

Safety concern regarding the risk of air embolism secondary to pressure bag infused fluids.

[No authors listed]

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Assessment of the percutaneous dilatational tracheostomy technique in experimental manikins and canine cadavers.

Pardo MA¹, Sumner JP¹, Friello A¹, Fletcher DJ¹, Goggs R¹.

[+ Author information](#)

Abstract

OBJECTIVE: To evaluate procedure time, ease of placement, and complication rates of percutaneous dilatational tracheostomy (PDT) compared to surgical tracheostomy (ST) in canine cadavers.

DESIGN: Randomized crossover experimental manikin and cadaver study involving 6 novice veterinary students.

SETTING: University teaching hospital.

ANIMALS: Canine tracheostomy training manikin, 24 canine cadavers.

INTERVENTIONS: None.

MEASUREMENTS AND MAIN RESULTS: For training, each student performed 10 PDT and 10 ST procedures on a training manikin, followed by 2 PDT and 2 ST procedures on a canine cadaver. After each training procedure, feedback from bronchoscopy and observers was provided. Final PDT and ST tube placements using new equipment were performed in unused cadavers. Placements were timed, ease of placement was scored using visual analog scales (VAS, 0-10 cm), and complications were assessed by two independent observers using ordinal scales (0-3). Cadaver tracheas were explanted postprocedure to evaluate anatomical damage scores (0-3). Procedure time and VAS scores for PDT and ST procedures were analyzed using mixed-effects linear models, accounting for student, technique, and procedure number with post hoc pairwise comparisons. Data are presented as median (range). For the final cadaver placement, there were no significant differences in placement time (300 seconds [230-1020] vs 188 seconds [116-414], $P = 0.210$), ease of placement (3.8 cm [2.1-5.7] vs 1.9 cm [0-4.7], $P = 0.132$), anatomical damage score (1 [0-2] vs 0 [0-1], $P = 0.063$), or equipment complications score (0 [0-1] vs 0 [0-0], $P = 1.000$) between PDT and ST, respectively.

CONCLUSIONS: These data suggest that PDT can be performed as quickly, as easily, and as safely as ST in a canine cadaver by novice veterinary students following manikin training. Additional studies will be required to determine if these findings can be translated into veterinary clinical practice.

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KEYWORDS: anatomic models; complications; manikin training; trachea; upper airway obstruction

Utility of admission lactate concentration, lactate variables, and shock index in outcome assessment in dogs diagnosed with shock.

Zollo AM¹, Ayoob AL², Prittie JE¹, Jepson RD³, Lamb KE³, Fox PR⁴.

Author information

Abstract

OBJECTIVE: To determine whether admission venous plasma lactate concentration, calculated lactate variables, or shock index (SI) could discriminate hospital survivors from nonsurvivors in dogs admitted with shock.

DESIGN: Prospective investigation performed over a 19-month period.

SETTING: Large urban private teaching hospital.

ANIMALS: Twenty-three dogs consecutively admitted to the ICU from January 2008 to July 2009 with initial peripheral venous plasma lactate concentration >2 mmol/L (18.0 mg/dL) and clinical and hemodynamic parameters consistent with shock.

INTERVENTIONS: None.

MEASUREMENTS AND MAIN RESULTS: Heart rate, systolic blood pressure, and venous plasma lactate concentrations were serially recorded at predefined time points and used to calculate SI (SI = heart rate/systolic blood pressure) and lactate variables, including lactime (time lactate > 2.0 mmol/L), lactate clearance ($[\text{lactate}_{\text{initial}} - \text{lactate}_{\text{delayed}}] / \text{lactate}_{\text{initial}} \times 100$), and LAC_{AREA} (area under the lactate concentration versus time curve). Primary outcome was survival to discharge. Overall survival rate was 61%. Admission venous plasma lactate concentration did not differ between groups (P = 0.2). Lactime was shorter in survivors versus nonsurvivors (P = 0.02). Lactate clearance at 1, 10, 16, 24, and 36 hours, and final lactate clearance were greater in survivors versus nonsurvivors (P < 0.05). LAC_{AREA} at time intervals 0-1, 1-4, 4-10, 10-16, 16-24, 24-30, and 30-36 hours was larger in nonsurvivors versus survivors (P < 0.05). Total LAC_{AREA} did not differ between groups (P = 0.09). Admission SI and time to normalize SI (SI < 0.9) were not different between survivors and nonsurvivors (P > 0.05).

CONCLUSIONS: While admission venous plasma lactate concentration could not discriminate between hospital survivors and nonsurvivors, lactate variables showed clinical utility to predict outcome in dogs with shock. Further studies are needed to determine SI reference ranges and optimal SI cut-off values to improve its prognostic ability in sick dogs.

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KEYWORDS: canine; hypoperfusion; perfusion parameters; resuscitation

Use of gas chromatography-mass spectrometry for definitive diagnosis of synthetic cannabinoid toxicity in a dog.

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Author information

Abstract

OBJECTIVE: To report the use of gas chromatography-mass spectrometry to confirm a diagnosis of synthetic cannabis toxicosis in a dog and to describe the clinical course of the intoxication.

CASE SUMMARY: An 11-year-old neutered female Boxer dog was referred due to acute onset of vomiting, ataxia, dull mentation, and delirium that progressed to generalized seizures, unresponsive to diazepam. Prior to presentation, the dog was found lying down, minimally responsive with vomitus around it. A chewed bag containing dried plant material was found next to the dog. The dog was anesthetized and ventilated with positive pressure for 16 hours, and eventually made a full recovery. Gas chromatography-mass spectrometry analysis of the plant material and a plasma sample from the dog revealed presence of the synthetic cannabinoid N-[(1S)-1-(aminocarbonyl)-2-methylpropyl]-1-(cyclohexylmethyl)-1H-indazole-3-carboxamide, also known as AB-CHMINACA, a relatively new illegal synthetic cannabinoid, known by the local forensic police department as a drug of recreational abuse.

NEW OR UNIQUE INFORMATION PROVIDED: Reports of synthetic cannabinoid toxicosis in dogs are scarce and are based on urine test kits for tetrahydrocannabinol that have not been validated in the veterinary literature. This is the first report to describe utilization of gas chromatography-mass spectrometry on canine plasma to reach a definitive diagnosis.

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KEYWORDS: AB-CHMINACA; canine; seizure; tetrahydrocannabinol; toxicology

Effect of standard clinical procedures on blood glucose concentration in clinically healthy horses.

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Author information

Abstract

BACKGROUND: Blood glucose concentrations fluctuate with stress, but little is known on how it is influenced by clinical procedures. The objective was to investigate the effect of clinical procedures on blood glucose concentration in healthy horses.

MATERIALS AND METHODS: Prospective, experimental study. Seven hospital-owned research horses were included in the study. A total of 4 horses were sampled either during a control sedation trial or during 3 different student workshops (prepurchase, oral, and rectal examination-the latter 2 with sedation). Blood samples were taken every 15 minutes and glucose concentration in whole blood was measured immediately with a previously validated handheld glucometer until normalization after the end of the workshops. No food was provided during sampling periods.

KEY FINDINGS: All measured blood glucose concentrations remained within reference interval. A significant increase in blood glucose concentration between baseline and peak was found during sedation ($P = 0.005$) and the oral workshop ($P = 0.031$). A decrease was found during prepurchase examination ($P = 0.006$; before exercising). Peak glucose concentration values between the sedation trial and both the oral ($P = 0.065$) and rectal workshop ($P = 0.709$) were not statistically different. Glucose measurements returned to baseline 1 hour after completion of the workshops.

