

CLINICAL EVALUATION OF CIDR IMPLANT IN POST-PARTUM
ANESTRUS BUFFALOES UNDER FIELD CONDITION

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ABSTRACT

Anestrus buffaloes (n=100) from different breeds having a post-partum interval of 90 or more days were selected for field study on the basis of ovarian inactivity, optimal body condition score and apparently trim general health. Selected buffaloes were grouped, Group I and II (n=40 each) buffaloes were treated with CIDR intravaginal application for 7 and 9 days respectively followed by same treatment of Inj. PGF₂ alpha 500 mcg on removal of CIDR and subsequently Inj. GnRH 10 mcg intramuscularly on day of AI. Group III (n=10) buffaloes were kept as untreated control. Fixed time Artificial Insemination was performed in all treated buffaloes after 24 h after Inj. PGF₂ alpha. Animals which failed to conceive were reinseminated in the next estrus. All the buffaloes (100%) from both the Treatment groups responded to the treatment as against 20 percent response in Control group buffaloes. Average duration of estrus in buffaloes was recorded from Group I, II and III as 18.76±1.11, 22.19±1.23 and 17.11±1.1 h, respectively. Prominent estrus symptoms were recorded in both the Treatment groups, whereas buffaloes from untreated Control group exhibited weak oestral exhibition response. The overall

pregnancy in Group I, II and III was 50, 70 and nil percent respectively. It can be concluded that CIDR implant for 9 days (long term) followed by Inj. PGF₂ alpha at the time of CIDR removal and Inj. GnRH on the day of timed artificial insemination is very effective under field conditions.

Keywords: *Bubalus bubalis*, buffaloes, CIDR, post-partum anestrus

INTRODUCTION

Buffalo reproduction is challenged due to delay in onset of puberty and minimal expressive signs of estrus during summer season. Apart from this, irregular estrous cycles, silent heat, poor conception rates particularly when bred artificially, seasonality of calving, longer post-partum anestrus extended calving interval (Madan, 1990).

Failure to recommend cyclicity post parturition and silent heat are two major issues that affect reproductive efficiency in buffaloes. In order to attain the goal of calf per fourteen months, it is crucial to detect the heat as early as possible after calving and insemination is attempted immediately on completion of standby period of 90 to 100 days

of calving. Strategic use of hormones favours to open the lockdown of post-partum anestrus and induce heat within a narrow frame window.

Different hormonal protocols with or without progesterone implants used earlier resulted reducing the above challenges related to postpartum anestrus buffaloes (Kutty and Ramachandran, 2003; Chaudhari *et al.*, 2012; Mohd *et al.*, 2013).

MATERIALS AND METHODS

Post-partum anestrus buffaloes (n=100) calved 90 days or more, aging 5 to 8 year and having body condition score 3.5 were selected for the present study. The selected animals were administered anthelmintics as per standard dosage and were provided mineral mixture 50 gm/day/animal regularly through concentrates.

Buffaloes were confirmed for anoestrous by performing repeated per rectal examination. The buffaloes were divided into Group I (n=40) was inserted intravaginal CIDR (1.38 gm Progesterone) for 7 days followed by Inj. PGF2 alpha 500 mcg on removal of CIDR and Inj. GnRH 10 mcg was administered i/m on day of AI. Group II (n=40) was treated as that of Group I with change of only CIDR continuation for 9 days and Group III (n=20) untreated control. Observations were recorded from the time of PGF2 α administration to appearance of estrus signs. Control group was also kept under observation for detection of estrus. All buffaloes from Treatment group were inseminated by fixed time Artificial Insemination plan after 24 h of Inj. PGF2 alpha and appropriately in oestral buffaloes from Control group.

RESULTS AND DISCUSSIONS

The efficacy of progesterone application through CIDR (1.38 gm Progesterone) for 7 and 9 days was studied in post-partum anoestrus buffaloes and PG and GnRH treatments were coined with the CIDR application to record fertility improvement. Details of observations of the clinical trial are presented in Table 1. It was observed that no buffalo lost the CIDR implant during the treatment period and there was no vaginal membrane damage, thus indicating overall retention rate of CIDR as 100%.

