

Comparison of Pregnancy Diagnosis by Transrectal Ultrasonography at 28-34 Days after AI and Rectal Palpation at 35-41 Days after AI on Pregnancy Retention at 61-67 Days after AI

R.V.V. Pereira, DVM; L.S. Caixeta, DVM; D.V. Nydam, DVM, PhD; C.L. Guard, PhD, DVM

Population Medicine and Diagnostic Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY 14850

Introduction

Dairy farm revenue is dependent upon reproductive efficiency, which can be improved by early identification and intervention of cattle that have been bred and are not pregnant. Pregnancy diagnosis by rectal palpation is the most common method used by veterinarians. The use of ultrasound allows for earlier pregnancy diagnosis. The objective of this study was to compare two systematic programs for detecting open cows on a large commercial dairy. In the first program cows were checked earlier for pregnancy using transrectal ultrasonography and in the second cows were checked later using manual rectal palpation. The proportion of cows that retained the pregnancy at 60 to 66 days after AI was compared between programs.

Materials and Methods

1280 Holsteins cows diagnosed pregnant were enrolled in this study on a commercial dairy herd in central New York, milking 2800 cows three times a day with an average daily milk production of 89 lb (40 kg). Cows in this study were bred by either timed artificial insemination (TAI) where cows were enrolled in an Ovsynch protocol (day 0 GnRH; seven days later, PGF2; 56 hours after PGF2 injection, second dose of GnRH; and 16 hours after second GnRH cows were TAI), or by heat detection followed by AI. The cows were randomly allocated into two groups at calving and checked for pregnancy weekly by three experienced veterinarians. The two groups were: early pregnancy (EPG; 28-34 days after AI), where pregnancy was diagnosed by transrectal ultrasonography with use of a portable ultrasound with

a 5 MHz linear transducer; and late pregnancy (LPG; 35-41 days after AI), where pregnancy was diagnosed by palpation per rectum. All cows in the LPG received GnRH seven days before examination. Cows found not pregnant in the EPG received GnRH at the time of examination. Non-pregnant cows were reinseminated at 37 to 43 days after previous insemination by TAI. Enrolled cows were checked again for pregnancy retention at 61-67 days of gestation by palpation per rectum.

Results

The number of cows diagnosed pregnant was 682 in EPG and 598 in LPG. The total percent pregnancy loss between 28 and 67 days after AI interval was 11.7%. EPG had a greater pregnancy loss (14.5%) than did LPG (8.5%; $P=0.001$). The risk of abortion (Risk Ratio= 1.7, 95%; CI=1.2-2.3) was significantly greater in the EPG than the LPG group.

Significance

The 6% greater early embryonic death found in the EPG group compared to the LPG group may have economic ramifications for the dairy due to increased days open. An economic evaluation of this could assume the cost of examination was the same for EPG and LPG and include the proportion of cows found pregnant at examination, 44 extra days to reinsemination in 6% of cows found pregnant by EPG, extra days open valued at \$2.00 per day, and GnRH at \$2.00 per dose. Savings in the EPG group could include fewer GnRH injections and fewer days open for the cows diagnosed open at this time.