SIGNIFICANCE: No impact of different clinical procedures on the blood glucose concentration over the effects of sedation was found. It is advisable to wait 1 hour after a procedure to measure blood for glucose concentration in horses.

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KEYWORDS: equine; hyperglycemia; hypoglycemia; oral examination; prepurchase examination; rectal examination

Temporary abdominal packing for management of persistent hemorrhage after liver lobectomy in three dogs with hepatic neoplasia.

Evans NA¹, Hardie RJ¹, Walker J¹, Bach J¹.

Author information

Abstract

OBJECTIVE: To describe the technique and outcome of temporary abdominal packing for control of persistent hemorrhage from liver lobectomy sites in 3 dogs with hepatic neoplasia.

SERIES SUMMARY: Three dogs were treated with massive transfusion for hemoperitoneum secondary to bleeding hepatic tumors. Surgical resection of the affected liver lobe(s) was performed but hemostasis could not be achieved through conventional methods. All 3 dogs demonstrated acidosis, hypothermia, and coagulopathy. Temporary abdominal packing of liver lobectomy sites was performed and hemostasis was achieved in all dogs. One dog died prior to removal of the packing. The other 2 dogs had the packing removed with no evidence of rebleeding. One dog was euthanized after removal of the packing due to acute kidney injury and the remaining dog survived to discharge.

NEW OR UNIQUE INFORMATION PROVIDED: Temporary abdominal packing combined with medical management was successful in achieving hemostasis in all 3 dogs, however, 2 dogs died of complications related to multiple organ dysfunction syndrome. Temporary abdominal packing may be considered when definitive surgical hemostasis cannot be achieved or in unstable patients not able to tolerate prolonged surgical times. Further research is needed to better define efficacy, optimal patient selection, packing technique, timing of removal, and complications associated with temporary abdominal packing.

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KEYWORDS: damage control surgery; hemostasis; intraoperative coagulopathy; massive transfusion; temporary abdominal packing

Successful management and recovery following severe prolonged starvation in a dog.

Khoo AWS¹, Taylor SM¹, Owens TJ¹.

[+ Author information](#)

Abstract

OBJECTIVE: To describe the successful management of a dog following a period of prolonged food deprivation.

CASE SUMMARY: A 7-year-old, intact male Labrador Retriever presented with profound weakness and loss of nearly 50% of his body weight due to severe prolonged starvation after being trapped in a well for 27 days. Electrolyte concentrations were managed with intensive intravenous supplementation during refeeding. The dog's electrolyte abnormalities resolved, wounds healed, and strength returned during the first 3 weeks of treatment. During the next 3 months, body condition score normalized and muscle mass improved.

NEW OR UNIQUE INFORMATION PROVIDED: This report describes the management of a severely malnourished dog during refeeding, and highlights treatment considerations that may be important in the prevention of refeeding syndrome in such cases.

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KEYWORDS: electrolyte imbalances; nutrition; refeeding; resuscitation

Successful management of acute bilirubin encephalopathy in a dog with immune-mediated hemolytic anemia using therapeutic plasma exchange.

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[+ Author information](#)

Abstract

OBJECTIVE: To describe the successful management of acute bilirubin encephalopathy in a dog with immune-mediated hemolytic anemia (IMHA) treated with therapeutic plasma exchange (TPE) in conjunction with conventional medical management.

CASE SUMMARY: A 6-year-old neutered male Australian Cattle Dog diagnosed with IMHA developed severe hyperbilirubinemia and stupor within the first 48 hours of implementing immunosuppressive therapy consisting of corticosteroids and mycophenolate. The patient received 4 blood transfusions during this period, but remained severely anemic PCV (18%) and experienced a subsequent increase in total bilirubin from 78 $\mu\text{mol/L}$ (4.6 mg/dL) to a peak value of 1,563 $\mu\text{mol/L}$ (91.4 mg/dL). The patient's neurological status rapidly deteriorated, resulting in lateral recumbency, vertical nystagmus, extensor rigidity, and stuporous mentation. Over the next 3 days, TPE was provided once every 24 hours, decreasing serum bilirubin, immunoglobulin G (IgG), and immunoglobulin M (IgM). The patient's red blood cell (RBC) transfusion requirements decreased immediately, requiring only 1 transfusion over the next 7 days that was required due to procedure-associated blood loss. Gradual neurological improvement was noted as serum bilirubin decreased. A brain magnetic resonance imaging (MRI) did not reveal any structural abnormalities and the patient was discharged after 11 days of hospitalization. Following discharge, the patient had complete remission of IMHA without any residual neurological deficits. Therapeutic plasma exchange played an integral role in case management and was successful in reducing bilirubin, IgG, and IgM.

NEW OR UNIQUE INFORMATION PROVIDED: Bilirubin encephalopathy has been rarely reported in small animal medicine and cases have been limited to postmortem documentation. This is the first suspected case of acute bilirubin encephalopathy in a dog that survived and describes the clinical course of disease. The kinetics of serum bilirubin, IgG, and IgM concentrations before and after TPE and throughout the hospitalization period are also described.

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KEYWORDS: anemia; canine; hyperbilirubinemia; plasmapheresis

A pilot study evaluating the effect of mannitol and hypertonic saline solution in the treatment of increased intracranial pressure in 2 cats and 1 dog naturally affected by traumatic brain injury.

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Author information

Abstract

OBJECTIVE: To evaluate the effects of iso-osmolar doses of 18% mannitol and 3% sodium chloride (NaCl) solutions in decreasing intracranial pressure (ICP) in animals with severe traumatic brain injury (TBI).

DESIGN: Prospective uncontrolled interventional study.

SETTING: Veterinary university teaching hospital.

ANIMALS: Two cats and 1 dog with TBI with a modified Glasgow Coma Scale score ≤ 8 after hemodynamic stabilization, and with brain magnetic resonance imaging changes suggestive of intracranial hypertension.

INTERVENTIONS: Animals were surgically instrumented for direct ICP measurement, then randomly treated with iso-osmolar doses of 18% mannitol or 3% NaCl. Direct ICP and cerebral perfusion pressure (CPP) were recorded both before treatment and for 120 minutes following drug administration.

MEASUREMENTS AND MAIN RESULTS: Direct ICP and CPP were recorded both before treatment and at 5 additional time points following administration over the subsequent 120 minutes. Case 1 received 3% NaCl without any response to therapy; refractory posttraumatic hypertension was suspected. Case 2 was treated with 3% NaCl; ICP decreased by 40.7% and CPP increased by 15%; however, these effects were transient. Case 3 received 18% mannitol, and ICP decreased by 19% and CPP increased to normal. However, there was a rebound increase in ICP that was higher than pretreatment values, and CPP decreased slightly before it gradually increased to normal values towards the end of the study.

CONCLUSIONS: Both mannitol and hypertonic saline decrease ICP and improve CPP, but the effect observed in this pilot study suggests that there might be differences in the duration of these effects. Appropriately designed studies in a larger and homogeneous population are warranted to further investigate these findings.

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KEYWORDS: brain injury; cerebral edema; hyperosmolar; intracranial hypertension; osmotic

Description of a novel technique for surgical placement of gastrostomy tubes in dogs.