In the present clinical trial, estrus was induced in 100%, 100%, and 20% in Group I, II and III, respectively. When progesterone block is removed gonadotrophin level increases which results in growth and maturation of follicle and onset of estrus and if these CIDR implants are lost it affects estrus induction response (Baruselli *et al.*, 2002; Mohd *et al.*, 2015).

The many researchers are reported 100% induction rate in postpartum anestrus buffaloes treated with CIDR for 7 days along with GnRH and PGF2 α (Baruselli *et al.*, 2007; Zaabel *et al.*, 2009; Mohd *et al.*, 2015). However, 2 (20%) buffaloes from Control group, which exhibited signs of estrus, may possibly be due to either the effect of deworming, supplementation of mineral mixture (Yasothei, 2014) or effect of bio-stimulus effect from the treated buffaloes (Patra *et al.*, 2010). Repeated per rectal examination was carried out as ovarian massage of animals before initiation of treatment (Rahawy, 2009).

Prominent estrous symptoms were recorded in all Treatment group buffaloes and weak signs were observed in Control group of animals. Frequent micturition was most prominently seen in

Table 1. Efficacy of CIDR implants in true anestrus buffaloes.

Sr. No.	Parameter	Observations		
		I	II	III
1	Number of buffaloes	40	40	10
2	Intravaginal CIDR implant (Days)	7	9	--
3	Number of buffaloes responded (%)	40 (100.00)	40 (100.00)	02 (20.00)
4	Duration of oestrus (h)	18.76±1.11	22.19±1.23	17.11±1.1
5	Estrual symptoms	Prominent	Prominent	Weak
6	Conception (%)			
	1 st oestrus	16/40 (40.00)	21/40 (52.5)	00 (00.00)
	2 nd oestrus	03/24 (12.5)	05/19 (26.31)	00 (00.00)
	3 rd oestrus	01/21 (4.76)	02/14 (14.28)	00 (00.00)
7	Overall conception rate (%)	20/40 (50.00)	28/40 (70.00)	00 (00.00)
8	Cyclic non breeder (%)	12 (30.00)	09 (22.5)	00 (00.00)
9	Cessation of oestral cyclicity (%)	08 (20.00)	03 (7.5)	10 (100.00)

all the animals treated with CIDR based protocol. All the treated buffaloes exhibited estrus 60 to 72 h after administration of injection PGF2 α . Kaiaysri *et al.* (2015) reported that all treated animals using similar protocol exhibited estrus within 2 to 4 days. Mean duration of estrus in Group II treated with CIDR for 9 days (22.19±1.23 h) was slightly higher as compared to Group I treated with CIDR for 7 days (18.76±1.11 h).

First service conception rate (52.5%) and over all conception rate (70.0%) was higher in Group II than 40% and 50%, in Group I. It may be due to the extended duration effect of progesterone hormone and more impact of the hormonal treatment. Prolonged progesterone treatment has proved strong withdrawal effect to induce prominent estrus in buffaloes. Naseer *et al.* (2013) reported pregnancy rate as 60% after use of CIDR for 7 days, whereas Zaabel *et al.* (2009) reported 83.33% and Mujawar *et al.* (2019) reported 87.50%

conception rates for efficacy of CIDR implants for 7 days in buffaloes, which are higher than the present study. Additional progesterone to the Ovsynch protocol significantly increases the conception in post-partum anoestrous buffaloes, which supports earlier findings of De Rensis *et al.* (2005).

Similarly, present observations of 9 days CIDR treatment are lower than reports of Hiremath (2015) who recorded pregnancy rate as 85.16%. Vikash *et al.* (2016) reported conception rate with CIDR for 8 days-PG-GnRH as 81.33%. The present trial was conducted on clinical cases at field level, and it is important to consider involvement of negligence factor of owners for estrus management of buffaloes, as induction is successful with selected treatment protocol, but resultant pregnancy rates are not achieved as per expectations.

It is concluded that placement CIDR intravaginal implant for 9 days is more effective

for inducing estrus and higher conception in postpartum anestrus buffaloes. This helps to improve fertility in postpartum anoestrous buffaloes in field condition.

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