Pregnancy loss after timed-artificial insemination in Bos indicus (Nelore) beef cows: effect of parity, body condition score, presence of corpus luteum, expression of estrus and GnRH treatment at the time of AI

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Resumo

Pregnancy loss (PL) importantly impacts the profitability of livestock production systems, although it is not widely reported, particularly in Bos indicus cattle. The present study retrospectively evaluated PL after timed-artificial insemination (TAI) in Bos indicus (Nelore) beef cows according to several factors, such as parity, body condition score (BCS), presence of corpus luteum (CL) at the beginning of TAI protocols, and expression of estrus. Data from two experiments performed during three breeding seasons (BS) were retrieved, and both experiments included the evaluation of adding a GnRH treatment at the time of AI in a 7-d estradiol (E2) plus progesterone (P4)-based protocol, with intravaginal P4 implant removal on D7 and TAI on D9. In the first BS (Exp 1), cows received either GnRH or E2 benzoate (EB) on D0 and, on D9 cows were randomized to receive or not GnRH at TAI. During BS 2 and 3 (Exp 2), the TAI protocol initiated with EB and a P4 implant, and cows were randomized to receive or not a PGF treatment on D0. On D7, cows were treated with 0.5 or 1.0 mg E2 cypionate and, on D9 (TAI), cows were treated or not with GnRH. All cows received 300 IU eCG either on D6 or D7. All hormones were from GlobalGen vet science. In all BS, presence of CL and BCS were evaluated at the beginning of TAI protocols, expression of estrus was evaluated at TAI, and ovarian ultrasound evaluation was performed during the protocol on days 0, 7 and 9. The PL was assessed between the first pregnancy diagnosis (~35d) and parturition. Statistical analyses were done by PROC GLIMMIX of SAS 9.4 (P≤0.05). There were no effects of hormonal manipulations within BS on PL. There was no interaction between GnRH treatment at TAI and the other variables within BS, and there was no main effect of GnRH treatment on PL (without = 10.1% [102/1,007] vs. with = 10.4% [114/1,100]). Considering all BS, primiparous had greater (P<0.01) PL than multiparous cows (14.0% [77/550] vs. 8.9% [139/1,557]), and cows not expressing estrus near TAI had greater (P=0.05) PL than those expressing estrus (13.5% [57/422] vs. 9.7% [156/1,617]). There was no interaction between follicle size at TAI and GnRH treatment on PL. However, the probability of PL linearly decreased as follicle size at TAI increased (P=0.05). Interestingly, there were no effects of service number (first TAI or resynchronization), BCS, or presence of CL on D0 on PL. In conclusion, primiparous and cows not expressing estrus near TAI had greater PL, while BCS, number of service and presence of CL on D0 did not affect PL. Finally, GnRH treatment at the time of AI had no effect on PL and did not interact with any of the variables, which is an exciting result, since GnRH at AI increases fertility in Bos indicus beef cows.

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