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ANESTRUS BUFFALO TREATMENT SUCCESSFUL RATE USING CIDR

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ABSTRACT

The strategy of estrus synchronization has been employed to resolve problem of anestrous in buffaloes but their results are variable. Therefore, present study was conducted to evaluate progesterone-based (CIDR) protocol on estrous expression and pregnancy rate in anestrous buffaloes under field conditions. The study population was comprised of 30 multiparous buffaloes with more than 150 days in milk. Buffaloes were allocated to CIDR administration. Controlled internal drug releasing (CIDR) devices were inserted in buffaloes intravaginally for 12 days. CIDRs were removed on day 12 and results were recorded for one week. The results showed that the estrus response differed significantly after CIDR ($P < 0.05$). Of 30 planned CIDRs, 27 of them (90%) were remained and 3 of them (10%) were failed. Of 27 remained CIDRs, 19 of them (70.4%) were showed estrous and only 9 of them (47.4%) were pregnant successfully. In conclusion, CIDR devices are equally effective to induce estrus with optimal pregnancy rate in anestrous buffaloes. It is implied that this regimen has great potential in fertility improvement in anestrous buffaloes under field conditions.

Keywords: Anestrus, Buffalo, CIDR, Pregnancy

INTRODUCTION

The buffalo has great contribution to livestock sector of Iran. The buffalo is usually reared for the purpose of milk and meat, which produces about 70 percent of the total milk and 50 percent total red meat (Usmani et al., 1987). In Iran, buffalo production is favored by farmers and

consumers due to higher milk price and better nutritional constituents than cow milk. The buffalo rearing is practiced by livestock farmers in riverine areas and its popularity is similar in arid and semi-arid areas. Its popularity is owing to low inputs, excellent utilization poorer quality

roughages, better adaptation to harsher environments and more resistant to several bovine tropical diseases than cattle (Gordon, 1996).

Although buffalo exhibit many of the known reproductive disorders and have delayed onset of puberty, poor estrus expression, longer post-partum ovarian quiescence, and most importantly lowered conception rate particularly when bred artificially (Gordon, 1996). It is a general observation that large number of buffaloes is culled or slaughtered every year because of anestrus. But anestrus is still big dilemma in buffalo reproduction which is associated with lower peaks of FSH and LH, and inherently suboptimal functioning of hypothalamus–pituitary–gonadal axis (El-Wishy, 2007). This condition of anestrus exaggerated in arid and semi-arid area due to unavailability of wallowing ponds to combat the heat stress during the summer months (Warriach et al., 2008).

The strategy of estrus synchronization has been employed to resolve problem of anestrus in buffaloes but their results are variable. But the most of previous studies have been practiced in well managed dairy farm where better conditions, environmental and nutrition factors played a major impact response to estrus synchronization treatment and conception rate (Murugavel *et al.*, 2009). However under village condition

where variable body condition score, age, stage of lactation and level of nutrition might be the factors which influence the use of synchronization protocols. The application of more simplified protocols could be more beneficial way to combat the anestrus in buffaloes under field conditions. Therefore, present study was conducted to evaluate progesterone-based (CIDR) protocol on estrous expression and pregnancy rate in anestrus buffaloes under field conditions.

MATERIALS AND METHODS

The study was conducted in small herds in the periphery of District Tabriz during the year 2013. The study population was comprised of 30 multiparous buffaloes with more than 150 days in milk, moderate body condition scores (2.5-3.5), 4-6 years age and 400-550 kg weight. Rectal palpation examination and previous calving history revealed normality of involved buffaloes. Anestrus condition was determined by no palpable CL on ovaries and absence of estrus signs after calving. Moreover, blood samples were collected from the buffaloes before the start of trial to measure the progesterone concentration as an index of ovarian activity.

Buffaloes were allocated to CIDR administration. Controlled internal drug releasing (CIDR) devices were inserted in buffaloes intravaginally for 12 days. CIDRs

were removed on day 12 and results were recorded for one week.

RESULTS

The effect of CIDR on estrus response, ovulation and pregnancy rate in anestrous buffaloes is presented in Table 1. The results showed that the estrus response

differed significantly after CIDR ($P < 0.05$). Of 30 planned CIDRs, 27 of them (90%) were remained and 3 of them (10%) were failed. Of 27 remained CIDRs, 19 of them (70.4%) were showed estrous and only 9 of them (47.4%) were pregnant successfully.

Table 1: effect of CIDR protocol on estrus response and pregnancy rate in anestrous buffaloes

Event	CIDR
Estrous response	70.4%
Pregnancy rate	47.4%

DISCUSSION AND CONCLUSION

The present study described the CIDR based on different reproductive events in anestrous buffaloes. Previous reports are in consistent regarding the effect of this protocol on estrus response in cows and buffaloes (Murugavel et al., 2009; Azawi et al., 2012). This hormonal interventions have been used previously to induce estrus and ovulation in farm animals by stimulating the maturation of Graafian follicles, either directly as in case of PMSG or indirectly by CIDR inducing a surge in release of LH surge (Grimardet al., 1995; Imwalle et al., 1998). In the present study, we found a significant effect of CIDR on estrus response. The previous studies regarding the use of CIDR are in agreement to the successful estrus induction but some authors reported that CIDR do not have any significant effect on estrus response in beef cattle (Sá-Filho et al., 2010) and sheep (Zonturlu et al., 2011). Zaabel et al., (2009) found great variability in use of CIDR alone however, in

combination with GnRH or EB (Naseer et al., 2011) induce more synchrony. Fu et al., (2013) found the variability in estrus onset by using different doses of PMSG in Chinese Holstein cows which is similar to our report.

Ovulation and pregnancy rate were similar across the treatment groups. The average ovulation and pregnancy rate was 70.4% and 47.4% treatment groups. Similar results were obtained when eCG was used in anestrous buffaloes (Pahaladet al., 2010; Ahmed et al., 2011) and cows (Fu et al., 2013). Likewise, a number of studies using CIDR have been conducted in anestrous buffaloes which described the similar results (Zaabelet al., 2009; Azawi et al., 2012; Murugavelet al., 2009; Naseer et al., 2011). These results clearly showed that there is positive effect of CIDR on estrus subsequently ovulation and pregnancy in anestrous buffaloes. However effect of this treatment on non-pregnant animals return to first estrus and fertility has not been

determined so this phenomenon needs to be explored in future studies.

In conclusion, CIDR devices are equally effective to induce estrus with optimal pregnancy rate in anestrus buffaloes. It is implied that this regimen has great potential in fertility improvement in anestrus buffaloes under field conditions.

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