

Effect of Removal of Follicular Cyst Content on Success of Ovsynch in Dairy Cows: a Clinical Trial in Private Practice

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Introduction

Follicular cysts in dairy cows cause abnormal ovarian cyclicity and decrease reproductive performance in dairy herds, particularly in management systems that rely on heat detection. Many treatments have been developed and tested to manage follicular ovarian cysts; among these, ovulation synchronization (GnRH-PGF2-GnRH-Timed AI; Ovsynch) is an option that is easy to implement and gives acceptable results. It has been suggested that removal of cyst content by needle puncture could improve treatment outcome. The purpose of this study was to evaluate the effect of removing cyst content on conception rate in dairy cows treated for follicular cysts with Ovsynch. The trial was conducted using data collected over regular herd health visits in a private practice.

Materials and Methods

In a dairy practice in southern Quebec, cows with follicular cysts diagnosed by rectal palpation during herd health visits were included in a research protocol. The case definition for cows to be included in the trial was: fluid-filled structure > 2.5 cm, abnormal cyclicity, first diagnosed cyst in lactation, not necessarily first breeding in lactation, and days-in-milk > 45. Cases were alternatively treated with A) Ovsynch and simultaneous removal of cyst content by needle puncture, or B) Ovsynch without puncture. All data were collected over a 12-month period and were compiled in the herd health monitoring software DSA. Success of treatment was defined as conception at the Ovsynch breeding. Variables compiled for analysis were: treatment (TRT), lactation number (LN), days-in-milk at treatment (DIM), AI number (AINUM; 1st, 2nd...), calendar month at breeding (MO) and pregnancy diagnosis (PREG). Cow records were verified to monitor that veterinarians and producers complied to the defined protocol. Logistic regression was used to test the effect of treatment on PREG, considering all significant confounding variables.

Results

The total number of cows started on treatments A or B was 368. Cow record screening revealed that 269 cases did not comply to the protocol, principally due to incorrect reported breeding date or less than 45 DIM at treatment onset. The final database included 48 cows for treatment A and 51 cows for treatment B. Conception rates were 45.8% for treatment A and 43.1% for treatment B. Categorized variables were generated based on cross-tabulation against the outcome variable: DIMCAT (1 = 75-200); LNCAT (1 = LN < 5; 0 = LN > 4); AINUMCAT (1 = AINUM > 1; 0 = AINUM = 1) and MOCAT (1 = October to April; 0 = May to September). Variables retained ($P < 0.20$) in the complete model included: TRT, DIMCAT, LNCAT, TRT* DIMCAT and TRT* LNCAT. Analysis revealed that all interaction terms could be deleted from the model. The final model included TRT, DIMCAT and LNCAT and showed that treatment had no significant effect on the outcome ($P = 0.63$), Odds Ratio = 1.23, 95% confidence interval: 0.53 to 2.86. The corrected conception rates, considering the logistic model, were 47.0% for treatment A and 41.9% for treatment B.

Significance

The results of this study suggest that removal of follicular cyst contents by needle puncture does not significantly improve conception rate after an Ovsynch treatment. However, the relatively small sample size ($n = 99$) greatly limits the interpretation of the results since type-2 error may have made it impossible to reveal a significant effect. A non-significant 5.1% improvement in conception rate was found with cyst content removal. Could such a slight improvement justify the use of this labor-intensive approach? If so, the study should be repeated with a more appropriate sample size. This trial also underlines the importance of data recording and compliance monitoring in clinical trials, and in dairy practice in general.