EFFECT OF STALL FEEDING AND CIDR TREATMENT ON THE PREGNANCY RATE OF SAHIWAL FRIESIAN HEIFERS

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Introduction

Infertility in dairy cows in the tropics is often associated with poor heat detection. Previous study indicated that the major cause of reproductive failure was due to the embryonic deaths. It was demonstrated that supplementation of progesterone (Robinson et al. 1989) and reducing heat stress by stall feeding the cows may help to reduce the incidence of early embryonic deaths and thus increase the pregnancy. Therefore, this study was conducted to determine (1) the effect of stall feeding on the pregnancy rate and (2) the effect of Controlled Internal Drug Release (CIDR) treatment on the pregnancy rate.

Materials and Methods

Eighty-eight Sahiwal Friesian heifers aged 30 months were randomly selected in this study. Serum samples were collected from each heifer once a week for 3 weeks to measure the progesterone level. From these heifers, thirty-five heifers were allotted into 3 recipients groups. Group I consists of 11 animals which were allowed to graze. Group II consists of 11 animals, which were stall-fed. Group III consists of 13 animals, which were grazing and inserted with progesterone (CIDR) devices intravaginally at day 10 for post embryo transfer for 10 days. Oestrus of all heifers was synchronised with double intramuscular injection of 500 mg Clorprostenol (Estrumate) at 11 days apart. Oestrus was detected with the aid of a vasectomised bull and its duration and onset were recorded. Serum samples were also collected from each recipient on the day of oestrus, day of embryo transfer and subsequently twice a week for 3 weeks after embryo transfer to measure the progesterone level. A solid phase progesterone radioimmunoassay (RIA) technique using Coat-A-Count RIA progesterone kit was used to measure the serum progesterone level.

Results and Discussion

Based on the serum progesterone profiles, 64.8% (57/88) heifers had a normal oestrous cycle, 6.8% abnormal cycle and 28.4% acyclic. The pregnancy rates following embryo transfer of Group I, II and III were 18.2%, 0% and 7.7%, respectively. Results also indicated that there was a similar downward trend in the pregnancy rate of all groups. Group I had a significant embryo loss between day 16 and 23 while in Group II, losses occurred gradually between day 12 and 23 with significant loss occurs by day 28. Group III had similar trend as in Group II but there was a significant loss between day 12 and 23. Supplementation of exogenous progesterone from day 10 to day 20 of oestrous cycle in this study increases (2.1 times more) in the relative risk of early embryonic death compared with those without supplementation. This could be due to the rapid elevation of progesterone concentration on the day of insertion to day 12 coincide with significant embryonic loss between day 12 and 23. Another possibility is that the long duration of insertion and followed by a sudden withdrawal of CIDR leading to drop of progesterone level and induces mortality. The provision of shed and reduced locomotor activities to reduce hyperthermia in Group II, did not improve the pregnancy rate following embryo transfer. The relative risks of early embryonic loss between day 7 and day 28 of the oestrous cycle in this group ranged between 1.22 and 1.77 times more than those animals allowed to graze in an open field. This could be due to the poor stall ventilation and low roof, causing and "oven" effect during midday leading into thermal stress.

Conclusions

This study concludes that neither supplementation of exogenous progesterone using CIDR intravaginally for 10 days nor keeping the recipients in the stall post embryos transfer improved the pregnancy rate of the recipients.

References

Robinson, N.A., Leslie, K.E. and Walton, J.S. 1989. Effect of treatment with progesterone on pregnancy rate and plasma concentration of progesterone in Holstein cows. *J. Dairy Sci.* 72: 202-207.

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