

Association of lung lesions measured by thoracic ultrasonography at first diagnosis of bronchopneumonia with relapse rate and growth performance in feedlot cattle

E. Timsit, DVM, PhD, DECBHM¹; **N. Tison**, DVM, MSc²; **C.W. Booker**, DVM, MSc³; **S. Buczinski**, DVM, MSc, DACVIM²

¹Department of Production Animal Health, Simpson Ranch Chair in Cattle Health and Wellness, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada

²Department of Clinical Science, Faculté de Médecine Vétérinaire, Université de Montréal, St-Hyacinthe, QC, Canada ³Feedlot Health Management Services, Okotoks, AB, Canada

Introduction

Severity of lung lesions quantified by thoracic ultrasonography (TUS) at time of bronchopneumonia (BP) diagnosis predicted death among feedlot steers non-treated for this condition. Further research is now needed to confirm that lung lesions detected by TUS can be associated with negative outcomes in cattle with BP that were subsequently treated for this condition. Therefore, the objective was to quantify effects on relapse rate and average daily gain (ADG) of lung lesions detected by TUS at first BP diagnosis in feedlot cattle.

Materials and Methods

A prospective cohort of mixed beef-breed steers (n = 93; 243 +/- 36 kg) and heifers (n = 51; 227 +/- 42 kg) diagnosed with BP were enrolled at 4 commercial feedlots (Western Canada). Thoracic ultrasonography was performed by the same clinician and 16-s duration TUS videos were evaluated offline for maximal depth and area of lung consolidation, maximum number of comet-tail and maximal depth of pleural

fluid. Individual ADG were calculated between 1 and 120 days after arrival. Effects of lesions on relapse rate and ADG were investigated using mixed regression models.

Results

Maximal depth of lung consolidation was associated with a higher risk of relapse (OR = 1.337 per cm, 1.042-1.714) and a lower ADG (- 34 g per cm, -64 to -4). Maximal area of lung consolidation was also associated with a higher relapse risk (OR = 1.052 per cm², 1.009-1.097), but not with ADG. Comet tails and pleural fluid were not associated with risk of relapse or ADG.

Significance

Quantifying maximal depth and area of lung consolidation by TUS at first BP diagnosis can provide useful prognostic information in feedlot cattle.