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Efficacy of GnRH-Prostaglandin-GnRH Schedule in Management of Postpartum Anestrus and Subestrus Jafarabadi Buffaloes

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Abstract

Twelve postpartum Jafarabadi buffaloes of University farm were examined gynaecologically between months of February and May 2016 and were found to be either anestrus with smooth ovaries (n=8) or subestrous (n=4) with functional corpus luteum. All the 12 animals irrespective of ovarian status were injected i/m with Busreline acetate 20 µg (Receptal, 5 ml) on day 0, Cloprostenol 500 µg (2 ml) on day 7 and were inseminated twice after 72 and 84 hrs. Second injection of Receptal 2.5 ml was given at the time of 2nd insemination. Six buffaloes returned to estrous on 21st day following insemination which were reinseminated twice at 12 hours interval on reported estrous and injected with 2.5 ml Receptal. Pregnancy diagnosis was done two month post-insemination and conception rate of 50.00% (6/12) to first insemination and 33.33% (2/06) to second insemination was obtained. The overall conception rate obtained was 66.66% (8/12). Thus from the above facts, it can be said that this schedule of modified GnRH-PG-GnRH appears to work effectively in infertile Jafarabadi buffaloes with good conception rate.

Keywords: Jafarabadi buffaloes, Anoestrous, Receptal, Prostaglandin, Conception rate.

Introduction

Water buffaloes are one of the most important economic animals in many Asian countries, including India, for milk and meat production. However, the buffalo farmers usually face challenges in detecting estrous as buffaloes have a tendency to show silent estrous. Furthermore, their delayed onset of puberty, seasonality, inability to show prominent estrous signs, and wide variation in duration of estrous hinder their better reproductive management and genetic improvement (Abdalla*,* 2003). Prolonged postpartum acyclicity and anoestrus are also responsible for huge economic losses to buffalo breeders (El-Wishy*,* 2007). Several attempts have been made to improve the reproductive performance of buffalo including induction of estrus using various hormones that act on the hypothalamo-pituitary-ovarian axis. Use of GnRH in synchronization of estrous causes ovulation or luteinization of large follicles present in the ovary, and subsequently synchronizes the recruitment of new follicular wave. $PGF_2\alpha$ or its analogue cause regression of luteinized tissue and thereby promote ovarian cyclicity (Utage *et al.,* 2010). Estrous synchronization offers the opportunity to induce estrous, and inseminate the animal at predetermined time, which reduces the inter-calving

period. Very little information exists regarding the effectiveness of estrous synchronization protocol with Jafarabadi buffalo. Therefore, this study was designed to investigate the same.

Materials and Methods

The study was conducted on 12 infertile Jafarabadi buffaloes from the herd maintained at the Cattle Breeding Farm, JAU, Junagadh. Of these, 8 buffaloes had smooth inactive ovaries (anoestrus), whereas other 4 buffaloes had functional corpus luteum (subestrous). The buffaloes had moderate body condition and were of 2 to 6 parity. All these buffaloes were palpated per rectum to make sure that they were not pregnant and genitalia were normal. All the buffaloes were treated i/m with Buserelin acetate 20 µg (Receptal 5 ml, Intervet International GmbH, Germany) on day 0. On 7th day all the 12 buffaloes were injected with Inj. Cloprostenol sodium 500 µg (Cloprostenol, 2 ml, Zydus Animal Healthcare) and were inseminated twice after 72 and 84 hrs using frozen-thawed semen by the same technician. Second injection of Receptal 2.5 ml was administered i/m at the time of 2nd insemination. The buffaloes which returned to estrous were again inseminated and in non-return cases, pregnancy diagnosis was performed per rectum 60 days after the last insemination.

Results and Discussion

The estrous induction response in both anestrous and subestrous Jafarabadi buffaloes was cent per cent. These results suggest that the protocol used is a quite useful means of initiating cyclicity in anestrous and subestrous buffaloes. The estrus induction response obtained with GnRH-Prostaglandin-GnRH schedule in the present study compared favorably with the earlier reports of Navrange *et al.* (2012) in subestrous buffaloes and Naikoo *et al.* (2010) in anestrous Mehsana buffaloes. A slightly lower estrous induction was observed by Brar *et al.* (2005) in subestrous buffaloes (90.5%), and Paul and Prakash (2005) in Murrah buffaloes (90 %). Very low estrous induction response (50 %) was found by Ali *et al*. (2012) in postpartum anestrous buffaloes.

The conception rate at induced estrous (first cycle) was 50.00 % (6/12) and in second cycle 33.33% (2/6) with the overall conception rate of two cycles as 66.66% (8/12) in treated animals. The overall conception rate of 66.66 % obtained in this schedule was similar to earlier reports of Brar *et al.* (2005), Prakash *et al.* (2008) and Naikoo *et al.* (2010) in subestrous/anestrous buffaloes However, it is almost double than the overall conception rate 33.33 % reported by Ali *et al*. (2012). The present results suggest that the application of this modified Ovsynch protocol can serve as a best tool for initiating cyclicity in acyclic animals and better mean for induction of fertile estrous and ovulation as well as enhancement of conception rate in true anestrous and subestrous Jafarabadi buffaloes.

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Conflict of Interest: All authors declare no conflict of interest.

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