

## Interpretive Summaries

### SMALL ANIMALS

#### **Effects of animal position and number of repeated measurements on selected two-dimensional and M-mode echocardiographic variables in healthy dogs**

The purposes of the echocardiographic study reported here were to evaluate the effects of dog positioning and number of repeated measurements on intra- and interobserver variability. Forty-eight echocardiographic examinations were performed on 4 awake dogs by 2 trained observers on the same day. Each observer performed 24 examinations, separately assessing each dog 6 nonconsecutive times (3 times with the dog in lateral recumbency and 3 with the dog in a standing position). All coefficients of variation were similar between operators and positions and were < 15% for 27 of 32 (84%) values. The within-day variability of conventional echocardiographic measurements performed with the dog in standing position was at least as good as that obtained with the dog in lateral recumbency for most measured variables, suggesting that the standing position should be recommended, particularly for stressed or dyspneic dogs. Moreover, no effect of cardiac cycle was observed for any echocardiographic variable.—V. Chetboul et al (*J Am Vet Med Assoc* 2005;227:743–747).

#### **Effect of tympanic cavity evacuation and flushing on microbial isolates during total ear canal ablation with lateral bulla osteotomy in dogs**

Thirty-four dogs (47 ears) underwent total ear canal ablation with lateral bulla osteotomy or reoperation lateral bulla osteotomy. Samples for bacteriologic culture and susceptibility testing were obtained from the tympanic cavity on entry (preflush) and after evacuation and lavage (postflush). Evacuation and lavage of the middle ear decreased the number of bacterial isolates by 33%. Different isolates (31/44 [70%] ears) and susceptibility patterns of isolate pairs (6/44 [14%] ears) between preflush and postflush samples were found in 84% of ears. Only 26% of isolates tested were susceptible to cefazolin. Most dogs that received empirically chosen antimicrobials postoperatively were treated inappropriately, as judged via susceptibility patterns. Results indicated that postoperative antimicrobial selection in dogs undergoing total ear canal ablation with lateral bulla osteotomy should be based on culture and susceptibility testing results from tympanic cavity samples obtained before and after flushing. Anaerobic bacteria were isolated from the tympanic

cavity; however, their role in canine otitis externa and media remains undetermined.—B. F. Hettlich et al (*J Am Vet Med Assoc* 2005;227:748–755).

#### **Pretreatment clinical and laboratory findings in dogs with primary hyperparathyroidism: 210 cases (1987–2004)**

Medical records of 210 dogs with primary hyperparathyroidism were reviewed to determine pretreatment clinical and laboratory findings. Mean age was 11.2 years (range, 6 to 17 years), and the most common clinical signs were attributable to urolithiasis or urinary tract infection (ie, straining to urinate, increased frequency of urination, and hematuria). However, most dogs (149 [71%]) did not have any observable abnormalities on physical examination. All dogs had hypercalcemia, and most (136 [65%]) had hypophosphatemia. Overall, 200 dogs (95%) had BUN and serum creatinine concentrations within or less than the reference range, and serum parathyroid hormone concentration was within reference limits in 135 of 185 (73%) dogs. Urolithiasis was identified in 65 (31%) dogs, and urinary tract infection was diagnosed in 61 (29%). Mean serum total calcium concentration for the dogs with primary hyperparathyroidism was significantly higher than mean concentration for a group of 200 age-matched control dogs, but mean BUN and serum creatinine concentrations for the dogs with primary hyperparathyroidism were both significantly lower than concentrations for the control dogs. Results suggest that urolithiasis and urinary tract infection may be associated with hypercalcemia in dogs with primary hyperparathyroidism, but that development of renal insufficiency is uncommon.—E. C. Feldman et al (*J Am Vet Med Assoc* 2005;227:756–761).

### EQUINE

#### **Inheritance of recurrent exertional rhabdomyolysis in Thoroughbreds**

External intercostal muscle biopsy specimens from 8 adult horses with recurrent exertional rhabdomyolysis (RER) and 16 unaffected adult horses were tested for contracture in response to halothane and caffeine to determine whether in vitro muscle contracture could be used as a diagnostic test for RER. The contracture test was then performed on 23 foals (12 males and 11 females) produced by planned matings of horses with RER and unaffected horses, and the established criteria for test interpretation were applied to determine whether the foals had RER. Simple segregation analysis

was performed to determine whether results were consistent with a dominant pattern of inheritance.

Results of the contracture test were positive for 5 of the 12 males and 4 of the 11 females. Results of segregation analysis were consistent with an autosomal dominant pattern of inheritance. Two sires with RER produced colts with RER, supporting the hypothesis that RER had an autosomal, rather than an X-linked, inheritance pattern. In addition, in 1 instance, an unaffected colt was produced by 2 affected parents, which was not consistent with a recessive mode of inheritance. Although the expression of the RER trait in vivo is influenced by sex, temperament, and diet, among other factors, results from the in vitro muscle contracture test and this breeding trial suggest that RER in Thoroughbreds can be modeled as a genetic trait with an autosomal dominant pattern of inheritance.—P. K. Dranchak et al (*J Am Vet Med Assoc* 2005;227:762–767).

