

was attempted. Cows in this group received a local antibiotic treatment (2500mg ampicillin, 2500mg cloxacillin). In case of a rectal temperature $>39.5^{\circ}\text{C}$, 6000mg of ampicillin was administered intramuscularly. Treatment was repeated on three consecutive days. If temperature did not decrease below 39.5°C , systemic treatment was extended for another two days.

Cows that failed to respond to treatment, *i.e.* temperature $>39.5^{\circ}\text{C}$ after a maximum of five days of treatment, received 3000mg of oxytetracycline as an escape therapy in both groups. Cows that received anti-inflammatory drugs or antibiotic drugs for purposes not related to the study (*e.g.* acute mastitis) were excluded from the trial. Cure rate was defined as the proportion of cows with temperature $< 39.5^{\circ}\text{C}$ at day 10 after enrollment and no escape therapy applied.

Results

A total 35 cows were enrolled in each Group, 1 and 2. Within 10 days of observation, 33 and 32 cows showed fever in Group 1 and 2, respectively (94.3% vs 91.4%). Number of cows considered as cured was 23 (65.7%) and 24 (68.6%) in Group 1 and 2, respectively. Within 30 days post partum, 3 (8.6%) and 4 (11.4%) cows were culled in Group 1 and 2, respectively. Reproductive performance was measured by days to first service, number of cows pregnant, days open, and number of cows culled. Preliminary results showed no significant differences between groups.

Association of Prepartum Plasma Non-esterified Fatty Acid Concentration with Retained Placenta in Multiparous Holstein Cows

T. Conner^{1,3}; T.H. Herdt^{1,2}; L. Neuder^{1,2}

¹Dept. Large Animal Clinical Sciences

²Animal Health Diagnostic Laboratory, Michigan State University, East Lansing, MI 48824

³Green Meadows Farm, Inc., Elsie, MI 48831

Introduction

Nutritional management of dairy cows during the dry period influences risk of peripartum disease. Means of rapidly monitoring nutritional status and the effectiveness of prepartum diets, prior to the development of disease, are needed by the dairy industry. Plasma non-esterified fatty acid (NEFA) concentration is a potential means of monitoring energy status in late gestation cows. High plasma NEFA concentration is associated positively with the incidence of peripartum disease dairy cows.¹⁻³ The objective of this project was to determine, via multivariate analysis, the relationship between prepartum plasma NEFA concentration and risk of retained placenta (RP) in dairy cows.

Materials and Methods

Multiparous cows at ≥ 268 days of gestation were housed in a group pen and totally fed a mixed ration. Approximately 70 cows were in this "close-up" pen at any time. Feed was available continuously and fresh feed was offered daily at 6 h. Once weekly at 5 h cows were restrained in self-catching headlocks and coccygeal-vessel blood samples taken from four to 15 animals selected at random. Each cow was sampled only once. Sampling was over a 10-week period from November to January. The EDTA-treated samples were chilled immediately and the plasma separated and frozen within 2 h. Non-esterified fatty acid concentrations were determined by an enzymatic technique (WAKO Chemicals USA, Inc. Richmond,

VA 23237). A case of RP was defined as fetal membrane retention beyond 24 h postpartum.

A logistic regression model was formulated using a "step-down" technique. Lactation number, days from parturition at the time of sampling, twin or single birth, and plasma NEFA concentration were the initial independent variables. Variables were eliminated from the model when *p* values were greater than 0.25.

Results

Of 88 animals sampled, six calved with twins and nine developed RP. The mean (\pm standard error) days from blood collection until calving was 3.8 ± 0.3 and the mean plasma NEFA concentration was $.38 \pm .03$ mEq/L. Plasma NEFA concentration and days from blood collection until calving were not correlated ($p > .05$). The mean plasma NEFA for cows with RP and without RP was $0.55 \pm .11$ and $0.36 \pm .03$ mEq/L, respectively. The independent variables remaining in the multivariate model were twins ($p = .02$) and plasma NEFA concentration ($p = .07$). The odds ratio estimates for the effect of twins (single vs. twin birth) and plasma NEFA concen-

tration on the risk of RP were 0.1 and 10.3, respectively. This suggests that cows calving with a single birth are one-tenth as likely to retain their placenta as are cows calving with twins. Furthermore, it suggests that with an incremental increase of 1.0 mEq/L in plasma NEFA, the risk of RP is increased by approximately tenfold.

Conclusion

Monitoring plasma NEFA concentrations in a portion of late-gestation cows may be a practical means of detecting increased risk of RP in dairy herds. Increasing plasma NEFA concentrations indicate a negative energy balance. Thus, adjusting feed intake, or ration energy density, in response to increasing NEFA concentrations in dry cows may in some cases be a practical means of reducing RP incidence.

References

1. Cameron REB, Dyk PB, Herdt TH, *et al*: *J Dairy Sci* 81:132, 1998.
2. Dyk, PB. MS thesis, Michigan State University, 1995.
3. Kaneene JB, Miller RA, Herdt TH, *et al*: *Preventive Veterinary Medicine* 1141:1-14, 1997.

Homoeopathic Remedies in the Treatment of Mastitis: Preliminary Results of a Positive Control Study and Review of Alternative Therapies

K. Mueller

Dept. of Clinical Veterinary Medicine, University of Cambridge, Great Britain

Introduction

There is an increasing demand for organic produce worldwide. In the United Kingdom, the organic food sector shows a growth in retail sale values of approximately 40% per year. Currently, there are about 150 organic dairy farms, with organic milk production predicted to reach 150 million litres in 2003.² Mastitis affects organically managed cattle to the same degree as conventionally farmed cows, and has been identified as a major concern in organic dairy herds.¹ Use of antibiotics for the treatment of sick animals is allowed under organic

regulations, but milk and meat withholding periods are extended. In addition, the routine or continued use of antibiotics is prohibited.

Homoeopathy was found to be the main alternative to antibiotics for mastitis treatment in the Hovi and Roderick¹ study. However, existing data on the efficacy of alternative therapies is deficient. The current study at Cambridge University aims to establish the efficacy of a commonly used homoeopathic remedy for the treatment of clinical mastitis by comparing it with intramammary antibiotic therapy.