

EARLY DETECTION OF BOVINE RESPIRATORY DISEASE IN YOUNG BULLS USING RETICULO-RUMEN TEMPERATURE BOLUSES

Edouard Timsit¹, Sébastien Assié¹, René Quiniou², Henri Seegers¹, Nathalie Bareille¹

¹ONIRIS, INRA, UMR 1300 «Bio-aggression, Epidemiology and Risk Analysis», Nantes, ²INRIA, Rennes, France

Background: Current methods for identifying cattle with bovine respiratory disease (BRD), mainly based on visual appraisal performed by owners or feedlot staff, are not accurate. Recently, a reticulo-rumen temperature bolus allowing a real-time and continuous monitoring of reticulo-rumen temperature has been marketed. Such telemetric device could improve the detection of BRD. However, their use for the detection of BRD has never been investigated.

Objective: The objective of this study was to investigate the use of a reticulo-rumen temperature bolus in the detection of spontaneously occurring BRD in young bulls following their arrival at a fattening unit.

Animals: Twenty-four young bulls (268.8 ± 26.8 kg, *Charolais* cattle) received a reticulo-rumen temperature bolus at arrival and were under observation for 40 days.

Methods: As soon as a reticulo-rumen hyperthermia (RH) episode was detected using the bolus, a clinical examination and a blood sample for the determination of serum haptoglobin (HAP) concentration was performed by a veterinarian. Clinical examinations and blood samples were then repeated every 12 to 24h until the end of the RH episode. Fourteen days after the end of the last RH episode, a blood sample was taken on each young bull and HAP concentrations measured on that day were used as reference values.

Results: Fifty-two RH episodes were detected in 22 animals. The mean duration of RH episodes was 60 h (SD: 43 h, min: 9 h, max: 190 h). During these episodes, high rectal temperatures ($40.1 \pm 0.6^\circ\text{C}$) were observed. Maximum HAP concentration obtained during the RH episodes having lasted more than 24h was higher ($P < 0.005$) than the mean of reference HAP values. BRD clinical cases, *i.e.* abnormal pulmonary sounds with rectal temperature $\geq 39.7^\circ\text{C}$, were diagnosed during 38 out of the 52 RH episodes in 21 animals. The onset of BRD signs always occurred several hours after the onset of RH episodes with first nasal discharge (median: 19 h) then abnormal pulmonary sounds (med: 39 h), depression (med: 51 h), cough (med: 65 h) and eventually ocular discharge (med: 80 h).

Conclusions and clinical importance: In conclusion, RH episodes were not always predictive of BRD (38/52), however, the monitoring of rumen temperature enabled an earlier detection of BRD in comparison to visual appraisal. This improvement of BRD detection could be of interest for the early selection of cattle requiring treatment.