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Author information

Abstract

BACKGROUND: Early enteral nutrition in dogs with critical illnesses, including septic peritonitis, has been shown to have a positive influence on patient outcome. Surgical placement of a gastrostomy tube (GT) is one option for providing early enteral nutrition. Complications, including premature tube removal or separation of the stomach from the body wall, can result in leakage of gastric contents into the abdominal cavity and subsequent peritonitis. A safe and reliable technique for the placement of a GT is desirable to minimize such complications.

KEY CONCEPTS: A modified method for surgical placement of a GT is described. A thoracic trocar catheter (TTC) with an attached Pezzer tube is inserted through a gastrotomy incision and exited through the left gastric body and body wall. A left-sided tube gastropexy is performed using an interlocking box (ILB) pattern.

SIGNIFICANCE: GT placement using a TTC is efficient, requiring minimal additional anesthesia time. The gastric defect created by the TTC conforms well with the Pezzer tube. As such, placement and utilization of the ILB suture pattern enables removal of the GT in the early postoperative period, if appropriate.

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KEYWORDS: enteral nutrition; gastropexy; nutritional support; peritonitis; thoracic trocar catheter

Antivenin-associated serum sickness in a dog.

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⊕ Author information

Abstract

OBJECTIVE: To describe a case of documented serum sickness in a dog following administration of a single dose of a novel antivenin crotalidae polyvalent.

CASE SUMMARY: A 4-year-old female neutered mixed breed dog developed recurrent signs of hypersensitivity (swelling, edema, urticaria/hives, gastrointestinal signs, vasculitis) at 1 and 2 weeks following administration of a single unit of a novel antivenin crotalidae polyvalent plasma product. Both episodes were treated with antihistamines and glucocorticoids and signs improved rapidly, with a prolonged course of glucocorticoids and antihistamines administered following the second occurrence. Diagnosis of serum sickness was based on clinical appearance of delayed hypersensitivity following exposure to novel biologic product, absence of other inciting cause of hypersensitivity, complement testing, and skin biopsies confirming vasculitis.

NEW OR UNIQUE INFORMATION PROVIDED: This case documents the first report of delayed hypersensitivity with a novel antivenin plasma product. This is the only case report of serum sickness to a single unit of antivenin. Additionally, the dog developed recurrence of hypersensitivity following the initial episode at 1 week; appropriate identification and prolonged treatment could have prevented recurrence and additional hospitalization. Cost and benefit analysis should be considered with antivenin administration.

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KEYWORDS: anatomy; anesthesiology; cardiovascular; coagulation; fluid balance

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Severe hypernatremia and transient azotemia in a cat following inadvertent intravenous administration of a commercial polyethylene glycol solution.

Hoehne SN¹, Kohen CJ¹, Puschner B², Gennity L², Hagley SP¹, Farrell KS¹, Unger K¹, Cagle LA³, Jandrey KE⁴.

⊕ Author information

Abstract

OBJECTIVE: To describe the clinical signs, clinicopathologic abnormalities, treatment, and outcome after IV administration of polyethylene glycol 3350 (PEG3350) in a cat.

CASE SUMMARY: A cat was inadvertently administered 6 g/kg of PEG3350 in electrolyte solution, IV, resulting in severe hypernatremia (203 mmol/L), diffuse encephalopathy, hemolysis, and moderate azotemia. The hemolysis and acute kidney injury observed immediately following PEG3350 administration resolved with supportive care. Administration of IV and oral electrolyte-free water slowly corrected the hypernatremia and the neurologic signs subsequently improved. Complete resolution of clinical signs was documented one month following hospital discharge. The PEG3350 concentrations in serum, plasma, and urine samples confirmed toxic exposure to PEG3350. Efficacy of treatment was evident by decreasing concentrations of PEG3350 in serum after the first 24 hours of treatment. Renal elimination of PEG3350 was significant and PEG3350 was still detected in the urine 17 days after exposure.

NEW INFORMATION PROVIDED: This is the first report to describe the clinical signs and clinicopathologic abnormalities in a cat intoxicated with IV PEG3350. Potential pathophysiologic mechanisms are discussed, and the successful supportive medical treatment is outlined.

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KEYWORDS: feline; intoxication; polyethylene glycol; sodium

Effect of single dose administration activated charcoal containing sorbitol on serum sodium concentration and hydration status in dogs.

Mix KA¹, Stafford J¹, Hofmeister E².

Author information

Abstract

OBJECTIVE: To assess the administration of a commercially available activated charcoal suspension with sorbitol (ACS) on serum sodium concentrations and hydration status in healthy dogs.

DESIGN: Prospective study.

SETTING: Private referral hospital.

ANIMALS: Nine healthy adult dogs.

INTERVENTIONS: Dogs were administered 1 mg/kg maropitant (Cerenia; Pfizer Animal Health, New York, NY) intravenously 1 hour prior to charcoal administration. Dogs were administered a single dose of 2 g/kg ACS.

MEASUREMENTS AND MAIN RESULTS: Blood samples and body weights were obtained prior to charcoal administration and 2, 4, 6, 8, 10, and 12 hours post ACS administration. Venous sodium, potassium, chloride, blood urea nitrogen, creatinine, lactate, packed cell volume, and total plasma protein were measured at each time interval. All dogs returned 2-4 weeks after ACS administration for a 12 hour period of water restriction and to serve as their own control group. The same measurements were repeated during water restriction period as following ACS administration. The increase in serum sodium concentration was significantly higher following ACS administration when compared to control period ($P = 0.0002$). All dogs administered ACS experienced a significant degree of weight loss ($P = 0.0371$) when compared to the control period. Following administration of ACS, the hematocrit of the dogs administered ACS was found to be significantly increased ($P = 0.0001$), when compared to the control period.

CONCLUSION: Patients that are administered a single dose of ACS are at risk of developing dehydration and secondary hypernatremia as observed in the dogs during the study period. Patients receiving ACS should have electrolytes monitored and would benefit from fluid therapy as previously recommended.

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KEYWORDS: decontamination; dehydration; electrolytes; sodium

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Treatment of phenobarbital intoxication using hemodialysis in two dogs.

Basile JK¹, Vignani A¹.

Author information

Abstract

OBJECTIVE: To describe the use of hemodialysis in 2 dogs with severe clinical signs from phenobarbital intoxication.

SERIES SUMMARY: Two dogs ingested a toxic dose of phenobarbital, leading to severe neurological dysfunction and a comatose state. Both dogs received a 3-hour session of hemodialysis with complete resolution of clinical signs and returned to normal mentation by the end of the therapy. No negative side effects occurred and phenobarbital concentrations returned to therapeutic range during treatment.

NEW INFORMATION PROVIDED: This is the first report on the utility and safety of using hemodialysis for phenobarbital intoxication in dogs.

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KEYWORDS: ataxia; canine; dialysis; extracorporeal; neurological signs

Performance evaluation and validation of the Animal Trauma Triage score and modified Glasgow Coma Scale in injured cats: A Veterinary Committee on Trauma registry study.

Lapsley J¹, Hayes GM¹, Sumner JP¹.

Author information

Abstract

OBJECTIVES: To examine the Animal Trauma Triage (ATT) and modified Glasgow Coma Scale (mGCS) scores as predictors of mortality in injured cats.

DESIGN: Observational cohort study conducted September 2013 to March 2015.

