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Short Communication

Effect of gonadotrophic hormone on reproductive performance of anestrus cows

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ABSTRACT

Thirty lactating crossbred cows aged 5-8 years were divided into three groups consisting of 10 animals in each group. The first and second groups received 1000 and 1500 IU of PMSG, respectively and the third group (control) was injected with 1 ml of Normal Saline Solution. All the animals of treatment group I (1000 IU PMSG) and group II (1500 IU PMSG) showed ovulatory estrus at 3.89±0.81 and 3.64±0.65 days, respectively following PMSG injection whereas none of the animals of the control exhibited any sign of heat throughout the study period. The subsequent estrous cycle length of the animals of the treated group were in the normal range. All the animals in estrus were inseminated with quality frozen semen along with an intramuscular injection of 1500 IU HCG. The animals of group I and II took 1.80±0.67 and 2.0±0.83 services for conception following treatment. Per cent examination 11 days post insemination revealed little or no superovulatory response.

Key words : Anestrus, cows, gonadotropic hormone, superovulation

Anestrus is one of the major problem leading to reproductive failure in cattle and buffaloes. Anestrus treatment with PMSG has been tried in cattle (Ramakrishna and Bose, 1986) and buffalo (Dabas *et al.*, 1989a). The treatment has also been successfully used in combination with human chorionic gonadotropin (HCG) (Sugie *et al.*, 1972) for the cure of anestrus, ensuring timely ovulation and better conception rate.

Thirty lactating acyclic crossbred cows aged between 5-8 years weighing around 300-400 kg were taken in the study. The animals were examined twice at 11 days interval to ensure the absence of a functional corpus luteum. The animals were divided into three groups and treated as follows :

Group I : Consisting 10 animals and administered intramuscularly with 1000 IU PMSG (folligon, Intervet International, Holland) along with 1500 IU HCG (chorulon, Intervet International, Holland) at the time of insemination by intramuscular route.

Group II : Ten animals received 1500 IU PMSG and 1500 IU HCG at the time of insemination.

Group III : Ten animals injected with 1 ml Normal saline solution and served as control.

All the animals were observed for the symptoms of estrus with the help of vasectomised teaser bull and artificial insemination with frozen semen was done after 12 hours of standing heat. The animals were examined 24 hours post insemination for ovulation and 11 days post insemination for the presence/number of corpora lutea and subsequent pregnancy diagnosis was performed 60 days post insemination by rectal palpation.

The insulin of the experiment are summarised in Table 1. All the animals of the treatment group-I and II exhibited signs of estrus at 3-4 days after PMSG injection. The examination for ovulation indicated that the estrus was ovulatory type. Similar findings were recorded in the previous study in cattle (Ramakrishna and Bose, 1986) and buffalo (Dabas *et al.*, 1989a) with 1500-3000 IU of PMSG. However, Karaivanov (1986) reported only 75% of animals coming into estrus following administration of 3000 IU of PMSG. The differences may be due to different agroclimatic conditions, plane of nutrition, use of experimental animals of different age and breed and difference in genetic make up of the animals, which may have accounted for varying response to the treatment. The number of corpora lutea varied from 1-2 in each of the ovaries indicating that both the ovaries have

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Table 1. Effect of PMSG and HCG on reproductive performance of anestrus cows

Attributes / Treatment	Estrus (Days post treatment)	Number of CL (11 days post treatment) Left Ovary	Right Ovary	Estrous cycle length (days)	Services/ conception
1. Group I (1000 IU PMSG + 1500 IU HCG)	3.89±0.81	1.06±0.21	1.67±0.36	21.93±1.02	1.8±0.67
2. Group II (1500 IU PMSG + 1500 IU HCG)	3.64±0.69	2.01±0.21	2.06±0.60	23.01±1.62	2.0±0.83
3. Control	–	–	–	–	–

almost equal activity. However, presence of higher numbers of CL following treatment with 3000 IU PMSG has been reported in cattle (6.33; Ramakrishna and Rao, 1987) and buffalo (5-9; Dabas *et al.*, 1989b). This may due to the higher dose of PMSG as compared to the present experiment. In confirmation to the findings of the present study, no or a little superovulatory response has been recorded in cattle (Saumande, 1980) and buffalo (Dabas *et al.*, 1989a) in the earlier studies.

All the animals of the treated groups conceived following insemination, however, only 6 animals of group I and 4 animals of group II conceived to 1st AI. Two and three animals of respective groups settled to IInd AI. The remaining animals of the groups treated with either 1000 or 1500 IU PMSG, however, conceived after 3-5 inseminations. Similar increased breeding efficiency following PMSG and HCG treatments has also been recorded in the past (Dabas *et al.*, 1989b).

None of the animals in control group exhibited signs of estrus and had smooth ovaries throughout the study period.

The results of the present study discerns that combination of PMSG and HCG can be used for treatment of anestrus and ensuring better conception rate following insemination of treated animals. The protocol can be used to reduce inter-calving interval and hence augmenting better fertility of crossbred dairy herd.

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