STUDIES ON INDUCTION OF OESTRUS IN LOCAL ANESTRUS COWS WITH PROGESTERONE PRIMED GnRH AND PROGESTERONE TREATMENT

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ABSTRACT

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The research experiment to study the efficacy of progesterone primed GnRH and progesterone protocol for induction of oestrus in local anestrous cows were conducted in 54 local cows. In group I (n=18), injection progesterone (250 mg) on day 1st followed by inj. GnRH (0.0105 mg) on day 10th 77.77 per cent animals exhibited oestrus and after insemination 84.61 per cent cows conceived with 1.50 services per conception, whereas in group II (n = 18). of progesterone treatment, 61.11 per cent cows showed exhibitory oestrus and after insemination, 63.63 per cent conceived with 1.71 services per conception as against control. The progesterone treatment response in terms of oestrus induction, conception pregnancy rate and cyclicity rate statistically differed with progesterone primed GnRH therapy.

Key words: Fertility, Local cows, Oestrus, Progesterone, GnRH.

Failure of estrus in cattle is the principal symptom of many conditions that may affect the reproductive performance of animal and it is most common single cause of infertility in cattle. The period of ovarian inactivity during anestrous is related with lower levels of pituitary and gonadotrophic hormones. Progesterone acts as artificial CL and withdrawal effect of progesterone elicits a negative feedback on the hypothalamus, thus promotes expression of estrus and brings normal reproductive event particularly follicular development and ovulation. Progesterone treatment in post-partum anoestrus cases is effective for induction of estrus and response is expected after 10 days with good results but its effect will be further increased if GnRH is administered on day 10th for assured efficacy as compared to only progesterone treatment (Markandeya et al., 2009). Hence, the efficacy of the exogenous fertility hormones was evaluated in the present experiment for induction of oestrus.

The present investigation was planned to conduct re ,arch trials on fifty four post-partum anoestrus local cows during breeding season i.e. winter, when environmental factors are expected to be more comfortable and even favourable. The animals were reported to be in anoestrus stage with post-partum period of 90 to 150 days. Experimental animals were examined gynaeco-clinically thrice at an interval of ten days and were confirmed to be in anoestrus phase on the basis of acyclic and smooth ovaries. The selected animals were divided into 3 groups each consisting of 18 cows. Animals from Group I were administered with injection Progesterone *(P-depot, Sarabhai Zydus Ltd.)*@ 250 mg IM on day 1st followed by injection GnRH

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(Receptal, Intas pharma)@0.0105 mg IM on day 10th. Animals from Group II were administered with injection progesterone (250 mg) intramuscularly on day 1st and no treatment was given to animals from Group III throughout the period of study but per rectal follow-up was continued on each fifth day of the trial. Treated animals were observed for 24-96 hours after completion of treatment for detection of oestrus and reproductive parameters like treatment response interval, duration of oestrus, intensity of oestrus were recorded. Follicular maturity was assessed and confirmed by rectal palpation. Responded cowswere inseminated after 12 hours of notice of first sign of estrous and were followed for ovulation, CL formation and detection of repeat oestrus on day 21st, 42nd with subsequent pregnancy diagnosis on day 60th post breeding.

Observations on gynaeco-clinical findings in treated and control group cows have been presented in Table. Oestrus induction response in cows treated with progesterone primed GnRH therapy (77.77%) and progesterone therapy (61.11%) differed significantly in the present trial with no response in control group. Higher observation of estrous induction response with progesterone primed therapy has been reported by Honparkhe ef *al.* (2004) as 90.00 per cent in bovines. Similarly, higher response to progesterone therapy have been recorded by Joshi *et al.,* 1990 (100.00 %); Dhoble *et al.,* 2004 (80.00 %) and Markandeya *et al.,* 2009 (70.00 and 80.00 %). Whereas, the low response for progesterone therapy has been reported by Shankar *et al.,* (1996) as 56.00 per cent.

Conception rate in the present trial is recorded as 85.71 per cent in group I and 63.63 per cent in group II with significant difference and no conceptions in control group. Honparkhe *et al.* (2004) claimed 44.40 per cent conceptions in bovines with progesterone primed GnRH therapy. Conception rate with progesterone therapy was found to be comparable with Wale, 2000 (62.50 %); higher than the findings of Joshi *et al.,* 1990 (25.00 %); and lower than the observations of Shankar *et al.,* 1996(71.10%).

Pregnancy rate in the present trial is recorded as 66.67 per cent in group I and 38.38 per cent in group II with significant difference and no pregnancies in control group. Similarly estrous cyclicity rate in the present trial is recorded as 72.22 per cent in group I and 50.00 per cent in group II with significant difference and no conceptions in control group.

Bhagaet *al.,* (1997) concluded that progesterone priming results in specific metabolic alterations in the blood, which seems to be positive for initiation of ovarian activity resulting in onset of oestrus. Similarly, Mavi *et al.,* (2007) reported increase in the plasma levels of calcium and phosphorus on progesterone administration with decrease in the level on progesterone withdrawal, but the levels were increased on the oestrus.

Progesterone has effect at hypothalamic center for release of GnRH in 'response to its withdrawal from blood. The uniform dose of 250 mg of progesterone may not be sufficient to bring about proper stimulus for oestrus induction in all cows. Considering safety, surety and efficacy along with very cheap cost, progesterone treatment in anoestrus cows is most precious under field cases. Progesterone priming treatment results in specific metabolic alteration in the blood, which seems too positive for the initiation of ovarian activity resulting in onset of oestrus. Considering the induction of oestrus and conception in the present trial, progesterone primed GnRH therapy was found to be most successful in the treatment of local anoestrus cows.

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