SETTING: Nine Level I and II veterinary trauma centers.

ANIMALS: Consecutive sample of 711 cats reported on the Veterinary Committee on Trauma (VetCOT) case registry.

INTERVENTIONS: None.

MEASUREMENTS AND MAIN RESULTS: We compared the predictive power (area under receiver operating characteristic curve; AUROC) and calibration of the ATT and mGCS scores to their components. Overall mortality risk was 16.5% (95% confidence interval [CI], 13.9-19.4). Head trauma prevalence was 11.8% (n = 84). The ATT score showed a linear relationship with mortality risk. Discriminatory performance of the ATT score was excellent (AUROC = 0.87 [95% CI, 0.84-0.90]). Each ATT score increase of 1 point was associated with an increase in mortality odds of 1.78 (95% CI, 1.61-1.97, P < 0.001). The eye/muscle/integument category of the ATT showed the lowest discrimination (AUROC = 0.60). When this component, skeletal, and cardiac components were omitted from score calculation, there was no loss in discriminatory capacity compared with the full score (AUROC = 0.86 vs 0.87, respectively, P = 0.66). The mGCS showed fair performance overall for prediction of mortality, but the point estimate of performance improved when restricted to head trauma patients (AUROC = 0.75, 95% CI, 0.70-0.80 vs AUROC = 0.80, 95% CI, 0.70-0.90). The motor component of the mGCS showed the best predictive performance (AUROC = 0.71); however, the full score performed better than the motor component alone (P = 0.004). When assessment was restricted to patients with head injury (n = 84), there was no difference in performance between the ATT and mGCS scores (AUROC = 0.82 vs 0.80, P = 0.67).

CONCLUSION: On a large, multicenter dataset of feline trauma patients, the ATT score showed excellent discrimination and calibration for predicting mortality; however, an abbreviated score calculated from the perfusion, respiratory, and neurologic categories showed equivalent performance.

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KEYWORDS: feline; illness severity score; mortality predictor

Trauma-induced primary hypoparathyroidism following severe bite wound injury to the neck in a dog.

Wolf J¹, Vignani A¹, Schaer M².

Author information

Abstract

OBJECTIVE: To describe the clinical presentation and outcome of a dog with primary hypoparathyroidism secondary to cervical bite wounds.

CASE SUMMARY: A 3-year-old male intact Chihuahua presented after being attacked by a large breed dog. The dog sustained severe cervical lacerations, exposing the trachea and jugular veins. A portion of the right thyroid gland was missing. The dog was stabilized before wound debridement and closure. Ionized calcium concentrations were within reference range at the time of presentation. Forty-eight hours after the initial trauma, the dog was presented in lateral recumbency with signs of hypovolemic shock, muscle tremors, and hyperthermia. Bloodwork showed severe ionized hypocalcemia with low normal parathyroid hormone concentration consistent with acute primary hypoparathyroidism. The dog was managed initially with IV calcium gluconate and calcitriol, then long-term oral calcium carbonate and vitamin D3. After 6 months, the dog was successfully weaned off calcium supplementation.

NEW OR UNIQUE INFORMATION PROVIDED: This is the first described case of traumatic primary hypoparathyroidism after a bite injury to the neck in a dog.

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KEYWORDS: canine; hypocalcemia; hypoparathyroidism; trauma

Interobserver agreement between non-cardiologist veterinarians and a cardiologist after a 6-hour training course for echographic evaluation of basic echocardiographic parameters and caudal vena cava diameter in 15 healthy Beagles.

Darnis E¹, Merveille AC², Desquilbet L³, Boysen S⁴, Gommeren K⁵.

Author information

Abstract

OBJECTIVE: To evaluate cardiovascular focused assessment with sonography for trauma and triage (CV-FAST) interobserver agreement for echocardiographic parameters and caudal vena cava (CVC) diameter measurement, between a cardiologist and 2 non-cardiologists after a 6-hour training course.

SETTING: University veterinary teaching hospital.

ANIMALS: Fifteen healthy Beagle dogs.

INTERVENTIONS: None.

MEASUREMENTS AND MAIN RESULTS: Echocardiography parameters were assessed via standardized views. Caudal vena cava was assessed via a subxiphoid window (CVC-SubX) using 3 measurements (minimal and maximal CVC diameter, and collapsibility index) and via a dorsolateral window (CVC-DL) using 1 measurement (CVC diameter). Bland-Altman analysis assessed agreement of each non-cardiologist with the cardiologist; coefficients of variation (CoV) quantified variability between observers. The 95% limits of agreement (LOA) and CoVs were considered acceptable for left atrial diameter, left atrium to aortic ratio, normalized left ventricle diameter in diastole and systole but non-acceptable for fractional shortening and pulmonary vein to pulmonary artery ratio. For CVC-SubX, the 95% LOA for maximum CVC diameter were acceptable, while minimum CVC diameter and CVC collapsibility index were non-acceptable. The CoVs were good for maximum and minimum CVC (7%) and poor for collapsibility index (37%). For CVC-DL, the 95% LOA were non-acceptable, although the CoV was considered good (11%).

CONCLUSIONS: A 6-hour training course in echocardiography allows non-cardiologists to assess left atrial diameter, left atrium to aortic ratio, normalized left ventricle diameter in diastole and systole, and CVC_{max} of the CV-FAST exam in healthy Beagles. Standardization of the CVC-SubX technique and assessment of the impact of the respiratory phase on CVC diameter in dogs is needed. Further studies are required to determine whether interobserver agreement remains acceptable when including different breeds. Assessment of basic echocardiographic parameters and the CVC to estimate volume status in small animal medicine merits further clinical evaluation.

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KEYWORDS: FAST; cardiovascular; echocardiography; fractional shortening; volemia

Evaluation of the host cytokine response in dogs with sepsis and noninfectious systemic inflammatory response syndrome.

Goggs R¹, Letendre JA¹.

 Author information

Abstract

OBJECTIVE: To quantify plasma cytokine concentrations in dogs with sepsis and noninfectious systemic inflammation and to evaluate the association between plasma cytokines and outcome in dogs with sepsis.

DESIGN: Prospective, observational cohort study.

SETTING: University teaching hospital.

ANIMALS: Forty-five dogs with sepsis, 10 dogs with noninfectious systemic inflammation (nSIRS), and 15 healthy controls were consecutively enrolled from June 2015 to February 2016 and followed to hospital discharge. Dogs with sepsis satisfied ≥ 2 SIRS criteria and had a documented or highly suspected bacterial infection. Dogs with nSIRS satisfied ≥ 2 SIRS criteria but had no evidence of infection. Dogs < 3 kg and those with documented coagulopathy were excluded.

INTERVENTIONS: Measurement of inflammatory cytokines and high-mobility group box-1 (HMGB-1) was performed on each group.

