

# SCIENTIFIC REPORTS

## Interpretive Summaries

### SMALL ANIMALS

#### Results of ambulatory electrocardiography in overtly healthy Doberman Pinschers with echocardiographic abnormalities

Ventricular premature contractions (VPC) were detected on initial 24-hour ambulatory electrocardiographic (Holter) recordings from 56 overtly healthy Doberman Pinschers with echocardiographic evidence of dilated cardiomyopathy. Thirty-six (65%) dogs had > 1,000 VPC/24 h, 17 (31%) had > 5,000 VPC/24 h, and 11 (19%) had > 10,000 VPC/24 h. Number of VPC/24 h during the initial Holter recordings was positively correlated with number of couplets and triplets of VPC and number of ventricular escape beats and negatively correlated with left ventricular fractional shortening. Twenty-eight dogs died suddenly prior to the putative onset of congestive heart failure; the other 28 died after the onset of congestive heart failure.—C. A. Calvert et al (*J Am Vet Med Assoc* 2000;217:1328–1332).

#### Video-assisted thoracoscopic division of the ligamentum arteriosum in two dogs with persistent right aortic arch

Persistent right aortic arch is a congenital anomaly that results in entrapment of the esophagus and regurgitation. Traditionally, transection of the ligamentum arteriosum is achieved via thoracotomy through the left fourth intercostal space. In this report, video-assisted division of the ligamentum arteriosum in 2 dogs is described. Single-lung ventilation and thoracic insufflation were not required, because complete exploration of the thorax was not required to complete the procedure. Minimal signs of postoperative pain and few complications developed. Standard instrumentation was used for most of the procedure. The use of 4 portals is recommended; the thoracoscope is inserted at the fourth intercostal space, and portals in the third, fifth, and sixth intercostal spaces are used for surgical manipulation. Video-assisted division of the ligamentum arteriosum is a viable alternative to thoracotomy at the left fourth intercostal space.—K. Isakow et al (*J Am Vet Med Assoc* 2000;217:1333–1336).

#### Complications and outcomes associated with use of gastrostomy tubes for nutritional management of dogs with renal failure: 56 cases (1994–1999)

Medical records of 56 dogs with renal failure in which a gastrostomy tube was placed for nutritional support were reviewed. Mean BUN concentration was 134 mg/dl and mean serum creatinine concentration was 9 mg/dl. Mean percentage weight loss prior to ini-

tial tube placement was 8%, and median body condition scored by use of a 5-point system was 2. Minor stoma site infections were a common but not life-threatening complication. Twenty-six tubes were replaced in 15 dogs; 11 were replaced because of removal by the dog. Percutaneous replacement was successful for 22 tubes, whereas replacement of 4 tubes required exploratory laparotomy. Gastrostomy tubes were used for nutritional support for a mean of 65 days; for 7 dogs, gastrostomy tubes were used for > 6 months. Three dogs died of gastrostomy complications; 2 died because of displacement of the gastrostomy tube and 1 because of peritonitis. Survival time associated with use of a low-profile gastrostomy tube was significantly longer than that for traditional designs. Results suggest that use of gastrostomy tubes for nutritional support may be indicated in dogs with renal failure.—D. A. Elliot et al (*J Am Vet Med Assoc* 2000;217:1337–1342).

### EQUINE

#### Palmar-plantar axial sesamoidean approach to the digital flexor tendon sheath in horses

A palmar-plantar axial sesamoidean (PAS) approach to the digital flexor tendon sheath in horses is described and compared with a more conventional proximolateral (PL) approach to the tendon sheath. The number of successful tendon sheath injections, number of attempts required to access the tendon sheath, time required to complete the injection, evidence of gross injury to the soft tissues, and number of limbs with subcutaneous deposition of contrast material were recorded and compared between the PAS approach and the PL approach to the digital flexor tendon sheath. The PAS approach provided reliable access to the tendon sheath and took fewer attempts and significantly less time than the PL approach. Anatomic landmarks for the PAS approach include the neurovascular bundle and the palmar border of the midbody of the lateral proximal sesamoid bone. The PAS approach offers a rapid, reliable, and technically simple option for synoviocentesis of the digital flexor tendon sheath in horses.—D. M. Hassel et al (*J Am Vet Med Assoc* 2000;217:1343–1347).

#### Clinical application of a polymerase chain reaction assay in the diagnosis of pneumonia caused by *Rhodococcus equi* in a horse

A 6-week-old Quarter Horse filly was evaluated because of severe pneumonia that developed after residing at a breeding farm for 4 weeks. A virulent strain of *Rhodococcus equi* was identified by use of a

polymerase chain reaction assay, which was performed within 24 hours of collection of a fluid sample obtained by transtracheal aspiration. Several days later, results of bacteriologic culturing confirmed the presence of *R equi* in the sample. Because there was no history of *R equi* at the farm of origin, the owners were concerned that the breeding farm was the source of infection in the foal. Fecal samples were collected from the farm of origin and the breeding farm. One fecal sample from a horse at the farm of origin yielded positive results for the virulent strain of *R equi*. The owners accepted this as evidence that the foal may have become infected prior to transport to the breeding farm.

