

Prevalence of postpartum hyperketonemia, endometritis, and prolonged anovulation in dairy herds and their association with poor reproductive performance at first service

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Introduction

Postpartum hyperketonemia, endometritis, and prolonged anovulation are known risk factors for poor reproductive performance at first service at the cow level. However, it remains unclear what the acceptable prevalence of these conditions is at the herd level. The objective of this study was to quantify the prevalence of these conditions in dairy herds and to determine the optimal prevalence thresholds associated with poor reproductive performance at first service at the herd level.

Materials and Methods

A total of 100 Holstein dairy herds from the province of Québec (Canada) were conveniently enrolled in this observational study. Herds were visited every other week and a total of 15 cows/herd were randomly selected and followed from parturition until 200 days in milk (DIM). Hyperketonemia was defined as having blood β -hydroxybutyrate ≥ 1.4 mmol/L using the Precision Xtra meter at 1 to 14 DIM, endometritis was defined as having mucopurulent or purulent vaginal discharge using the Metrichick device at 30 to 43 DIM, prolonged anovulation was defined as having serum progesterone < 1 ng/mL using the Immulite laboratory technique at both 37 (± 7) and 51 (± 7) DIM, and success at first service was

defined as pregnancy diagnosed by transrectal palpation 33 to 46 days after breeding. Statistical analyses were performed using logistic regression models in SAS.

Results

Herd-level median prevalence of hyperketonemia, endometritis, prolonged anovulation, and success to first service were 22%, 25%, 35%, and 30%, respectively. Poor success at first service was defined as pregnancy confirmation $< 30\%$. Optimal disease prevalence thresholds for predicting herd-level poor success at first service were $\geq 20\%$ for hyperketonemia ($P < 0.01$), $\geq 20\%$ for endometritis ($P < 0.01$), and $\geq 30\%$ for prolonged anovulation ($P < 0.01$).

Significance

These results demonstrate the high prevalence of postpartum hyperketonemia, endometritis, and prolonged anovulation in this population of dairy herds. They also show that herd-level thresholds can be used to identify herds with poor success at first service. Overall, these findings highlight the potential usefulness of herd-level disease prevalence for helping farmers and veterinarians improve dairy herd management.

Pregnancy outcomes based on milk pregnancy-associated glycoprotein levels

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Introduction

Timely diagnosis of pregnancy and pregnancy losses is economically important. A commercially available pregnancy-associated glycoprotein (PAG) milk assay (IDEXX Laboratories, Inc.) is offered through routine Dairy Herd Improvement

(DHI) testing for diagnosis of pregnancy. The objective of this observational study was to describe the relationship between PAG at various stages of gestation and the likelihood of successful calving. The hypothesis was that higher PAG levels would be associated with successful calving.