Animal Reproduction

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EMBRYOLOGY, DEVELOPMENTAL BIOLOGY AND PHYSIOLOGY OF REPRODUCTION

B-glucan supplementation in the prepartum did not affect uterine involution or cytological endometritis in dairy cows - Preliminary results

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The β-glucan has anti-inflamatory and anti-oxidant effects and improves immunity in transition cows. It was evaluated the effects of β-glucan supplementation in transition period on uterine involution and cytological endometritis occurence in Holstein cows. Fifty-two cows housed in a windtunneled compost barn system were supplemented for 28 consecutive days starting at 40 days pre-calving. The cows were divided homogeneously, according to parity and expected calving date, into four experimental groups (n=13 per group) that received the following daily doses of pure β-glucan : 0 mg/kg body weight/day (G1), 36 mg/kg (G2), 60 mg/kg (G3), 84 mg/kg (G4). β-glucan (Macrogard®, Biorigin, São Paulo, Brazil) was mixed in ground corn in different proportions according to the groups, so that each animal received 0.545 g of the mixture per kg of body weight (BW) (equivalent to 300 g of mixture for a cow of 550 kg BW). The mixture was offered individually in headlock on feed alley. The cows were fed a balanced diet based on corn silage, concentrate and anionic mineral mixture. After calving, the cows received a balanced diet based on corn silage and concentrate. Milking was performed three times a day. Cows were submitted to endometrial cytology at 7 and 30 days postpartum by cytobrush technique. With the aid of an insemination sheath, a cytological brush was introduced into the body of the uterus and a slide was prepared. The slide was stained by the rapid panopticon technique and read under immersion microscopy (1000X). At least 300 cells were counted and samples with more than 6% polymorphonuclear cells were considered cytological endometritis. At 7, 18 and 30 days postpartum, the cows were submitted to transrectal ultrasonography, and the cross-section uterine diameter of the pregnant and non-pregnant horns were measured, immediately after their bifurcation. The data were analyzed by PROC GLIMMIX, in SAS v. 9.4, considering the effects of experimental group, parity and day postpartum. Gamma distribution was used to adjust the uterine diameter data and binomial distribution to adjust cytological endometritis (CE) data. No group or parity effect ($p>0.05$) was observed on the occurrence of cytological endometritis. At seven days postpartum, 36.54% (19/52) of cows presented CE and at 30 days postpartum 38.00% (19/50) of the cows were diagnosed with CE. No group or postpartum day effect was observed on the diameter of the uterine horns. The uterine horn where the previous pregnancy was established had a mean diameter of 2.91±0.13 cm; 1.98±0.06 cm and 1.74±0.05 cm, respectively, at 7, 18 and 30 days postpartum. Regarding the non-pregnant horn, a smaller diameter ($p<0.05$) was observed for primiparous cows (1.72±0.07 cm) compared to multiparous cows (1.96±0.06 cm). The supplementation of dairy cows with β-glucan for 28 days in the pre-partum period did not reduce the occurrence of cytological endometritis, as well as did not interfere with uterine involution.