AI and IATF

Dose-dependent effects of estradiol benzoate for resynchronization of ovulation at 14 days after timed artificial insemination in beef cows

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A dose of 1mg estradiol benzoate (EB) given at 14 days after timed artificial insemination (TAI) does not disturb the establishment of pregnancy in beef cattle. We aimed with this study to compare the effects of 1mg *vs.* 2mg EB given associated to progesterone (P4) at 14 days after TAI on follicle wave emergence (FWE) and pregnancy rates (PR) in *Bos indicus* beef cows. Nelore suckled cows (n=1,030) with a body condition score (BCS) between 2 and 4 (scale: 1-5) were subject to an estradiol/P4-based protocol and the day of TAI was considered D0. On D14, the cows received an 8-16 days-used intravaginal P4 device (Sincrogest®, Ourofino Saúde Animal) and were randomly assigned in two groups according to EB dose (Sincrodiol®,Ourofino): EB-1 (1mg; n=517) or EB-2 (2mg; n=513) groups. A subgroup of cows (n=18-19/group) was subjected to daily ultrasonography evaluations from D14 to D22 to evaluate follicular and corpus luteum (CL) dynamics. On D22, the P4 devices were removed and non-pregnant (NP) cows were identified based on determination of luteal size and blood perfusion to detect CL regression using Color Doppler ultrasonography. The NP cows received 1mg estradiol cypionate (SincroCP®,Ourofino), 0.5 mg sodium cloprostenol (Sincrocio®,Ourofino) and 300 IU eCG (Novormon®,Zoetis) on D22 and on D24 a second TAI was performed. Confirmatory diagnosis of pregnancy was performed between days 30 and 35 (D30-35) after first and second TAI. The data were evaluated by Fisher's exact test or logistic regression (GLIMMIX) of SAS, considering the effects of group, sire, BCS, farm, parity category, and their possible interactions. The proportion of cows with a synchronized FWE (from 3-5 days after EB treatment) was greater ($P<0.05$) in the EB-2 (89.5% [17/19]) than in the EB-1 group (44% [8/18]). As expected, a BCS effect ($P<0.05$) was observed on PR after first TAI, indicating greater PR in cows with BCS of 3 (50% [347/697]) compared to 2.5 (38% [117/310]). The PR at D22 and D30-35 after first TAI were greater ($P<0.05$) in the EB-1 (54.5% [281/516] and 51% [264/515], respectively) than in EB-2 group (48% [243/510] and 42% [212/508], respectively). The rate of potential pregnancy loss between D22 and D30-35 was greater ($P<0.05$) in the EB-2 (13% [31/243]) than in EB-1 group (6% [17/281]). No difference ($P>0.1$) was observed in the PR of cows submitted to the second TAI between EB-1 (47% [106/226]) and EB-2 groups (42% [109/257]). Furthermore, cumulative PR (first and second TAI) was greater ($P<0.05$) in the EB-1 group (73% [370/508]) than in the EB-2 group (64% [322/502]). In conclusion, the use of 2mg EB at D14 after TAI improves the synchrony of the FWE but does not increase the PR at the second TAI and negatively impacts on the previous pregnancy. Therefore, the use of 1mg EB associated with the P4 device is preferred to avoid the risk of pregnancy loss in resynchronization protocols at D14 post-TAI in beef suckled cows. Acknowledgments: FAPESP(2015/10606-9, 2019/07805-0)