SYNCHRONIZATION RESPONSE AND CONCEPTION RATE WITH OVSYNCH PROTOCOL IN BUFFALO UNDER FIELD CONDITION

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Received 26-6-2014 Accepted 22-7-2014

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ABSTRACT

A total 30 cyclic buffaloes were selected from village Lakhani District Bhandara (MS) and divided into three equal groups. The selected buffaloes were treated with 2 ml normal saline i/m for 1st group, $PGF_2\alpha$ (Cloprostinol 500 mcg) 11 days apart randomly and AI was done at observed oestrus for 2nd group and GPG - Ovsynch protocol (GnRH + PG + GnRH on day 0, 7 & 9, respectively) for 3rd group with fixed time AI 18-24 hrs later. The overall oestrus response was 20, 50 and 80 % in Group I, II and III, respectively. The average duration for onset of oestrus was 177.5 ± 24.50 hrs, 60.80 ± 2.86 hrs and 70.62 ± 14.82 hrs in Group I, II and III, respectively. The average length of oestrus was 16 ± 2.00 hrs, 14.2 ± 0.66 hrs and 14.87 ± 0.87 hrs in Group I, II and III, respectively. The corresponding average score for intensity of oestrus was 43 ± 1.00, 35.00 ± 2.16 and 39.37 ± 2.14 in three groups. The conception rate obtained was 10, 30 and 40 % in Group I, Group II and Group III, respectively. The ovsynch protocol was better for improving conception rate in field buffaloes.

KEY WORDS: Buffalo, Oestrous synchronization, Conception rate, Ovsynch protocol

INTRODUCTION

The reproductive behaviour of the buffaloes is a complex phenomenon due to which major infertility problems arises under field condition which probably has hindered the fast development of this species. In buffalo only 30-40 % oestrus is detected (Barkawi *et al.*, 1993). It means 60-70 % oestrus remain unobserved due to problem like silent oestrus and postpartum weak oestrus. For the proper time of AI at standing oestrus in field condition at farmers door, the synchronization of oestrus with hormonal treatment can be very effective. $PGF_2\alpha$ had been shown to improve conception rate in crossbred cows (Senthilkumar *et al*., 2007; Pattnaik *et al*., 2010) and it is also reported that prostaglandins are effective in inducing oestrus in cyclic buffalo (Brito *et al.,* 2002). Now a days the other alternative for synchronization of oestrus and ovulation (Ovsynch protocol) is being used. Roy and Prakash (2008) reported that Ovsynch treatment protocol improved cyclicity in buffaloes. The present study was therefore planned in field buffaloes using double PG and GPG protocols to evaluate their efficacy towards oestrus synchronization and conception rate in field buffaloes.

MATERIALS AND METHODS

A Total 30 lactating non-pregnant cyclic field buffaloes were selected randomly. All these buffaloes had normal calving and genital health as assessed by gynaeco-clinical examination. All the animals were primarily treated with mineral mixture, i.e. Chelated Agrimin forte powder, injection of dewormer Ivermectin, inj. Vitamin AD_3E and sodium acid phosphate 15 days prior to synchronization treatment. The selected animals were divided into three equal groups, each with 10 buffaloes. Group II buffaloes were treated with i/m $PGF_2\alpha$ (Cloprostinol 500 mcg) twice 11 days apart randomly and AI was done at observed oestrus, and Group III buffaloes were treated with standard Ovsynch Protocol (GnRH + PG + GnRH on day 0, 7 & 9, respectively), with fixed time AI 18-24 hrs later, while Group I buffaloes treated with 2 ml normal saline i/m served as control. The animals were

closely observed after treatment for oestrus signs by visual observation.

The response to treatment in buffaloes was studied in each group and the total score for intensity of oestrus was studied as described for crossbred cows by Singh and Kharche (1985) and the oestrus was classified accordingly into intense, intermediate or week. The conception rates in both the protocols were determined by trans-rectal ultrasonography between day 40th and 60th day post-treatment/AI. The data collected on various parameters were analysed as per the standard methods (Snedecor and Cochran, 1986).

RESULTS AND DISCUSSION

Synchronization response in buffaloes

The overall percentage of oestrus response was 20, 50 and 80 per cent in buffaloes of group I, II and III, respectively. The buffaloes treated with GnRH + $PGF_2\alpha$ + GnRH treatment protocol (Group III) showed better oestrus response as compared to control (Group I) and double $PGF_2\alpha$ (Group II) treatment protocol. The response obtained in Group II for oestrus synchronization was in correspondence with Bhosrekar *et al.* (1995), who reported 60 to 70 per cent oestrus response after 2nd $PGF_2\alpha$ injection. The synchronization response is affected by the luteal activity represented by the age of the existing corpus luteum on the ovary (Watts and Fuquay, 1985).

In group III treated buffaloes, 8 (80 per cent) buffaloes responded to Ovsynch treatment. The present findings however disagreed with those of Twagiramungu *et al.* (1995) who recorded only 30 per cent response to GnRH treatment in buffaloes, and this may be probably due to the fact that the ability of dominant follicle to ovulate is depending upon its developmental stage at the time of GnRH treatment.