Pneumonia in the foal resolved after 2 months of treatment with erythromycin and rifampin. Polymerase chain reaction assays may be used for rapid and specific diagnosis of *R equi* infections in foals and during epidemiologic investigations of patterns of shedding of the virulent strain of *R equi* in feces.—S. L. Vivrette et al (*J Am Vet Med Assoc* 2000;217:1348–1350)

### **Removal of large fragments of the extensor process of the distal phalanx via arthrotomy in horses: 14 cases (1992–1998)**

Fourteen horses were treated by use of arthrotomy to remove large fragments of the extensor process of the distal phalanx. Only forelimbs were affected and lameness grade varied from 1/5 to 4/5. Most horses were referred with a history of chronic lameness and were < 5 years of age. Fragments involved a median of 35% of the dorsopalmar articular surface of the distal phalanx. After surgery, 8 horses had successful outcomes and 6 had unsuccessful outcomes. Outcome was not associated with age, fragment size, or duration or severity of lameness, but all horses with lameness of > 2 years' duration had unsuccessful outcomes. A fair prognosis may be anticipated for removal of large fragments of the extensor process by use of arthrotomy.—J. E. Dechant et al (*J Am Med Vet Assoc* 2000;217:1351–1355).

## **RUMINANTS**

### **Association of serologic status for *Neospora caninum* with postweaning weight gain and carcass measurements in beef calves**

Associations between serologic status for *Neospora caninum* and postweaning weight gain and carcass measurements were studied. Serum samples were obtained from 1,009 beef calves from 92 ranches at time of arrival at 2 feedlots. Results of an agglutination test revealed an overall seroprevalence of 12.98% (131/1,009). Samples were considered to have positive results when *N caninum* antibodies agglutinated at serum dilutions of  $\geq 1:80$ . Evidence of clustering was found among consignments, with 54/92 (58.7%) consignments containing  $\geq 1$  seropositive calf. Seropositive status was associated with reductions in average daily gain, live weight at slaughter, and hot carcass weight and an increase in ribeye area-to-hot carcass weight ratio. Seropositive status also was associated with increased cost of treatment and decreased income from carcass sales. Seropositive status was not

associated with increased morbidity or mortality; however, sick seropositive calves had a higher cost of treatment than sick seronegative calves. Results indicated that seropositive status for *N caninum* was associated with reductions in postweaning growth and decreased economic return.—K. S. Barling et al (*J Am Vet Med Assoc* 2000;217:1356–1360).

### **Spatial associations among density of cattle, abundance of wild canids, and seroprevalence to *Neospora caninum* in a population of beef calves**

Spatial associations among seroprevalence to *Neospora caninum*, cattle density, and abundance of wild canids (gray foxes and coyotes) by ecologic region in Texas were evaluated. Calves were grouped on the basis of seroprevalence for *N caninum* by ecologic region. Cattle density of each ecologic region and abundances of gray foxes and coyotes of each ecologic region were used as covariates in spatial regression models, with adjusted seroprevalence as the outcome variable. A geographic information system was used to validate spatial regression models. Spatial interdependence was not detected for ecologic regions. Results for 3 models revealed that seroprevalence was associated with cattle density and abundances of gray foxes, coyotes, or both. Beef cattle in Texas are at increased risk of exposure to *N caninum* as a result of the abundance of wild canids and the density of beef cattle.—K. S. Barling et al (*J Am Vet Med Assoc* 2000;217:1361–1365).

## **WILDLIFE**

### **Cardiorespiratory effects of four $\alpha_2$ -adrenoceptor agonist-ketamine combinations in captive red wolves**

The objective of this study was to compare cardiopulmonary and behavioral effects associated with anesthesia induced by combinations of  $\alpha_2$ -adrenoceptor agonists and ketamine in captive red wolves (*Canis rufus*) under simulated field conditions. Thirty-two captive adult red wolves were randomly assigned to 1 of 4 treatment groups in which ketamine was combined with xylazine, medetomidine, medetomidine-acepromazine, or medetomidine-butorphanol. All 4 combinations provided rapid induction of anesthesia, but duration and quality of recovery differed among treatment groups. Muscle relaxation was more apparent in wolves that received butorphanol. Anesthesia with any of the 4 drug combinations was characterized by considerable hypertension. Acute hypertension secondary to the administration of  $\alpha_2$ -adrenoceptor agonist-ketamine combinations may have deleterious consequences, including cerebral infarction, hypertensive encephalopathy and retinopathy, acute pulmonary edema, and acute congestive heart failure. The addition of butorphanol to medetomidine-ketamine attenuated the hypertension, contributed to smooth induction, provided excellent muscle relaxation, and allowed for a 50% reduction in the medetomidine dosage.—K. K. Sladky et al (*J Am Vet Med Assoc* 2000;217:1366–1371).