### **Association between exercise-induced pulmonary hemorrhage and performance in Thoroughbred racehorses**

An observational cross-sectional study was performed to determine whether exercise-induced pulmonary hemorrhage (EIPH) was associated with racing performance in Thoroughbred horses not medicated with furosemide and not using nasal dilator strips. Two- to 10-year-old Thoroughbred horses (n = 744) racing in Melbourne, Australia, were enrolled prior to racing, and a tracheobronchoscopic examination was performed after 1 race. Severity of EIPH was graded on a scale from 0 to 4.

Horses that were examined did not differ from horses racing during the same period that were not examined in regard to age, sex distribution, or proportion of horses that won or finished in the first 3 positions. Horses with EIPH grades  $\leq 1$  were 4.0 times as likely to win, 1.8 times as likely to finish in the first 3 positions, and 3.03 times as likely to be in the 90th percentile or higher for race earnings as were horses with grades  $\geq 2$ . Horses with EIPH grades  $\geq 1$  finished significantly farther behind the winner than did horses without EIPH. However, odds that horses with grade 1 EIPH would win or finish in the first 3 positions were not significantly different from odds for horses without EIPH. Results suggest that EIPH is associated with impaired performance in Thoroughbred racehorses not medicated with furosemide and not using nasal dilator strips.—K. W. Hinchcliff et al (*J Am Vet Med Assoc* 2005;227:768–774).

### **Gastric ulcer development in horses in a simulated show or training environment**

Twenty client-owned horses were used in this study. During 5 days, 10 young horses were exposed to conditions that simulated activities that are typical for the recreational use of horses, including transportation to an unfamiliar stable environment, twice-daily feeding, light exercise and training, and return transportation to the premises of origin. Ten age-matched herdmates remained on the premises of origin during the trial. Gastroscopy was performed at the beginning (day -1) and end (day 5) of the trial. The appearance of all stomachs was normal

at the beginning of the trial. Two control horses and 7 transported horses developed ulcers in the squamous mucosa of the stomach by day 5. Ulcer scores of the transported horses increased significantly from day -1, whereas ulcer scores in the control horses did not change significantly from day -1. Results indicated that activities that are typical for the recreational use of horses were ulcerogenic and that ulcers can develop under these conditions within 5 days.—S. R. McClure et al (*J Am Vet Med Assoc* 2005;227:775–777).

### **Hematuria associated with cystic hematomas in three neonatal foals**

Cystic hematomas were diagnosed in 3 neonatal foals. In all 3 foals, cystic hematomas resulted from umbilical trauma or thrombocytopenia. Findings in these foals suggest that cystic hematoma should be included in the differential diagnosis of hematuria in neonatal foals. Management of cystic hematomas includes both medical and surgical options.—C. E. Arnold et al (*J Am Vet Med Assoc* 2005;227:778–780).

## **RUMINANTS**

### **Epidural administration of fixed volumes of xylazine and lidocaine for anesthesia of dairy cattle undergoing flank surgery**

A modified method for epidural anesthesia in standing cattle undergoing flank surgery in which fixed volumes of xylazine and lidocaine were injected is described, along with results in 18 cattle. A Tuohy needle was inserted into the L1-2 intervertebral space from a dorsal midline approach, positioning of the needle tip in the epidural space was confirmed by use of the hanging drop technique, the needle was slowly advanced 7 to 10 mm to penetrate the epidural fat, and the anesthetic solution was then administered. In the initial 8 cattle, the anesthetic solution consisted of 1 mL of 2% xylazine and 4 mL of 2% lidocaine. However, 1 of these cattle became recumbent prior to surgery. Therefore, the dose of lidocaine was decreased, and in the subsequent 10 cattle, the anesthetic solution consisted of 1 mL of 2% xylazine and 3 mL of 2% lidocaine. Surgery was begun 30 minutes after epidural administration of anesthetic; surgery time ranged from 27 to 276 minutes. Sedation and anesthesia were adequate, except in 1 cow that received the lower dose of lidocaine and became recumbent during suturing of the incision. The modified epidural anesthesia technique with injection of fixed volumes of xylazine and lidocaine appears to be an adequate method for anesthesia of standing cattle undergoing flank surgery.—I. Lee and H. Yamada (*J Am Vet Med Assoc* 2005;227:781–784).

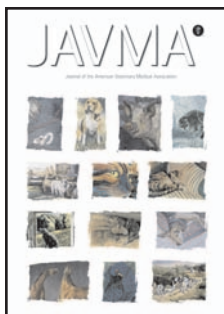
## **WILDLIFE**

### **Evaluation of oral rabies vaccination programs for control of rabies epizootics in coyotes and gray foxes: 1995–2003**

A retrospective study was performed to evaluate the effectiveness of intervention efforts to halt 2 wildlife

rabies epizootics from 1995 through 2003. A recombinant-virus oral vaccine in edible baits was distributed by aircraft for consumption by coyotes and gray foxes. Bait acceptance was monitored via analysis of tetracycline biomarker in upper canine teeth and associated bone structures in animals collected for surveillance. Serologic responses were monitored by testing sera for neutralizing antibodies. The incidence of rabies in the distribution area was recorded via active and passive surveillance

activities; tracking of rabies virus variants in confirmed rabid animals was used to determine the number and type of rabies cases before and after distributions of the vaccine. The expansion of both epizootics was halted as a result of the vaccine bait program. Data indicated that oral rabies vaccination resulted in protective immunity in a sufficient percentage of the target wildlife population to preclude propagation of the disease.—T. J. Sidwa et al (*J Am Vet Med Assoc* 2005;227:785–792).



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