MEASUREMENTS AND MAIN RESULTS: High-mobility group box-1 concentrations were analyzed by ELISA. Plasma concentrations of 13 cytokines were measured in singlet using multiplex magnetic bead assays. Kruskal-Wallis with Dunn's multiple comparison tests were used to compare biomarker concentrations between groups. Mann-Whitney U-tests were used to compare biomarker concentrations between survivors and nonsurvivors. Associations between biomarkers were evaluated using Spearman's correlation coefficients. Independent outcome predictors were identified using multivariable logistic regression. Alpha was set at 0.05. Concentrations of interleukin (IL)-6, C-X-C motif chemokine (CXCL)-8, keratinocyte-derived chemokine (KC)-like, C-C motif chemokine ligand 2 (CCL2), and HMGB-1 were significantly greater in dogs with sepsis versus healthy controls (all $P \leq 0.034$). In dogs with sepsis, only CCL2 was independently associated with survival (odds ratio [OR] 0.996, 95% CI 0.993-0.999, $P = 0.004$). A cut-off of 385 pg/mL for CCL2 was 80% sensitive and 91.4% specific for nonsurvival (area under the ROC curve [AUROC] 0.866).

CONCLUSIONS: Dogs with sepsis have significantly increased concentrations of HMGB-1 and inflammatory cytokines, including IL-6, CXCL8, and KC-like. Increased CCL2 concentration is a negative prognostic indicator in dogs with sepsis. These findings should be confirmed using duplicate analyses in larger, distinct populations of dogs with sepsis before applying them to clinical patients.

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KEYWORDS: CCL2; HMGB-1; SIRS; canine; outcome

Retrospective evaluation of 24 cases of gastrostomy tube usage in dogs with septic peritonitis (2009-2016).

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⊕ Author information

Abstract

OBJECTIVE: To describe the postoperative use of gastrostomy tubes (GT) in dogs with septic peritonitis. A secondary objective was to identify factors associated with GT placement and use that may be related to outcome.

DESIGN: Retrospective study.

SETTING: University teaching hospital.

ANIMALS: Twenty-four dogs diagnosed with septic peritonitis with GT placement at the time of exploratory laparotomy.

INTERVENTIONS: None.

MEASUREMENTS AND MAIN RESULTS: Eighteen dogs (75%) survived to discharge. Eighteen dogs (75%) had a gastrointestinal source of septic peritonitis. Complications were reported in 12/24 (50%) patients. Four dogs (16.6%) had non-GT-related complications such as vomiting, regurgitation, or increased gastric residual volume. GT-related complications occurred in 8/24 (33.3%) dogs, the majority of which (6/8 [75%]) were minor and did not necessitate removal of the GT. Two dogs had major complications that required removal of the GT. Significant differences between survivors and nonsurvivors were found between the length of time after placement of the GT to when they began eating and outcome (discharge versus death versus euthanasia) ($P = 0.03$), and GT dwell time (length of time the GT was in place) and outcome ($P = 0.006$). Clinically relevant correlations were found between the time after placement of the GT until feeding and time after placement until voluntarily eating ($P = 0.0349$), time after placement of the GT until voluntarily eating and length of hospitalization ($P = 0.0391$), and time after placement of the GT until feeding and length of hospitalization ($P = 0.036$).

CONCLUSIONS: GTs can be placed during exploratory laparotomy in dogs with septic peritonitis. They facilitate early enteral nutrition and are associated with few clinically significant complications. Prospective studies are needed to determine the optimal postoperative feeding plan and the effects of early enteral nutrition on serum albumin concentration in this patient population.

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KEYWORDS: G-tube; canine; complications; enteral nutrition; sepsis

Immediate effect of transmucosal application of corn syrup or 50% dextrose solution on blood glucose concentrations in healthy dogs.

Holt RL¹, Gordon JM¹, Ruaux C¹.

⊕ Author information

Abstract

OBJECTIVE: Evaluate and quantify the effects of mucosal corn syrup and 50% dextrose application on blood glucose concentrations in healthy dogs, to assess the effectiveness of a widely used practice for treatment of hypoglycemia.

DESIGN: Randomized controlled trial.

SETTING: University teaching hospital.

ANIMALS: Twelve client-owned dogs that were healthy, >1 year of age, weighing >5 kg, and had normal physical exam and biochemical profiles.

INTERVENTIONS: Dogs were fasted overnight for a minimum of 12 hours. Once normal physical exam and biochemical profile were confirmed, an IV catheter was placed in a peripheral vein for serial blood sampling. Each dog served as their own control and received each of 3 treatments, the orders of which were randomized for each dog. Treatments included mucosal application of commercially available corn syrup (Karo light syrup), water (control), and 50% dextrose solution, each at a dose of 1 mL/kg of body weight. Blood glucose was measured using a point-of-care glucometer. Samples were taken immediately prior to each treatment and at 5-, 10-, 15-, 20-, 30-, and 60-minute intervals.

RESULTS: All treatments were well tolerated and no adverse events were observed. A statistically significant increase in blood glucose was observed at the 15-, 20-, 30-, and 60-minute time points in the corn syrup and 50% dextrose groups as compared with the control.

CONCLUSIONS: A significant effect on the blood glucose concentrations of the treated animals was not observed until 15 minutes after application of concentrated glucose solutions. These findings suggest that, in more severely hypoglycemic patients, parenteral glucose administration may be necessary.

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KEYWORDS: canine; glucose metabolism; hypoglycemia; mucosal; prehospital care

Retrospective evaluation of factors associated with degree of esophagitis, treatment, and outcomes in dogs presenting with esophageal foreign bodies (2004-2014): 114 cases.

Bongard AB¹, Furrow E¹, Granick JL¹.

Author information

Abstract

OBJECTIVE: To characterize a population of dogs presenting for esophageal foreign body removal and evaluate factors associated with degree of esophagitis and minor and major complications.

DESIGN: Retrospective evaluation of dogs who presented for esophageal foreign body removal between January 2004 and December 2014.

SETTING: University veterinary teaching hospital.

ANIMALS: Data collected from 114 dogs included signalment, history, clinical signs, physical examination findings, duration and location of foreign body, degree of esophagitis, foreign body removal success, feeding tube placement, and clinical outcomes. Owners were contacted for outcome data not available in the medical record. Data were analyzed for breed predispositions, whether duration or type of foreign body was associated with degree of esophagitis or complications, and factors associated with feeding tube placement.

INTERVENTIONS: None.

MEASUREMENTS AND MAIN RESULTS: The overall success rate for foreign body removal via esophagoscopy was 95% with a complication rate of 22%. Small breed dogs were overrepresented. Dogs with a foreign body present for >24 h were significantly more likely to have severe esophagitis ($P < 0.001$) and major complications ($P = 0.0044$). Foreign body type did not predict degree of esophagitis or complications, though fishhooks were more likely to require surgical removal ($P = 0.033$). Feeding tubes (15 gastrostomy, 1 nasoesophageal) were placed in 14% of dogs and were more likely to be placed if the foreign body had been present for >24 h ($P < 0.001$).

CONCLUSIONS: Consistent with previous studies, esophageal foreign bodies, appropriately identified and endoscopically removed, carry a good prognosis, particularly if they have been present for ≤ 24 h.

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KEYWORDS: aspiration pneumonia; canine; esophagoscopy; feeding tube; foreign body

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Evaluation of pulse oximetry as a surrogate for PaO₂ in awake dogs breathing room air and anesthetized dogs on mechanical ventilation.

Farrell KS¹, Hopper K², Cagle LA³, Epstein SE².

Author information

Abstract

OBJECTIVE: To evaluate the ability of arterial hemoglobin oxygen saturation measurement via pulse oximetry (SpO₂) to serve as a surrogate for PaO₂ in dogs.

DESIGN: Two-part study: prospective observational and retrospective components.

SETTING: University teaching hospital.

