Use of Ovsynch/TAI for Postpartum or Post-service Anestrus in Dairy Cows and Effects of Some Factors Affecting Conception Rate

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Introduction

Postpartum as well as post-service anestrus is a major cause of a prolonged interval between calving and conception.

Ovulation synchronization/timed artificial insemination (OVS/TAI) is known to be effective to increase a submission rate after voluntary waiting period without heat detection. However, conception rates after OVS/TAI vary greatly among different herds. Factors contributing to the variation need to be clarified to improve the conception rate after OVS/TAI.

Occurrence of estrus prior to the day of timed insemination is another problem with this protocol. Objectives of this study are to show the effect of OVS/TAI for the treatment of postpartum or post-service anestrus, describe effects of some factors on the conception rate and to investigate the occurrence of estrus before the day of TAI.

Materials and Methods

A total of 556 Holstein-Friesian cows was used for the experiment: 278 cows which were not detected in estrus within 40 days after calving, and the other 278 cows that had been inseminated 40 to 80 days postpartum but were not pregnant.

All animals were first injected intramuscularly with 100 μg fertirelin acetate, an analog of gonadotropin-releasing hormone (GnRH), followed seven days later by 25 mg prostaglandin (PG) F2α-THAM. Two days after the PGF, the animals were given the second dose of GnRH and were inseminated 16 to 24 hours later. The ovaries were palpated per rectum for presence of the corpus luteum (CL). Cows showing estrus prior to the fixed day of insemination were served on the day of estrus and no further treatments were given. Pregnancy was diagnosed by palpation per rectum 35 days after insemination or later.

Results and Conclusions

Of 556 cows subjected to OVS/TAI, 43 cows (7.7%) showed estrus prior to the day for TAI: 41 cows during a period between the first GnRH and PGF administrations, mostly on 6 and 7 days after the GnRH; and the other two cows during a period from PGF and the second GnRH injections.

The other 513 cows did not show estrus during the periods and were inseminated according to OVS/TAI protocol.Of the 43 cows showing estrous signs before TAI, 18 cows were served on the day of estrus with a conception rate of 33.3%, while the other 25 cows were not inseminated because they were already showing vaginal bleeding. Four of the 25 animals were inseminated at next estrus. Three of the four cows conceived, and the other 21 cows not returning to estrus were again subjected to OVS/TAI, resulting in a conception rate of 52.4%.

Conception rate in the 513 cows served according to OVS/TAI was 55.4%. No significant difference in conception rates was observed between cows with postpartum anestrus and those with post-service anestrus (56.4% *vs* 54.7%).

Intervals in days between calving and OVS/TAI did not significantly affect conception rate. No significant difference in conception rates was observed among groups of cows with different parities, 1 to 6 or more, although a group of cows at parity 6 or more had a relatively low conception rate. The conception rates after OVS/TAI were relatively low in summer months. Cows with CL at the time of the first GnRH injection (222 cows) showed a significantly higher conception rate than those having no CL (291 cows) (61.7% *vs* 50.5%, $P \leq 0.05$).

In conclusion a satisfactory conception rate was obtained in cows with postpartum as well as post-service anestrus by OVS/TAI. Conception rate was not significantly affected by intervals between calving and treatment, parity or season. However, presence or absence of a CL at initial GnRH administration did affect rates.