Early detection of bovine respiratory disease and immediate treatment with flunixin help to reduce the use of antibiotics in beef calves

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Objectives: The use of antibiotics (AB) is monitored in Germany since

midyear 2014 and beef farmers are forced to implement new strategies

to reduce the use of AB. New tools to detect fever in calves provide the opportunity to detect bovine respiratory disease (BRD) in an early stage and to treat these animals with an NSAID alone. In the early stage of BRD, viruses are the main pathogen, thus an antibiotic may not be necessary. Then, treatment with an NSAID alone may be sufficient to both inhibit inflammation and control the infection.
The hypothesis of our study was that an early treatment of BRD in calves with flunixin will reduce the use of AB by 33%.
Materials and Methods: The study was performed on 2 beef farms in southern Germany. New arrived calves (n= 40 per farm) were clinically examined and vaccinated intranasally against BRSV and PI3V. A probe (fevertag®) was installed in one ear to measure constantly the calves body temperature. A fever tag alarms by a red flushing light if body temperature is constantly > 39.7oC for 6 h. Fever alarms were monitored for 8 weeks. During this time each fever alarm was reported and allocated randomly to two treatment groups. A repeated alarm on the same calf was counted as a new case if the time interval between two alarms exceeded 7 days. On both farms antibiotics were fed orally for the 1st 14 days, a general method in Germany for new arrived calves on beef farms.
In a case of an alarm (=d 1), rectal body temperature confirmed fever (>39.7oC). In case of fever they were randomly assigned to 2 treatment groups and treated the same day. Calves assigned to the control treatment (n=37) received one injection of florfenicol and flunixin. Calves assigned to the study treatment (n=43) were treated once with flunixin as pour on (3.3mg/kg). All calves were clinically examined on d 2. If fever or clinical signs of BRD were observed further treatment was performed with florfenicol. Calves were finally examined for clinical disease and fever on d 6 to close a case.
Descriptive parameters were used to describe the effects of the different treatments. Frequency of additional treatment in the study group (and 95% CI) was calculated. The sign-test was performed to test our hypothesis.
Results: During the study period, 80 cases of fever alarm were monitored, 24 calves showed two fever periods. Mean body temperature at first treatment was 40.2oC. Besides a slight increased lacrimation in a few calves, no other clinical signs were visible. Appetite was not reduced in all but two calves.
Of the 80 cases, 37 cases were treated with florfenicol and flunixin and all but three calves did not require further treatment.
43 cases were allocated to the study treatment and treated with flunixin only. In 29 cases (67.4%, 95% CI [50.5%; 80.9%] no further treatment till day 6 was necessary. According to the sign test, the reduction in the use of AB was significantly above the 33% of our hypothesis (P=0.0315).
Conclusions: In case of early BRD detection, these results show that early treatment with flunixin reduced the use of AB in fattening calves by 67%. This seems to be an effective strategy for beef farmers to comply with the new German legislation to reduce antibiotic usage. Further studies should show whether these tools of early detection also help to minimize metaphylactic treatments with antibiotics in beef cattle farming.
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Objectives: Many consumers in the United States are demanding that food animals be raised without using antibiotics as evidenced by the increase in certified organic food production. There is great incentive to assess alternatives to antibiotics. Many plant essential oils, extracted from plant material, have been historically used as antibacterial and antiinflammatory agents.