

Effect of estradiol benzoate on uterine arteries blood flow and endometrial inflammation in dairy cows with endometritis

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[Introduction] Endometritis has a great impact on the fertility of dairy cows. There has been a concerted effort to develop reliable protocols that could be used to treat subclinical (SE) and clinical endometritis (CE). In this study, we investigated the effect of exogenous estradiol benzoate (EB) on uterine arteries blood flow and endometrial environment of postpartum dairy cows with SE and CE. [Materials and Methods] A total of 17 Holstein Friesian dairy cows were classified into healthy (n=6), SE (n=4) and CE (n=7) groups by vaginal mucus score and endometrial cytology at 4th week postpartum (day 1) and then transrectal Doppler ultrasonography of uterine blood flow was performed for 10 successive days. On day 3, all cows received intramuscular injection of 10 mg EB. [Results] After EB treatment, the pulsatility index (PI) and resistance index (RI) values significantly decreased for 3–6 days then started to increase in all groups. Whereas, the time average maximum (TAMAX) velocity, blood flow volume (BFV) and the diameter significantly increased for 3–5 days, and then started to decrease in both the ipsilateral and contralateral uterine arteries to the previously pregnant horn in all groups. There were high positive correlations between both the ipsilateral and contralateral uterine arteries in all different parameters. However, there were no significant differences neither in PI, RI, TAMAX, BFV nor diameter values among different groups. There was a significant decrease in polymorphonuclear cells % after EB treatment in both SE and CE groups. In conclusion, administration of exogenous EB is effective in altering uterine arteries blood flow and may reduce the degree of inflammation in the endometrium of cows with endometritis.