ANIMALS: Ninety-two dogs breathing room air prospectively enrolled on a convenience basis. Retrospective evaluation of 1,033 paired SpO₂ and PaO₂ measurements from 62 dogs on mechanical ventilation.

INTERVENTIONS: Dogs with concurrent SpO₂ and PaO₂ measured on room air had a data sheet completed with blood gas analysis. SpO₂, PaO₂, and FiO₂ values were collected from medical records of dogs on mechanical ventilation.

MEASUREMENTS AND MAIN RESULTS: Predicted PaO₂ was calculated from SpO₂ using the dog oxyhemoglobin dissociation curve. The correlation coefficient between measured and predicted PaO₂ was 0.49 (P < 0.0001) in room air dogs and 0.74 (P < 0.0001) in ventilated dogs. In room air dogs, Bland-Altman analysis between measured minus predicted PaO₂ versus the average showed a mean bias of -6.0 mm Hg (95% limit of agreement, -35 to 23 mm Hg). The correlation coefficient between PaO₂/FiO₂ and SpO₂/FiO₂ ratios was 0.76 (P < 0.0001). After combining data sets, receiver operating characteristic curve analysis showed the optimal cutoff value for detecting hypoxemia (PaO₂ < 80 mm Hg) was an SpO₂ of 95%, with sensitivity and specificity of 77.8% and 89.5%, respectively. Using this cutoff, 6.9% of SpO₂ readings failed to detect hypoxemia, whereas 7.2% predicted hypoxemia that was not present.

CONCLUSIONS: The SpO₂ was not clinically suitable as a surrogate for PaO₂, though it performed better in mechanically ventilated dogs. As sensitivity for the detection of hypoxemia was poor, pulse oximetry does not appear to be an acceptable screening test. The SpO₂/FiO₂ ratio may have value for evaluation of anesthetized dogs on supplemental oxygen. Arterial blood gas analysis remains ideal for assessment of oxygenation.

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KEYWORDS: blood gas analysis; hemoglobin oxygen saturation; hypoxemia; monitoring

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Hyponatremia in dogs and cats.

Burton AG¹, Hopper K².

Author information

Abstract

OBJECTIVE: To review the pathophysiology, diagnostic approach, and treatment recommendations for hyponatremia in dogs and cats.

ETIOLOGY: Hyponatremia almost always results from an increase in total body water (TBW), and not from loss of sodium. Abnormalities in antidiuretic hormone (ADH) are commonly part of the etiology of hyponatremia.

DIAGNOSIS: Diagnosis of hyponatremia focuses on the cause of the increase of TBW. Assessment of the patient's volume status and measurement of urine sodium concentration are important factors. Measurement or calculated estimation of plasma osmolality can also guide the assessment of hyponatremia.

THERAPY: Too rapid correction of serum sodium can precipitate osmotic demyelination syndrome. As a general rule, serum sodium concentration should be raised ≤10 mmol/L over 24 hours, but rapid increases in serum sodium are indicated if neurologic abnormalities are evident. Serum sodium can be increased using hypertonic saline, with dosing based on the patient's calculated sodium deficit. Treatment of the underlying cause of water ingestion or retention is also required to fully resolve hyponatremia.

PROGNOSIS: Mortality rates are significantly higher in dogs and cats with hyponatremia compared to those with normal serum sodium concentrations, even in patients with mild hyponatremia (<5 mmol/L below the lower value of the reference interval). Hyponatremia is also associated with increased risk of death if present during specific disease states in dogs.

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KEYWORDS: antidiuretic hormone; electrolyte; osmolality; sodium

A prospective evaluation of oral Yunnan Baiyao therapy on thromboelastographic parameters in apparently healthy cats.

Patlogar JE¹, Tansey C¹, Wiebe M¹, Hybki GC², Trostel T¹, Murphy LA³, Nakamura RK⁴.

⊕ Author information

Abstract

OBJECTIVE: To determine the effect of Yunnan Baiyao (YB) on hemostatic parameters measured by thromboelastography (TEG) in apparently healthy cats administered 1 capsule of YB orally twice daily for 1 week.

DESIGN: Prospective study of client-owned cats at a small animal specialty hospital.

SETTING: One private referral center.

ANIMALS: Twenty client-owned adult cats were prospectively enrolled.

INTERVENTIONS: All cats underwent echocardiographic examination by the same board-certified cardiologist to rule out occult cardiomyopathy. Blood samples were collected for analysis of baseline CBC, fibrinogen, and kaolin-activated TEG values. Cats were administered 1 capsule (250 mg/capsule) of YB twice daily orally for 1 week and the physical examination, CBC, fibrinogen, and TEG were re-evaluated. Any side effects attributed to YB were noted at this time.

MEASUREMENTS AND MAIN RESULTS: Three cats were excluded as 2 cats were identified with underlying cardiomyopathy and another cat had a cystic mass in the cranial mediastinum identified via echocardiography. Seventeen cats were treated with YB; however, 1 cat could not complete the study due to severe vomiting associated with YB administration. The remaining 16 cats completed the study, although 2 additional cats experienced transient vomiting. Yunnan Baiyao administration was associated with a significant decrease in HCT and red blood cell count, although no cat became anemic. None of the TEG parameters significantly changed compared to baseline after 1 week of YB therapy.

CONCLUSIONS: The results of this study suggest YB at a dose of 1 capsule orally twice daily in cats fails to produce any significant change in hemostatic parameters as measured by TEG, although it did significantly reduce HCT and red blood cell count. Yunnan Baiyao was tolerated for most of the cats, although 3 of 17 (17.6%) cats experienced vomiting. Clinicians should be aware of these effects before considering the use of YB in cats.

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KEYWORDS: anemia; coagulation; echocardiography; education; hemostasis

Retrospective evaluation of *Micrurus fulvius* (Eastern coral snake) envenomation and the use of mechanical ventilation in dogs and a cat (2011-2016): 8 cases.

Campos S¹, Allen-Durrance AE¹, Schaer M¹, Lynch A².

⊕ Author information

Abstract

OBJECTIVE: To describe the use of mechanical ventilation (MV) in the management of Eastern coral snake envenomation in 7 dogs and a cat.

DESIGN: Retrospective study (2011-2016).

SETTING: University teaching hospital.

ANIMALS: Seven dogs and 1 cat receiving MV for ventilatory failure secondary to Eastern coral snake envenomation.

INTERVENTIONS: None.

MEASUREMENT AND MAIN RESULTS: The medical records of 8 animals that received MV following Eastern coral snake envenomation were reviewed. Data collected included signalment, time to veterinary assessment, physical and laboratory characteristics at arrival, clinical course during hospitalization, management including antivenom administration, MV settings, duration of ventilation, length of hospitalization, cost of care, and survival to discharge. The mean \pm SD age was 4 ± 3.2 years. Median (range) time to onset of clinical signs was 30 (5-240) minutes. Coral snake antivenom was administered to 7 of the 8 animals following arrival at a median (range) of 30 (5-90) minutes. All animals had progressive hypoventilation and received MV, specifically volume controlled, synchronized intermittent mandatory ventilation with pressure support. The median (range) duration of MV was 58 (25-84) hours and the median (range) duration of hospitalization was 8.2 (6-11) days. Ventilator associated complications occurred in all animals, but overall outcome was excellent with 7 of 8 surviving to discharge. No dog, but the 1 cat, had an adverse reaction to antivenom.

