate (P/AI) and gestational loss within each temperament for the three experimental groups. Continuous variables were analyzed utilizing SAS PROC MIXED procedure. Cortisol concentration was higher in excitable females (P < 0.01) and FL (P = 0.03) and CL (P = 0.02) volumes, at the time of insemination and 7 days after AI, respectively, were lower in EXC than in ADQ animals. No significant difference was observed between the number of pixels, CL intensity, and plasma concentration of P4, 7 days after TAI. However, 16 days post-insemination, among the animals classified as EXC, higher concentrations of P4 were observed in the GnRH and P4LA groups than in the control. P4 concentration was lower in animals classified as EXC than in ADQ within the control group (P = 0.06), while rate of blood flow from the CL was lower in EXC animals than in ADQ animals (P = 0.04). Among the ADQ animals, the GnRH and P4LA groups showed a lower flow rate than that observed in the control (P = 0.04). Among EXC animals, a higher pregnancy rate was observed in the GnRH and P4LA groups than in the control group (P = 0.01). In the control group, the pregnancy rate (P/AI) of the ADQ animals was higher than that of the EXC animals (P = 0.05). No statistically significant differences were observed between gestational losses when the treatments or temperaments were compared. In conclusion, the use of GnRH or P4LA, 7 days after insemination, improves pregnancy rates in excitable animals and is a viable alternative to minimize the negative impact of stress and improve reproductive efficiency in beef cattle.