

THERAPEUTIC AND NUTRITIONAL MANAGEMENT OF POST-PARTUM ANOESTRUS IN CROSSBRED COWS

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Abstract

Proper diagnosis and treatment are essential to overcome this disorder to make dairy herd profitable. Therefore, the aim of study was to determine effects of therapeutic and nutritional treatment on induction of oestrus and oestrus intensity in postpartum anoestrus crossbred cows. On the basis of history and gynaecological examination 24 crossbred cows divided into 4 treatment groups. The Group I animals were treated with Clomiphene citrate. The Group II animals were treated with GnRH analogue. Cows from Group III were treated with mineral mixture powder and GnRH analogue. The Group IV animals were treated with mineral mixture powder and Clomiphene citrate. Higher oestrus induction efficacy (66.66%) was found in Group IV animals. Intense oestrus was found 66.66% in Group I and III, and 50% in Group II and IV, moderate oestrus was found 33.33% in Group I and III, and 25% in Group IV and weak oestrus was found 50% and 25% in Group II and IV.

Key words: Postpartum anoestrus, Oestrus intensity, Clomiphene citrate, GnRH analogue

I. INTRODUCTION

Anoestrus is considered as one of the most prevalent reproductive disorders in dairy cows and may occur due to hormonal imbalance, nutritional deficiency and disease conditions. Proper diagnosis and treatment are essential to overcome this disorder to make dairy herd profitable (Islam *et al.*, 2013)

Fertility and breeding efficiency of dairy animals play a pivotal role in dairy economics (Peter *et al.*, 2009). Any deviation in the breeding rhythm results in a progressive economic loss due to widening of dry period during the life span of animal (Dudhatra *et al.*, 2012).

Cows are regarded as physiologically anoestrus for a few days (up to 60) following parturition, whereas, lack of oestrus after 60 days postpartum is termed pathological anoestrus. Minerals like calcium, phosphorus and magnesium also influence the ability of animals to utilize other micro-minerals. The influence of these minerals on certain enzyme system may affect reproductive efficiency. Lack of minerals especially calcium, phosphorus and trace elements such as copper, cobalt, manganese, zinc etc. upsets the proper functioning of the genital organs (Raj, 2005).

II. MATERIALS AND METHODS

Location of work

The study was carried out on clinical cases brought to the Teaching Veterinary Clinical Complex of College of Veterinary Science and A.H., Mhow and in villages adapted for college ambulatory clinics.

Experimental Design

The postpartum anoestrus dairy cows (n=24) were equally divided into four groups on the basis of history and gynaeco-clinical examination. The cows were apparently healthy with history of postpartum anoestrus for more than 60 days. These cows were subjected to gynaeco-clinical examination twice with an interval of 10 days.

Group I:

In this group (n=6) cows were administered Clomiphene citrate orally @ 300 mg daily for five days. Treatment was discontinued if cow exhibited oestrus earlier than 5 days.

Group II:

The cows in this group (n=6) were treated with GnRH analogue (Buserelin acetate) @ 0.0042 mg (5ml) intramuscularly once only as single dose.

Group III:

The cows in this group (n=6) were supplemented with mineral mixture powder @ 30 gm orally daily for 20 days and treated with GnRH analogue @ 0.0042 mg (5ml) intramuscular on 7th day of mineral mixture supplementation.

Group IV:

The cows in this group (n=6) were supplemented with mineral mixture powder @ 30 gm orally daily for 20 days and Clomiphene citrate orally @ 300 mg daily for first five days.

Oestrus was detected by visual observation twice a day in morning and evening and confirmed by Heat detector. These cows were bred by natural service/ AI. Fertility status was confirmed by per rectal examination at 60 days post service.

Oestrus intensity score

Oestrus intensity was numerically scored, based on a proper weightage given for each of the parameter comprising estrual changes in the external genitalia, internal genitalia, behavioral expression and arborization of cervico-vaginal mucus. For this purpose, the score card device of Singh and Kharche (1985), Awasthi and Kharche (1989) and Sirmour (1999), was used (Table 1).

Table 1 – Oestrus intensity classification system

S.N.	Score Range	Types of oestrus
1.	More than 75	Intense
2.	65 to 74	Moderate
3.	Less than 65	Weak

III. RESULTS AND DISCUSSION**Oestrus induction efficacy**

The data pertaining to the rate of induction of oestrus is presented in Table 1, It reveals that 3 out of 6 cows from Group I exhibited oestrus signs, whereas in Group II, 2 out of 6 cows exhibited oestrus while in Group III, 3 out of 6 cows exhibited oestrus and in Group IV, 4 out of 6 cows exhibited oestrus sign during the entire period of experiment. The efficacy of oestrus induction in present study for Group I, II, III and IV were 50.00, 33.33, 50.00 and 66.66 percent, respectively. From present study it was found that efficacy percentage was higher in Group IV, followed by Group I, III and then Group II.