CONCLUSIONS: Ventilatory failure secondary to Eastern coral snake envenomation necessitating MV carries an excellent prognosis and is better than reported for other causes of lower motor neuron disease. Successful response to ventilation was achieved even with associated complications being common in this cohort of animals.

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KEYWORDS: environmental toxins; hypoventilation; neuromuscular disorders; peripheral nervous system disorders; respiratory failure

Caval-aortic ratio and caudal vena cava diameter in dogs before and after blood donation.

Herreria-Bustillo VJ¹, Fitzgerald E¹, Humm KR¹.

⊕ Author information

Abstract

OBJECTIVE: To investigate whether the donation of 1 unit of blood results in a significant decrease in the caudal vena cava diameter (CVCd) and the caudal vena cava diameter to aortic diameter (CVCd:Aod) ratio measured at the iliac location.

INTERVENTIONS: Eight healthy client-owned Greyhounds underwent ultrasound of their caudal vena cava and aorta before and after blood donation. The principal investigator obtained M-mode images of the blood vessels from all dogs and a secondary investigator measured the CVCd and aortic diameter in a blinded manner from stored images. The ratio of CVCd:Aod was then calculated. After assessing for normality, paired-sample t-tests were performed to compare mean values before and after donation.

MAIN RESULTS: The mean (\pm SD) CVCd before and after blood donation were 15.84 mm (\pm 5.06 mm) and 15.82 mm (\pm 5.42 mm) and the CVCd:Aod ratios were 0.93 (\pm 0.23) and 1.00 (\pm 0.27), respectively. There was no statistical difference between pre- and postdonation values for CVCd ($P = 0.99$) or CVCd:Aod ($P = 0.34$).

CONCLUSION: The measurement of CVCd and CVCd:Aod ratio with ultrasound at the iliac location failed to detect mild-to-moderate blood loss produced by the donation of 1 unit of blood in Greyhounds.

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KEYWORDS: blood loss; canine; central venous pressure; ultrasound; vessel diameter

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KEYWORDS: blood loss; canine; central venous pressure; ultrasound; vessel diameter

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Retrospective evaluation of serum/plasma iron, red blood cell distribution width, and nucleated red blood cells in dogs with acute trauma (2009-2015): 129 cases.

Fish EJ¹, Hansen SC², Spangler EA¹, Gaillard PR³, Fan S³, Bacek LM².

Author information

Abstract

OBJECTIVE: To compare the prognostic value of admission hematologic parameters serum/plasma iron, red blood cell distribution width (RDW), and nucleated red blood cells (nRBCs) in dogs presenting with acute traumatic injury.

DESIGN: Retrospective observational study (2009-2015).

SETTING: University teaching hospital.

ANIMALS: One hundred and twenty-nine clinical dogs presenting within 24 hours of acute traumatic injury.

INTERVENTIONS: None.

MEASUREMENTS AND MAIN RESULTS: One hundred and twenty-nine dogs met the inclusion criteria and 109 (84.5%) survived, while 20 (15.5%) died or were euthanized in hospital. Patients with blunt force trauma comprised 79.8% of the patient population; dogs with penetrating trauma comprised 20.2% of cases. Hypoferremia occurred in all nonsurvivors, and the median serum/plasma iron concentration was significantly lower in nonsurvivors than survivors ($P = 0.028$). Normal or increased serum/plasma iron had 100% specificity and 100% positive predictive value for survival. Red blood cell distribution width was not significantly different between groups ($P = 0.417$). The presence of nRBCs was significantly associated with nonsurvival ($P = 0.030$), although the absolute nRBC concentrations were not significantly different ($P = 0.070$). A multiple logistic regression model found age, type of injury, presence of nRBCs, and serum/plasma iron to be independent predictors of survival with an area under the receiver operator characteristic curve of 0.813.

CONCLUSIONS: The presence of nRBCs and low serum/plasma iron are associated with mortality in patients with acute trauma; however, red blood cell distribution width was not associated with survival. Absence of hypoferremia was highly associated with a favorable prognosis in this patient population. These parameters may warrant inclusion in trauma scoring systems.

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KEYWORDS: RDW; nRBCs; nucleated red blood cells; serum/plasma iron; trauma

Retrospective evaluation of the severity of and prognosis associated with potassium abnormalities in dogs and cats presenting to an emergency room (January 2014-August 2015): 2441 cases.

Hoehne SN¹, Hopper K¹, Epstein SE¹.

Author information

Abstract

OBJECTIVE: To determine the severity, concurrent clinical signs, and disease processes associated with potassium abnormalities in dogs and cats presenting to a veterinary emergency department and associated mortality.

DESIGN: Retrospective and descriptive study over 20 months.

SETTING: University teaching hospital.

ANIMALS: 1916 dog and 525 cat visits.

INTERVENTIONS: None.

MEASUREMENTS AND MAIN RESULTS: Medical records from patients with a potassium concentration measured within 24 hours of admission were identified. Hypokalemia and hyperkalemia were defined as a potassium concentration <3.5 mmol/L [3.5 mEq/L] and >5 mmol/L [5 mEq/L], respectively. Associated disease processes and pathophysiologic risk factors for potassium abnormalities were reviewed for moderate to severe potassium abnormalities (<3 mmol/L or ≥ 6 mmol/L) [<3 mEq/L or ≥ 6 mEq/L]. Mortality associated with normokalemia, mild, and moderate to severe dyskalemia were evaluated. Overall prevalence of abnormal potassium concentration was 27% in dogs and 40% in cats. Moderate to severe hypokalemia and hyperkalemia were present in 3% of dogs and 8% of cats, and 2% of dogs and 7% of cats, respectively. Moderate to severe hypokalemia was most commonly associated with gastrointestinal disease (48% of dogs and 44% of cats) while moderate to severe hyperkalemia was most commonly associated with urinary tract disease (60% of dogs and 97% of cats). Dogs with hypokalemia and dogs and cats with hyperkalemia ($P < 0.001$) had significantly greater mortality than those with normokalemia. Dogs with mild hypokalemia and mild hyperkalemia ($P < 0.0001$) had higher mortality than dogs with normokalemia, but this was not found in cats.

CONCLUSIONS: Dyskalemia was common in this population and was associated with greater mortality. Moderate to severe potassium abnormalities were uncommon in this population and occurred most frequently in animals with gastrointestinal and urinary tract disease.

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KEYWORDS: canine; dyskalemia; electrolyte; feline; hyperkalemia; hypokalemia

Acute chlorfenapyr toxicity in 3 dogs from a single household.

Davy RB¹, Campos S², Lynch AM³.

Author information

Abstract

OBJECTIVE: To describe the clinical characteristics of acute chlorfenapyr toxicity in 3 dogs from a single household.

CASE SUMMARY: A 4-year-old neutered female Labrador Retriever was presented with severe hyperthermia (42.6°C [108.6°F]). Emergency management consisting of fluid resuscitation, active cooling, general anesthesia, gastric lavage, activated charcoal administration, and intravenous lipid emulsion was started immediately on the suspicion of toxin exposure. The dog developed symptoms following peracute death in 2 other small breed dog housemates. All dogs had a rapid onset of gastrointestinal signs, neurologic signs, and panting. The dog made a rapid and complete recovery and was discharged 48 hours later. Examination of gastric contents collected from the deceased dogs identified the presence of chlorfenapyr.

