HERD HEALTH MANAGEMENT

Use of an automated monitoring system to assess rumination time and activity patterns in cows with metritis.

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INTRODUCTION

Automated monitoring systems (AMS) are commonly used in dairy herds as an important supportive tool to improve reproduction efficiency, assess feeding behavior, and detect potential animals with health disorders.

Metritis is a high-prevalence postpartum disorder that represents a significant threat to animals' health.

OBJECTIVE

The objectives of this study were to evaluate the efficiency of an automated monitoring system (SenseHub® Dairy) to detect changes in rumination time and activity in dairy cows with post-partum metritis.

MATERIALS AND METHODS

- The study was conducted with 493 Holstein cows housed in a free-stall commercial dairy farm, (Minas Gerais State, Brazil).
- All fresh cows between 5 and 15 d postpartum were assessed for metritis daily. Those who exhibited signs of behavioral changes, depression, as well as the presence of abnormal uterine discharge and impaired uterine involution, were treated with antibiotics for three consecutive days (Conventional Treatment group).
- After this period, treated cows in which no clinical resolution was observed, were treated with antibiotics for another 5 d (Extended treatment group).
- Both treatment groups were compared to healthy cows with no signs of metritis (Healthy group) from the same herd.
- Rumination time and activity pattern were monitored continuously in all cows using an AMS (SenseHub® Dairy), from 30 d prepartum to 120 d post-partum.
- The rumination time (min/day) and activity trend (min/day) were compared between the three groups using the SAS Glimix procedure (SAS Software, v9.4).

Cows that develop early postpartum metritis exhibit lower rumination time and decreased activity pattern than cows with no uterine conditions. Moreover, animals, in which the short antibiotic treatment did not lead to a clinical improvement, showed more pronounced deviation in the monitored variables.

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RESULTS

Metritis was observed in 15.2% (75/493) of cows, out of which 66.7% (50/75) required extended antibiotic treatment for another 5 days **(Fig. 1)**.

The avg. rumination time was 523.7±1.3; 515.6±3.1 and 507.7±2.7 minutes/day for the Healthy (n=418), Conventional Treatment (n=25) and Extended Treatment groups (n=50), respectively.

The results revealed that cows affected by metritis had a lower average rumination time (P<0.022) compared to the Healthy control group.

The persistence of clinical signs and the need for extended treatment was associated with a further reduced overall rumination time compared to the cows in which clinical cure was achieved after conventional treatment (P=0.05). **(Fig. 2)**.

The average activity trend generated by the system was 357.6±0.9; 351.6±2,2 and 332,0±1.6 for the Healthy, Conventional Treatment and Extended Treatment groups, respectively.

The presence of metritis and severity of the condition (as indicated by the requirement for extended therapy) clearly affected the overall activity of the cows (P=0.017 and P<0.0001, respectively). **(Fig. 3.)**

FIGURE 1. Postpartum health screening

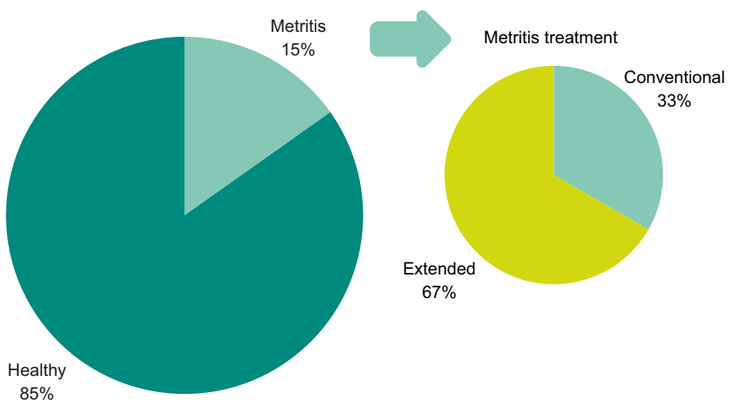


FIGURE 2. Rumination time in min/day.

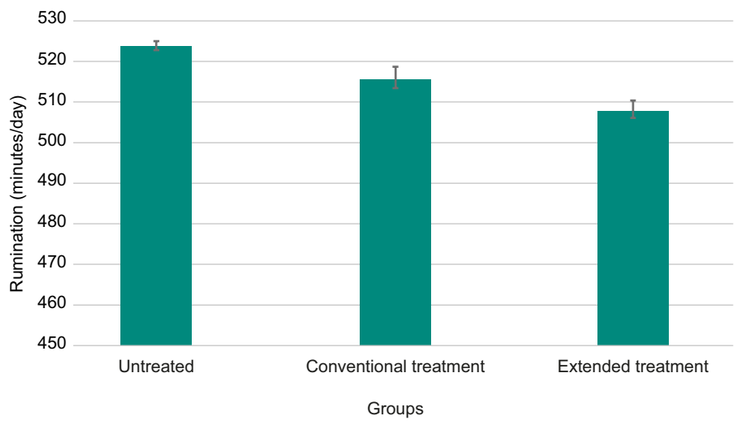
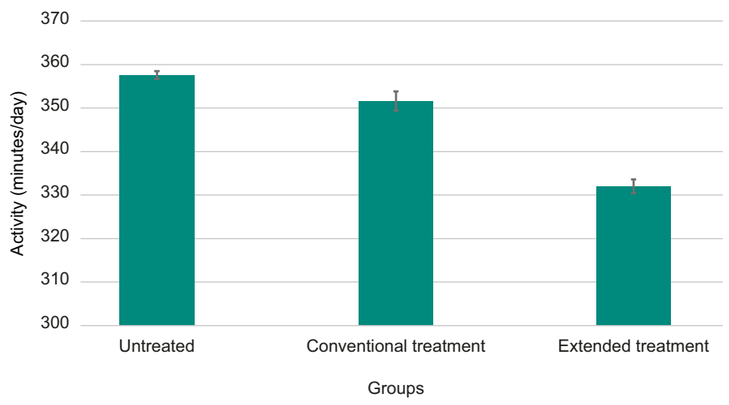


FIGURE 3. Activity in min/day.



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