Table 1: Response to remedial measures in different treatment groups of crossbred cows

Groups	No. of animals	Efficacy of oestrus induction (%)
I	06	50.00 (03)
II	06	33.33 (02)
III	06	50.00 (03)
IV	06	66.66 (04)

Figures in parenthesis indicate number of cows

The rate of oestrus induction percentages recorded pertaining to Group I in present findings were similar as recorded by Kankal *et al.* (2008) and More (2012) who recorded 50.00 percent oestrus induction efficacy in Clomiphene citrate treated groups. Tiwary (2006) and Bawaskar *et al.* (2017) recorded higher oestrus induction efficacy in anoestrus cows treated with Clomiphene citrate.

Oestrus induction response as observed in present study for Group II (Buserelin acetate) cows is lower than the Mahour (2009), Gupta *et al.* (2012), More (2012) and Bharali *et al.* (2014). They recorded 60.00, 50.00, 62.50 and 60.00 percent oestrus induction in cows. Kumar *et al.* (2011) and Islam *et al.* (2013) recorded higher oestrus induction efficacy in anoestrus cows treated with GnRH analogue.

In the present study, Group III cows treated with mineral mixture and GnRH analogue (5 ml I/M) exhibited 50.00 percent oestrus induction in cows. The lower oestrus induction percentage than the present study was recorded by Raj *et al.* (2006) who recorded 33.33 percent oestrus induction in anoestrus cows. Whereas higher values than the present study was recorded by Nagare (2014) who found 87.50 percent oestrus induction in crossbred heifers.

Group IV cows treated with mineral mixture and Clomiphene citrate showed 66.66 percent oestrus induction in crossbred cows. The lower oestrus induction percentage than the present study was recorded by Ingawale *et al.* (2011) and Shridharrao (2016) who recorded 38.09 and 50.00 percent oestrus induction in anoestrus buffaloes whereas, higher value than the present study was recorded by Nagare (2014) who found 75.00 percent oestrus induction in crossbred heifers.

The variation in the results of Clomiphene citrate and GnRH analogue for induction of oestrus might be due to difference in body condition of animals, heat detection methods and follicular status of animals at the time of initiation of treatment.

Oestrus intensity score

In present study the oestrus intensity score of cows were intense in 66.66, 50.00, 66.66 and 50.00 percent, moderate in 33.33, 0.00, 33.33 and 25.00 percent and weak in 0.00, 50.00, 0.00 and 25.00 percent in Group I, II, III and IV, respectively (Table 2).

Table 2: Treatment group wise oestrus intensity score at induced oestrus in crossbred cows

Groups	Oestrus intensity score (%)			Total
	Intense	Moderate	Weak	
I	66.66 (02)	33.33 (01)	0.00 (0)	03
II	50.00 (01)	0.00 (0)	50.00 (01)	02
III	66.66 (02)	33.33 (01)	0.00 (0)	03
IV	50.00 (02)	25.00 (01)	25.00 (01)	04
Total	58.33 (07)	25.00 (03)	16.66 (02)	12

Figures in parenthesis indicate number of cows

Conception rate in cows expressing intense, moderate and weak oestrus as per total oestrus intensity score was 85.71, 66.66 and 50.00 percent, respectively (Table 3).

Oestrus intensity	Cows	
	Conceived (%)	Not conceived (%)

Intense (07)	85.71 (06)	14.28 (01)
Moderate (03)	66.66 (02)	33.33 (01)
Weak (02)	50.00 (01)	50.00 (01)

Table 3: Frequency of conception in relation to intensity of oestrus

Figures in parenthesis indicate number of cows

Difference in the oestrus intensity score between treatment groups clearly indicates the influence of Clomiphene citrate, GnRH, mineral mixture + GnRH analogue and mineral mixture + Clomiphene citrate treated induced oestrus with different oestrus intensities.

When the cow expressed intense oestrus the conception rate was quit high and when the oestrus intensity score was low as evident in the moderate and weak oestrus group, conception rate was low. Such a trend is in agreement with that reports of Shrivastava (1976) and MacMillan and Watson (1976).

Some animals showed weak oestrus this might be due to the depressed production of steroids hormone in affected animals and individual oestrus behavior.

IV. CONCLUSIONS

Treatment of postpartum anoestrus cows with Clomiphene citrate and mineral mixture has positive effect on induction of oestrus and Clomiphene citrate along with mineral mixture may be the drug of choice. Intensity of oestrus has positive relationship with conception rate. Higher conception rate was observed with intense oestrus.

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