

ABSENCE OF POTENTIAL BENEFIT OF PROGESTERONE PRIMING DURING OVSYNCH PROTOCOL IN POSTPARTUM ANESTROUS BUFFALO NEAR THE END OF BREEDING SEASON

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ABSTRACT

Lactating multiparous postpartum anestrous buffalo (>90 day in milk) were subjected to ovsynch (n=8) and ovsynch plus CIDR (n=8) and control (n=8) group treatment. The buffalo exhibiting estrus in ovsynch, ovsynch plus CIDR and control group was 100% (n=8/8), 37.5% (n=3/8) and 12.6% (n=1/8), respectively and their respective first service pregnancy rate was 50, 62.5 and 33.3% (p>0.05). In brief, the present study ruled out the potential benefit of additional progesterone priming during ovsynch protocol in postpartum anestrous buffalo treated near the end of breeding season.

Keywords: Anestrus, Buffalo, Progesterone, Postpartum, Ovsynch

The optimum inter-calving period in buffaloes can be achieved following the implementation of an ovulation synchronization program like ovsynch by day 60 postpartum (Kumar *et al.*, 2010). However, the major limitation of this protocol is inability of GnRH to turnover dominant follicles late in the estrus cycle leading to premature estrus in 11-14% treated animals (Gabor *et al.*, 2002). On the other hand, the postpartum anestrous buffalo subjected to ovsynch plus progesterone-based controlled internal drug release (CIDR) protocol resulted in induction of estrus with an acceptable ovulatory response and first service conception rate (Ravikumar *et al.*, 2009). Thus, the present study examined the efficacy ovsynch and ovsynch plus CIDR synchronization protocol in anestrous buffalo.

Near the end of breeding season, the lactating multiparous postpartum anestrous buffalo (n=24, days in milk=90) devoid of any reproductive abnormality as well as infection were randomly selected for the present study. About a week before the start of synchronization

protocol, all the buffalo were administered pre-synchronization medicinal treatment (Ivermectin @ 1 ml/50 kg b wt, s.c.; Toldimtos sodium 20% - sodium salt of phosphinic acid @10 ml, i.m.; Vitamin A @ 2.5 lakh IU, Vitamin D3 25,000 IU, Vitamin E 500 IU, i.m.; Chelated mineral mixture @ 50 g orally daily). Thereafter, buffalo were randomly and equally divided into three groups. Group-I buffalo were administered (i.m.) 10 µg buserelin acetate (GnRH) on day 0 and 9 and 500 µg cloprostenol sodium (PGF_{2α}) on day 7. Group-II buffalo were administered same treatment as in Group-I and in addition were inserted per-vaginally a progesterone release device (CIDR) from day 0 to 7. The buffalo of both the groups were inseminated 16-20 h after second dose of buserelin acetate. Group-III buffalo were administered normal saline on respective days as in Group-I and were observed for estrus exhibition. The buffalo exhibiting estrus after second dose of normal saline were inseminated as per AM-PM rule. The pregnancy diagnosis was carried out per-rectally on day 60 post-insemination. The statistical analysis was carried out using Chi-square test.

In the present study, the number of buffalo

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exhibiting estrus in ovsynch, ovsynch plus CIDR and control group was 100% (n=8/8), 37.5% (n=3/8) and 12.6% (n=1/8), respectively. In previous studies in buffalo, estrus synchronization after ovsynch alone was reported between 85.3 to 100% (Ghuman *et al.*, 2009 and Kumar *et al.*, 2010). Our results demonstrated that at the end of breeding season ovsynch alone is effective for synchronization of estrus in buffalo, however, in contrast to our results, 100% estrus response after ovsynch plus CIDR treatment were reported in buffalo (Ravikumar *et al.*, 2009). The inclusion of progesterone in an ovsynch protocol is known to increase LH pulse frequency, thereby providing a favorable condition for the follicle development (Garcia-Winder *et al.*, 1986). In the present study, during estrus, almost all the buffalo of the three groups showed frequent micturition and congestion of vaginal mucous membrane. Other symptoms like bellowing and tail raising were highest in Group-III, and vaginal discharge and tummification of vulva was highest in Group-II.

The respective first service pregnancy rate in ovsynch, ovsynch plus CIDR and control group of present study was 50, 62.5 and 33.3% ($p>0.05$). The ovsynch-treated buffalo bred by natural service showed 53.6% first service conception rate (Kumar *et al.*, 2010). Another study in true anestrous buffalo heifers during summer season revealed 18% conception rate following ovsynch (Ghuman *et al.*, 2009). However, 66.7% first service conception rate was reported following ovsynch and ovsynch plus CIDR synchronization programs in non-cyclic Murrah buffalo (Rangnekar *et al.*, 2012). The inclusion of a CIDR device within ovsynch protocol is an ideal strategy for dealing with lactating postpartum subestrous buffalo (Ravikumar *et al.*, 2009).

In brief, the present study revealed almost similar impact of ovsynch and ovsynch plus CIDR protocol on fertility parameters in postpartum anestrous buffalo.

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