Prostaglandin F2α administration before G6G increased synchronization rate in Holstein dairy cows

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OBJECTIVES

The objectives were to determine the effect of a single PGF2α treatment 14 d before the initiation of a G6G synchronization protocol on ovarian response in multiparous Holstein cows. We hypothesized that the inclusion of a presynchronization with PGF2α treatment 14 d before the initiation of a G6G timed-AI protocol would increase fertility by improving synchronization rate to the protocols.

MATERIALS & METHODS

Holstein dairy cows (n= 160, >30 Kg/d) with no overt clinical illnesses (Rectal examination of all cows confirmed that there were no clinical abnormalities of the uterus or abnormal vulva discharge) were randomly assigned into two groups: (1) G6G group (PG-GnRH-GnRH-PG-GnRH, n= 240) and (2) PG6G group that received a PG injection 14 d before starting G6G (PG-PG-GnRH-GnRH-PG-GnRH, n= 250). Ultrasonography was performed at first GnRH for cows in both treatments to determine the presence or absence of a CL and diameter of follicles present on the ovaries. Seven days later at the PGF injection, ovarian ultrasonography was performed to determine ovulatory response to first GnRH. Ovulation was defined as the presence of a follicle at first GnRH and presence of a new or an additional CL in the same location 7 d later at the second ultrasonography examination. Ovarian ultrasonography was also performed at the time of AI and 7 d later to determine ovulatory response to second GnRH. Ovulation was defined when the dominant follicle present in the ovary at estrus was confirmed to have disappeared using transrectal palpation and real-time ultrasonography. Synchronization rate was defined as the percentage of cows that responded to both PGF2α and final GnRH of Ovsynch (by ovulating a dominant follicle, Dirandeh et al., 2015).

Number and percentage of lactating Holstein cows that ovulated after first and second GnRH of Ovsynch, responded to PGF2α treatment, and were considered synchronized in the twoTAI protocols.

	TAI protocols	
Item	G6G	PG6G
Total no. of cows	140	150
Cows that ovulated to first GnRH of Ovsynch, % (no.)	69.2 (97)[a]	80.6 (121)[b]
Cows that had luteal regression after PGF2α of Ovsynch, % (no.)	89.2 (125)	92.0 (138)
Cows that ovulated to second GnRH of Ovsynch, % (no.)	71.4 (100)[a]	80.0 (120)[b]
Synchronization rate, % (no.)	67.1 (94)[a]	75.3 (113)[b]

[a,b,c] **Different superscripts within a row differ (P < 0.05).**

CONCLUSION

Prostaglandin injection 14 d before starting G6G better synchronized follicular development.

Dirandeh, E., Rezaei Roodbari, A., Colazo, M.G., 2015. Double-Ovsynch, compared with presynch with or without GnRH, improves fertility in heat-stressed lactating dairy cows. Theriogenology 83, 438-443.