

Survival of dairy cattle following treatment of idiopathic pericardial hemorrhage with parenteral dexamethasone or isofluprednone acetate

J.M. Gaska, DVM¹; S.M. McGuirk, DVM, PhD, DACVIM²; S.F. Peek, BVSc, PhD, DACVIM²

¹Gaska Dairy Health Services, Columbus, WI 53925

²Department of Medical Sciences, University of Wisconsin, Madison, WI 53706

Introduction

A limited number of individual case reports and small retrospective studies have described idiopathic pericardial effusion in dairy cattle. Affected cattle develop acute signs of cardiac failure and tamponade, with distended and poorly compressible jugular and mammary veins, edema, mildly muffled heart sounds, and a sudden drop in production and appetite. In contrast to other forms of cardiac disease, this condition appears to have a more favorable prognosis in terms of reproductive and lactational productivity and longevity. The purpose of this retrospective study was to compare the survival of dairy cows with presumptive idiopathic pericardial effusion that were treated with dexamethasone with those that were treated with isofluprednone acetate.

Materials and Methods

All cows with presumptive pericardial effusion (cases) from a single 2,200-cow dairy in southern Wisconsin from 2011 to 2013 were reviewed. The mean rolling herd average during the study was 27,984 lb (12,720 kg). A case was defined as a cow with clinical signs of cardiac tamponade including mildly muffled heart sounds, distended jugular veins, distended and poorly compressible mammary veins, tachycardia, and neck and brisket edema. Definitive confirmation of hemorrhagic pericardial effusion was performed in a subset of cows by ultrasound-guided pericardiocentesis and cytological analysis of the aspirated fluid. Cows in which a diagnosis of pericardial effusion was confirmed were treated with a combination of pericardial drainage via a thoracic drainage tube and parenterally administered dexamethasone. Cases in which pericardial effusion was not confirmed were treated with either isofluprednone acetate or dexamethasone parenterally, without pericardial drainage. The steroid used was chosen on the basis of each cow's pregnancy status. Cows that were not pregnant or were < 75 days in gestation were administered dexamethasone (70 mg, IM, daily for 4 days, then nothing on day 5, followed by 40 mg, IM, on day 6), whereas cows that were confirmed pregnant and ≥ 75 days in gestation were administered isofluprednone acetate (24 mg, IM, daily for 5 days) and potassium chloride (125 g, PO, daily for 5 days). Health and production data were obtained from DairyComp305, and comparisons between treatment groups were made by use of non-Gaussian and Gaussian statistical analyses. For all analyses, values of $P \leq 0.05$ were considered significant.

Results

Of the 81 cases identified, 51 were treated with dexamethasone and 30 were treated with isofluprednone acetate; none were treated with pericardial drainage. Pericardial effusion was confirmed in an additional 6 cows, which were treated with dexamethasone and pericardial drainage. Median age for the dexamethasone-treated cases was 49 months, and that for the isofluprednone acetate-treated cases was 47 months. The median days-in-milk for all study cattle at the time of diagnosis was 262 days (181 days and 316 days for dexamethasone- and isofluprednone acetate-treated cows, respectively). Mean \pm SD M305 for the lactation during which pericardial effusion was diagnosed was 27,792 \pm 6,096 lb (12,633 \pm 2,771 kg) and 30,970 \pm 4,325 lb (14,077 \pm 1,966 kg) for the dexamethasone- and isofluprednone acetate-treated cows, respectively. Of the dexamethasone-treated cows, 11 were still alive, 2 died spontaneously, and 38 were sold or culled. The mean \pm SD survival time in the herd following diagnosis for the dexamethasone-treated cows was 67 \pm 128 days. Of the isofluprednone acetate-treated cows, 6 were still alive and had calved at least once since the pericardial effusion diagnosis, 4 had calved once and were sold during the next lactation, and 20 were sold or culled during the lactation that pericardial effusion was diagnosed. The mean \pm SD survival time in the herd following diagnosis for the isofluprednone acetate-treated group was 61 \pm 111 days. Survival to the end of the lactation during which pericardial effusion was diagnosed and M305 production did not differ significantly between cases treated with dexamethasone and those treated with isofluprednone acetate.

Significance

Idiopathic pericardial effusion is a treatable condition on the farm without the need for pericardial drainage. In sharp contrast to other forms of cardiac disease in cattle and despite being associated with clinical signs of congestive heart failure, cattle with pericardial effusion can be successfully treated with corticosteroids. Extension of the affected cow's life can be achieved with either isofluprednone acetate or dexamethasone to the end of the current lactation, or in some cases beyond. Cows pregnant at the time of diagnosis may successfully carry the fetus to term.