

OVULATION SYNCHRONIZATION FOR IMPROVING FERTILITY IN POSTPARTUM DAIRY COWS

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ABSTRACT

A Study was conducted to determine the synchronization response with Ovsynch+CIDR protocol in cows . Pre synchronization medicinal treatment was given to the cows before synchronization. Total 10 cows were synchronized with an intravaginal CIDR containing 558 mg of progesterone for 7 days, starting on day 0 at the time of first GnRh injection. Cows were injected with PGF₂α (Cloprostinol, 500 µg) IM, on day 7 and the CIDR were removed on day 7 and on day 9 second GnRh injection 2.5 ml I/M was injected. Fixed Time Artificial Insemination was done 16- 24 hr after second GnRh injection. Estrous response was observed 100 per cent. The time required for onset of oestrous was 58.80 ±2.65 hrs., whereas the duration of oestrus observed was 23.80±0.55 hrs. The incidence of intense, intermediate and weak estrus was observed 40 ,40 and 20 per cent, respectively and the first service conception rate was 40 per cent. The Ovsynch+CIDR protocol induces better estrus response and first service conception rate in post partum cows.

KEY WORDS : Synchronization,CIDR, Dairy Cows and Postpartem

INTRODUCTION

The estrus synchronization is a hormonal regulation of estrus cycle at a time in a group of animals with timed A.I. For the proper time of A.I. at standing estrus , the synchronization of ovulation with Ovsynch protocol can be very effective. Under this system, a strategy was designed to synchronize ovulation by administering second GnRH 48 hrs after the PGF₂α injection (ovsynch) (Pursely *et al*, 1995). This protocol has been widely used for synchronization ovulation with timed A.I. and it is highly beneficial in cattle breeding program (Archibald *et al.*, 1992).The CIDR device is well suited to various approaches used to synchronize ovarian follicular development and ovulation. CIDR insert during the Ovsynch protocol increased fertility in lactating cows having low serum P4 before PGF₂α injection. (Cevik *et al.*, 2010)

MATERIALS AND METHODS

A total of 10 healthy cows at 60-90 days postpartum were selected for this study. Cows were examined for health disorders and palpated per rectum for ovarian activity before synchronization. In addition, animals were scored for their body condition (Scale 0-5 units). Cows having body condition scores greater than 2.5 have been selected and included in the study. Pre synchronization medicinal treatment (PSMT) was given to the cows before synchronization. PSMT includes Injection Ivermectin (Hitek), Injection Phosphorus (Urimine), Injection Vitamin A, D₃ & E (Intavita) and Chelated mineral mixture (Chelated Agrimin forte) orally @ 50 gm daily for next 15 days. All the injections were administered i/m except Ivermectin S/c . Cows in this treatment group received an intravaginal CIDR containing 558 mg of progesterone (TRIU-B, Virbac Animal Health India Pvt.Ltd.) for 7 days, starting on day 0 at the time of first GnRh injection (Buserelin Acetate, PREGULATE, Virbac Animal Health India Pvt.Ltd) . Cows were injected with PGF₂α (Cloprostinol, 500 µg PREGOVA, Virbac Animal Health India Pvt.Ltd,) IM, on day7 and the CIDR were removed on 7th and on second GnRh injection 2.5 ml I/M was injected on 9th day. Fixed Time Artificial Insemination was done 16- 24 hr

after second GnRh injection. Estrus detection was done by visual observation and per rectal examination. Data was analysed by using standard statistical procedures (Snedecor and Cochran,1994).

RESULTS AND DISCUSSION

Estrus response to treatment

In the present study 100 per cent cows responded to induced estrus. The results obtained for estrus exhibition were in close agreement with the finding of Bhoraniya *et al* (2012) . Krishnakumar and chandrahasan (2012). Velladuri *et al*,(2014) observed 100 per cent estrus response by using PGF₂α +GnRh 48 hrs after PGF₂α and ovsynch protocol, respectively. However, Cevik *et al.* (2010) and Dejarrette *et.al* (2004) observed 66.70 and 80 per cent induced estrus response, using ovsynch +CIDR and ovsynch protocol, respectively. The variation in the estrus response may be due to the luteal activity response by the age of the existing corpus luteum on the ovary (Watts and Fuquay, 1985).

Time required for onset of estrus

The mean time required for onset of estrus in the present study was observed 58.80 ±2.65 which was in agreement with krishnakumar and chandrahasan (2012), Sathiamoorthy *et.al.* (2007) and Deshmukh *et al.* (2013) . However the time required for onset of estrus in the present study was not in concurrence with Sathiamoorthy and Subramaniam (2003) who recorded 42.50 ± 7.60 hrs. and 45 ± 5.50 hrs. by using GnRH - PGF₂α and ovsynch protocol respectively. The difference for the onset of estrus may be due to functional status of corpus luteum on the ovary at the time of PGF₂α injection.

Duration of estrus

The mean duration of estrus in the present study was observed 23.80±0.55 hrs and it was similar with the observation recorded by krishnakumar and chandrahasan (2012) and Sathiamoorthy and Subramaniam (2003) . However the duration of estrus was not in agreement with Velladurai *et al.* (2014) who recorded high duration of induced estrus (29.84 ±0.67 hrs and 28.78±0.67 hrs) in natural estrus.

Intensity of estrus

The incidence of intense (40%), intermediate (40%) and weak (20%) intensity of estrus in the present study was recorded whereas high rate (50%) of intense estrus and comparatively low incidence of intermediate and weak intensity of estrus was observed by Bhoraniya *et al.* (2012) and Velladurai *et al.* (2014) by using ovsynch protocol for synchronization of ovulation in cows.

Conception rate

The first service conception rate in the present study was observed 40.00 per cent which was in close agreement with Abubaker *et al.* (2013), Pacala *et al.*(2010) and Stevenson *et al.* (2006). But at the same time the first service conception rate in the present study was lower as compared to reports of Cevik *et al.* (2010) and Bhoraniya *et al.*, (2012) using Ovsynch+CIDR protocol. However low conception rate (20.60 per cent) was reported by kim *et.al.*(2003) using Ovsynch+CIDR protocol. The variation observed in conception rate may be due to intensity of estrus, method and interval for heat detection, different managemental practices, season, doses, route of administration and nature of hormones used.

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