TREATMENT OF DELAYED OVULATION IN DAIRY CATTLE

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ABSTRACT
A total of 44 repeat breeding cows with clinical history of delayed ovulation were divided into 3 groups consisting of 9, 6 and 29 animals in group-I, II and III respectively. Animals of group-I and II were treated with HCG and placentrex as single dose 4 hours before insemination respectively. Animals of group-III were inseminated twice or thrice at 24 hours interval depending on the duration of estrus. Conception rate was found to be higher in animals of group-III (72.41%) than in animals of either group-I (66.67%) or group-II (33.33%).

Key words: Delayed ovulation, Dairy cattle

INTRODUCTION
Repeat breeding in cattle is a frequently encountered problem characterized by fertilization failure and or early embryonic mortality (Gustafsson and Larsson, 1985). Delayed ovulation is one of the major causes of repeat breeding in cattle. Delayed ovulators have longer interval from onset of estrus to ovulation (Bage et al., 2002 and Singh et al., 2005). Therefore the importance of insemination timing with respect to ovulation has repeatedly been emphasized for ensuing fertilization (Rodriguez-Martinez, 2001). Asynchrony in timing of insemination with ovulation results in low pregnancy rate due to fertilization failure (Hunter, 1994). Therefore single insemination following AM-PM rule may lead to poor conception due to shortage of motile/fertile spermatozoa. This problem might be alleviated if high numbers of fertilizable spermatozoa are available at ovulation. Under this condition, either re-inseminations during estrus (Stevenson et al., 1990) or single insemination with hormonal therapy to induce ovulation may marginally improve fertility in repeat breeder cow. Therefore the present study was planned to compare effect of single insemination following hormone administration to induce ovulation and multiple inseminations during estrus in delayed ovulators.

MATERIAL AND METHODS
A total of 44 repeat breeder cows aged 3-8 years in their first to third lactation were selected. The delayed ovulation condition was diagnosed on the basis of presence of follicle up to 2-4 days from the onset of estrus. Ovulation was confirmed by the presence of corpus luteum (CL) at the site of ruptured follicle on 8-12 days post estrus. Rectal palpation was done at every 12 hours interval. Duration of estrus was calculated on the basis of presence of estrus signs up to last examination and it varied from 24-84 hours. The time at which animals showed behavioural and physical signs of estrus were considered as onset of estrus. Estrus was further confirmed by trans-rectal palpable follicle with tonic uterus and dilatation of os-cervix.

The cows were divided into 3 groups consisting of 9, 6 and 29 animals in group-I, II and III respectively. Animals of group-I were injected with human chorionic gonadotropin (HCG) 3000 IU intramuscularly as single dose at 24-30 hours from onset of estrus. In group-II animals, 10 ml of placentrex (Albert David Ltd., Kolkata-50) was given intravenously at 24-30 hours from onset of estrus. In animals of these two groups, insemination was carried out 4 hours following injection. In animals of group-III double/triple insemination was performed within 30 to 90 hours from onset of estrus depending on the duration of estrus. Pregnancy
diagnosis was carried out at 90 days post insemination to evaluate conception rate (CR).

**RESULTS AND DISCUSSION**

The conception rate for group-I and II was 66.67 and 33.33% respectively. In cows treated with HCG, the CR was relatively higher than those treated with placentaex. The HCG mimics the effects of pituitary luteinising hormone causing ovulation. Continuous action of HCG due to its long half life resulted in more proliferation and differentiation of luteal tissue by recruiting more granulose cells (Abhilas et al., 2006). On the other hand placentaex which contains biologically potent GnRH (Lee et al., 1981) may possibly help in the release of LH, which is required for ovulation. Tamuli (2001) reported administration of placentaex for the treatment of cystic ovarian condition in cattle. The lower CR recorded in the present study with placentaex may be due to the insufficient release of LH with single injection and ultimately failed to support the proper development of corpus luteum.

In group-III, 21 out of 29 animals conceived (72.41%). Stevenson et al. (1990) found a marginal increase in pregnancy rate from 32.1% to 33.5% when second insemination performed at 12-16 hours after first. Bostedt (1976) reported an increase in pregnancy rate from 9.5% to 52.9% in animals that inseminated 24 hours after first insemination. Repeated inseminations at 6 hours interval from onset of behavioural estrus to spontaneous ovulation yielded a higher pregnancy rate in repeat breeding heifers as compared to control (Singh et al., 2005). These observations suggest that insemination closer to ovulation may provide more number of spermatozoa with fertilizing capacity at the fertilization site leading to improved CR. Improvement of pregnancy rate following reinsemination in repeat breeders should therefore not be disregarded. It may be concluded that repeated inseminations during estrus in cows with delayed ovulation is effective. However, hormonal therapy with GnRH or LH may equally be effective in solving the problem.

**REFERENCES**