Duration required for onset of oestrus in buffaloes

The overall pooled average duration required for onset of oestrus was 177.5 ± 26.503 hrs, 60.8 ± 2.868 hrs and 70.62 ± 14.82 in group I, II and III, respectively. The duration required for onset of oestrus in control group I was significantly longer as compared to group II and group III, which were statistically similar. The duration of onset of oestrus after $PGF_2\alpha$ injection group was nearer (51.8 ± 3.47 hrs in buffaloes.) to the observation of Chede *et al.* (2008) The overall average duration required for onset of oestrus observed in group III was higher than Vijayarajan *et al.* (2007) who recorded 51.80 ± 2.49 hrs following 2nd $PGF_2\alpha$ treated buffaloes. The difference in duration of onset of oestrus may be due to stage of dominant follicle at the time of 1st GnRH injection and subsequently age of the newly formed corpus luteum, etc.

Length of oestrus in treated buffaloes

The average length of oestrus was 16 ± 2.00 hrs, 14.2 ± 0.66 hrs and 14.87 ± 0.87 in group I, II and III, respectively. No significant difference was observed between groups. The average length of oestrus recorded was in accordance with Chaudhary *et al.* (1990) . However, Chohan *et al.* (1992) recorded longer oestrus duration of 28.40 ± 10.07 hrs after $PGF_2\alpha$ injection. The difference for length of oestrus may be due to health status, size of animal, species, breed, management practices in field condition and seasonal effects.

Intensity of oestrus in treated buffaloes

The average score for intensity of oestrus was 43 ± 1.00, 35.00 ± 2.16 and 39.37 ± 2.14 per cent in group I, II and III, respectively. No significant difference was observed for score of intensity between groups. Ravikumar *et al.* (2008) recorded intense, normal and weak sign in 16.00, 66.66 and 16.67 per cent , respectively, in ovsynch plus CIDR suboestrus and 18.18, 63.63 and 18.18 per cent in ovsynch plus CIDR anoestrus buffaloes, respectively. The variation in the intensity of

oestrus may be due to variation in species, season, managemental practices and treatment used in oestrus synchronization.

Conception Rate in $PGF_2\alpha$ and GnRH + $PGF_2\alpha$ + GnRH (Ovsynch) Treated Buffaloes

The conception rates obtained were 10, 30 and 40 per cent in Group I, II and III, respectively. The conception rate was high in Group III than in Group II and Group I. The ovsynch protocol was better for getting better conception rate in buffaloes.

In Group II, out of 10 buffaloes, 5 buffaloes responded and exhibited oestrus. Out of which, 3 buffaloes were conceived. The overall conception rate was 30 per cent. Chede (1990) and Sahastrabudhe and Pandit (1999) recorded 36.36 and 33.33 % conception rate in $PGF_2\alpha$ treated Berari and Murrah buffaloes, respectively. In Group III, out of 10 buffaloes, 8 buffaloes responded and exhibited oestrus. Out of which, 4 buffaloes were conceived. The overall conception rate was 40 %. This was in agreement with Ravikumar and Asokan (2008) who recorded 44.44 % conception rate in ovsynch treated buffaloes.

REFRENCES :

Barkawi, A.K., Bedeir, L.H. and Wardani, E.I. (1993). Buffalo J., **9**: 225-236.

Bhosrekar, M.A., Phudnis, V.P. and Mangurkar, B.R. (1995). Indian J. Anim. Sci., **65**: 732-735.

Brito, L.F.C., Satrapa, R., Marsonn, E.P. and Kastelic, J.P. (2002). Anim. Reprod. Sci. **73**: 23-35.

Chaudhary, M.A., Asghar, A.A. and Bokhari, S.H. (1990). Pakistan Vet. J. **10**(4): 191-196.

Chede, S.A. (1990). Pattern of oestrus, oestrus behaviour and synchronization in buffaloes. Ph.D. Thesis submitted to Dr. PDKV, Akola, India.

Chede, S.A., Ghotekar, K.V., Pawshe, C.H. and Sahatpure, S.K. (2008). Synchronization of oestrus response in Berari Buffaloes with $PGF_2\alpha$ treatment under field conditions. Proc. 24th Annual Convention of ISSAR, India, p. 98-99.

Chohan, K. R., Chaudhary, R.A., Khan, N.U., Chaudhari, N.A. and Ahmad, M. (1992). Indian J. Anim. Sci., **45**: 588-590.

Pattnaik, J.B., Mohanty, D.N., Das, S., Barik, A.K. and Mishra, P.C. (2010). Indian J. Field Vet., **6(2)**:11-14

Ravikumar, K. and Asokan, S.A. (2008). Indian Vet. J., **85**: 388-392.

Ravikumar, K., Asokan, S.A. and Veerapandian, C. (2008). Indian Vet. J. **85**: 140-142.

Roy, K.S. and Prakash, B. S. (2008). Indian Vet. J., **85**: 833-836.

Sahastrabudhe, S.A. and Pandit, R.K. (1999). Indian Vet. J., **76**: 128-130.

Senthilkumar, K., Chandrahasan, C. and Rajasundaram, R.C. (2007). Indian J. Field Vet. **3(1)**: 12-13

Singh, M.M. and Kharche, K.G. (1985). Livestock Advisor. **10**: 9-13.

Snedecor, G.W. and Cochran, W.G. (1986). Statistical methods, Oxford and IBM, Publ., New Delhi, India, pp.265.

Twagiramungu, H., Guilbault, L.A. and Dufour, J.J. (1995). J. Anim. Sci., **73**: 3141-3151.

Vijayarajan, A., Chandrahasan, C. and Ezakial Napolean, R. (2007). Indian Vet. J., **84**: 1054-1057.

Watts, T. L. and Fuquay, J.W. (1985). Theriogenology. **23**: 665-673.

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