

Activity level and lying behaviour of dairy cows during a 10d period after naturally occurring clinical mastitis

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BACKGROUND

- ▶ Mastitis → sickness behaviour in dairy cows (Fogsgaard et al., 2012)
 - › Knowledge from experimentally induced mastitis
 - › Mainly E. coli and LPS mastitis
 - › Focus on early identification of the disease

- ▶ Lack of knowledge about
 - › Naturally occurring mastitis cases?
 - › The behaviour during and after mastitis treatment?

AIM

- ▶ Overall project aim:

- › Is there a change in behaviour in dairy cows with naturally occurring mastitis where veterinary intervention is needed
- › Done by investigating
 - › Behavioral changes, clinical signs and milking parameters

- ▶ Subproject aim

- › Describe the level of activity and lying behaviour in mastitis cows

DESIGN

- ▶ Free stall herd of Danish Holstein cows (Danish Cattle Research Center, Foulum, Denmark)
 - › Followed during a 6 month period

- ▶ First 30 cows diagnosed and treated with antibiotics for clinical mastitis
 - › Identified by change in somatic cell count or lactate dehydrogenase (LDH)
 - › Diagnosed by presence of bacteria in milk

DESIGN

- ▶ Infected cow paired up with control cow
 - › Matched by lactation stage and number, yield and body condition
 - › 30 test cows + 30 control cows
- ▶ Kept in home environment
- ▶ Antibiotic treatment day = day 0, follow until day 10

DATA

All data is collected on both test and control cows

- ▶ Thorough clinical examination on day 0
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 - › Clinical udder score + rectal temperature daily

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 - › Number of steps, lying time and number of lying bouts
 - › Measured by hind leg activity sensors (IceRobotics Ltd, Edinburgh, UK)

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Data not presented here:

- ▶ Feeding data, milking behaviour, AMS-data and LDH measured by Herd Navigator (Lattec I/S, Denmark)

DATA

Clinical examination

- › Swollen (0/1)
- › Redness (0/1)
- › Hardness (0/1)
- › Soreness(0/1)
- › Milk drip (0/1)

Clinical score (0-5)

- › 0: No clinical signs
- › 5: All clinical signs



RESULTS

Clinical Score

- ▶ More clinical signs during the entire observation period
- ▶ Significant difference on day 10!

Rectal Temperature

- ▶ 4 mastitic cows with $> 39^{\circ}\text{C}$ on day 0
- ▶ No cows with $> 39^{\circ}\text{C}$ on following days

RESULTS

Mastitic cows

- ▶ Shorter lying time
- ▶ More steps
- ▶ Higher number of lying bouts

DISCUSSION

- ▶ Udder inflammation clear and persistent
 - › Despite mild cases - lack of systemic reaction
 - Infected animals not symptom free after treatment

- ▶ Lying behaviour
 - › Lying time normally enhanced during sickness (Dantzer and Kelly, 2007)
 - › Decreased lying time also found in clinically induced mastitis (Fogsgaard et al., 2012; Siivonen et al., 2011)
 - › Sign of discomfort/pain

DISCUSSION

- ▶ **Lying – highly motivated behaviour in cattle** (Jensen et al., 2004 + 2005)
 - > A behavioural need
 - > Thwarted due to pain → frustration → suffering → compromise welfare

- ▶ **Present results indicate frustration**
 - > With time: ↑ steps and ↑ lying bouts → ↑ frustration

CONCLUSION

Activity – as a sickness indicator

- › Important with knowledge about duration and magnitude of the behavioural changes
- › To help optimize management and welfare for mastitic dairy cows

Solutions?

- › Pain relief - During and after treatment?
- › Move to sickness pen?
 - › Softer bedding! Less competition!

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