What Can We Learn about Managing Metritis?

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Metritis is an inflammation of the uterus caused by bacterial infection. It is frequently associated with discolored vaginal discharge and an offensive odor. Cows are normally diagnosed with metritis within the first ten days after calving.

Metritis Diagnosis via Changes in Behavior:

Researchers from University of British Columbia and California Polytechnic University used video surveillance to compare the time cows with and without metritis spent standing in free-stalls. Taking video scans every five minutes; cows were scored as standing with four feet in the stall, standing with two feet in the stall and two out of the stall (perching) or lying. Cows diagnosed with metritis spent about 103 minutes per day standing with four feet within the stall, whereas healthy cows spent approximately 11 minutes. No difference was found for perching time among cows with or without metritis.

Take Home Message: Cows spent almost two hours per day standing on four feet within the stall when suffering from metritis. Because an increased standing time can be indicative of cow discomfort, monitoring changes in the standing and lying time of cows might help to diagnose metritis.

The researchers at the University of British Columbia also looked at changes in feeding time as an indicator of metritis. 82 cows were checked for metritis on day six post-calving and diagnosed as follows: 49 first and second or later lactation healthy cows, 21 first lactation cows with metritis and 12 second or later lactation cows with metritis. All cows were monitored for the five days before the metritis diagnosis for feeding time, number of visits to the feed bunk, and amount eaten. The results demonstrated that first lactation cows suffering from metritis decreased their feeding time, number of trips to the feed bunk, and amount eaten when compared to second or later lactation metritic and healthy cows. Additionally second or later lactation cows with metritis, when compared with second or later healthy cows were more likely to be displaced from the feed bunk. However, no change in feed consumption was seen among second lactation or later metritic cows.

Take Home Message: Earlier detection of metritis might be possible based on visual observation of cow behavior, feeding time and visits to the feed bunk, especially in first lactation cows.

Metritis Diagnosis via Bacterial Analysis

In addition to using fever and clear visual and foul-smelling discharge to diagnose metritis, bacterial culturing is sometimes used. To better understand the effects of bacterial strains on metritis, researchers from University of Florida looked to determine if specific bacteria could be attributed to metritis with and without a fever. By taking rectal temperatures and vaginal swabs between days 4 and 8 after calving, cows were separated into three groups: metritis without fever, metritis with fever, and healthy. Cows with metritis had higher bacterial culture results of Bacteroidetes, and Tenericutes when compared to healthy cows; but Actinobacteria, Fusobacteria and Firmicutes, were similar between metritic and healthy cows. Importantly, *Bacteroides pyogenes* was lower in healthy cows and metritic cows without a fever. *Bacteroides heparinolyticus* tended to be higher in metritic cows with and without a fever.

Take Home Message: While researchers are still unsure which bacterial strains contribute to metritis, *Bacteroides heparinolyticus* and *Bacteroides pyogenes* are frequently cultured in cases of metritis. In the future, new laboratory techniques may provide better information regarding the frequency of particular bacterial strains seen within a herd. With increased information, farmers might gain new insight into the best way to treat metritis within their herd.

Treating Metritis

Because of increasing animal welfare and antibiotic resistance concerns, researchers from the University of Berlin examined alternative metritis treatments. Because there is no gold standard for treating metritis, producers have multiple options for treatment: administering an anti-inflammatory (NSAID), administering an antimicrobial treatment, or treating with a combination of both. Between June 2013 and February 2015, cows were diagnosed with metritis via discolored and pungent vaginal discharge and increased rectal temperature throughout the first 10 days postpartum. Researchers treated 300 cows with ketoprofen (NSAID) and 310 cows with the antibacterial ceftiofur (more commonly known as EXCENEL RTU, EXCENEL RTU EZ, and Cobactan) for 3 days. Cows given ketoprofen had a 46% cure rate after 3 days of ketoprofen, whereas cows given ceftiofur had a 70% curing rate. Although age may play a role in treatment efficacy, no effects were seen on days open or milk yield.

Take Home Message: While there are debates surrounding the most effective way to treat metritis, both NSAIDs and antibiotics serve a role in decreasing the number of metritis incidences. Although in this study both anti-inflammatories and antimicrobial treatments did not have an effect on pregnancy rates or milk yield, a veterinarian should always be consulted before trying a new treatment.

Prevention of Metritis

Research from University of Florida, suggested using a common carbohydrate found in plants called chitosan to prevent metritis. Chitosan (sold commercially as ODC) has been used in agriculture to help enhance plant growth, fight off fungal infections, and help improve natural immune function. Knowing that cows experiencing difficult labor have an increased chance of developing metritis, those who had twins, dystocia, stillbirths or retained placentas were selected to participate in an early intervention study. All animals were assigned to either a sterile saline intrauterine infusion or a chitosan microparticles plus saline intrauterine infusion infused each day for five days after calving. On day seven postpartum, cows receiving chitosan

microparticles had a 45% rate of metritis. Cows receiving only sterile saline were diagnosed with metritis in 64% of participants. Neither treatment affected blood BHBA, temperature or milk production.

Take Home Message: Chitosan microparticles may serve as an early intervention method to prevent metritis in high risk cows.

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