NEW OR UNIQUE INFORMATION PROVIDED: This is the first reported case of chlorfenapyr toxicity in dogs. Previous case reports in human medicine have reported a variable mortality rate, although 1 of 3 dogs described here made a complete recovery. Chlorfenapyr should be considered in cases of suspected toxicity with similar presenting signs.

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KEYWORDS: canine; gastric lavage; hyperthermia; pesticide; toxicity

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Acute kidney injury, seizures, and hypertonic hyponatremia secondary to mannitol intoxication in a dog.

Clabots MF¹, Gaillard E¹, Aumann M¹.

Author information

Abstract

OBJECTIVE: To describe a case of mannitol overdose associated with acute kidney injury (AKI), hypertonic hyponatremia, and neurologic abnormalities in a dog.

CASE SUMMARY: A 10-year-old intact male Shiba Inu dog was referred to the emergency service of a veterinary teaching hospital for inappetence and acute onset of seizures. The dog had received 2 IV boluses of 3 g/kg of mannitol in less than 24 hours for a glaucoma crisis. Twelve hours after the second injection, the dog became inappetent and developed 2 generalized seizures. Seizure activity was treated with diazepam (0.5 mg/kg IV). Serum biochemistry profile showed severe hyponatremia and hypochloremia, mild hypokalemia, marked increased creatinine (381 µmol/L [44-133 µmol/L]) and moderately increased BUN (13.8 mmol/L [1.6-10.9 mmol/L]). Urinalysis revealed a urine specific gravity of 1.018, glucosuria, proteinuria, pigmenturia and the presence of vacuolized tubular epithelial cells. A presumptive diagnosis of mannitol intoxication was made based on the high dose of mannitol, severe hyponatremia, neurological abnormalities suggestive of intracranial disease, AKI, and urine cytology. Initial calculated plasma osmolality was 263.4 mOsm/kg and measured plasma osmolality was 332 mOsm/kg with an osmolal gap of 68.6 mOsm/kg, confirming the presence of an unmeasured solute attributed to mannitol. Treatment consisted of fluid therapy and supportive care. On day 3, osmolal gap had resolved and serum creatinine concentration returned to normal within 12 days.

NEW OR UNIQUE INFORMATION PROVIDED: Mannitol intoxication has been reported in human medicine. This case report is, to our knowledge, the first to describe AKI, hypertonic hyponatremia, and neurological abnormalities secondary to mannitol overdose in a dog.

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KEYWORDS: AKI; canine; hyperosmolality; osmotic nephrosis; seizures

Acute mesenteric ischemia-like syndrome associated with suspected *Spirocerca lupi* aberrant migration in dogs.

Lerman O¹, Israeli I², Weingram T², Benzioni-Bar H³, Milgram J⁴, Shipov A⁴.

Author information

Abstract

OBJECTIVE: To describe acute mesenteric infarction due to suspected *Spirocerca lupi* aberrant migration in 5 dogs.

CASE SERIES SUMMARY: All dogs were large breed, none of which exhibited typical clinical signs associated with spirocercosis. All dogs were eventually diagnosed with septic peritonitis. On exploratory laparotomy, thickening of the jejunal arteries, surrounding mesojejunum, and segmental necrosis were identified. Similar thickening and hematoma formation were found in other regions of the mesentery. In 4 of the cases, the necrotic segment was located in the distal jejunum. Histology revealed thrombotic mesenteric vessels with intralesional *S. lupi* nematode larvae. Resection and anastomosis of the necrosed section was performed and all but 1 dog survived and were discharged within 1-6 days.

NEW OR UNIQUE INFORMATION PROVIDED: *Spirocerca lupi* is a potential cause of mesenteric infarction in endemic areas when no other obvious etiology is identified.

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KEYWORDS: canine; ischemia; mesenteric infarction; peritonitis; spirocercosis

Prognostic indicators in cats with septic peritonitis (2002-2015): 83 cases.

Scotti KM¹, Koenigshof A¹, Sri-Jayantha LSH², Kato M³, Bishop M⁴, Barr JW⁵, Pashmakova MB⁵.

Author information

Abstract

OBJECTIVE: To identify physical exam findings, clinicopathological parameters, time to surgery, empirical antimicrobial use, and culture results that could be associated with outcome in cats with septic peritonitis (SP).

DESIGN: Retrospective cohort study of cats from 2002 to 2015.

SETTING: Four university teaching hospitals.

ANIMALS: Eighty-three cats diagnosed with SP by cytology or culture.

INTERVENTIONS: None
MEASUREMENTS AND MAIN RESULTS: Fifty-eight cats survived to discharge (69.9%); 1 cat was euthanized in surgery; 20 were euthanized postoperatively; 4 cats suffered cardiac arrest after surgery. The most common etiology of SP was secondary SP due to gastrointestinal perforation (49.4%), followed by primary SP (22.3%). Mean blood glucose concentration was significantly different between survivors and nonsurvivors ($P = 0.006$). Cats that received appropriate empirical antibiotic therapy were 4.4 times more likely to survive than cats that did not receive appropriate antibiotics ($P = 0.018$).

CONCLUSIONS: As previously documented, SP secondary to gastrointestinal leakage was the most common etiology. In this population, cats with a higher blood glucose concentration on presentation had a worse prognosis. Cats that received appropriate empirical antimicrobial therapy were more likely to survive.

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KEYWORDS: gastrointestinal; hyperglycemia; primary peritonitis; sepsis

Retrospective evaluation of the clinical course and outcome following grape or raisin ingestion in dogs (2005-2014): 139 cases.

Reich CF¹, Salcedo MC², Koenigshof AM¹, Hopp MM³, Walker JM³, Schildt JC², Beal MW¹.

Author information

Abstract

OBJECTIVE: To describe the prevalence of acute kidney injury (AKI), clinical course, decontamination procedures, and outcome in dogs following grape or raisin ingestion.

DESIGN: Retrospective case series from 2005 to 2014.

SETTING: Three university veterinary teaching hospitals.

ANIMALS: One hundred thirty-nine client-owned dogs with known grape or raisin ingestion.

MEASUREMENTS AND MAIN RESULTS: Among dogs with biochemical data, the prevalence of AKI was 6.7% (8/120). The prevalence of AKI in the early presentation (3/67) and late (5/53) presentation groups were 4.5% and 9%, respectively. The prevalence of AKI was not significantly different between groups ($P = 0.27$). Four dogs (3.3%) were azotemic at presentation and 4 dogs (3.3%) had increases in creatinine of $\geq 26.5 \mu\text{mol/L}$ (0.3 mg/dL) at recheck (3 from the early and 1 from the late group). Vomiting was the most common clinical sign (18/139). One hundred twenty-two dogs (88%) underwent gastrointestinal decontamination and significantly more dogs in the early group were decontaminated ($P < 0.0001$). Two dogs received continuous renal replacement therapy. One hundred thirty-eight dogs survived and 1 died.

CONCLUSIONS: The prevalence of AKI and mortality was low in dogs with confirmed grape or raisin ingestion. Due to the retrospective nature of the study, conclusions about the utility of gastrointestinal decontamination and other therapies cannot be made.

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KEYWORDS: acute renal failure; azotemia; canine; renal function; toxicology-general

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Successful surgical management of an Escherichia coli epidural-subdural abscess secondary to sino-rhinotomy.

Simlett-Moss AB¹, Freeman A¹, McConnell FJ¹, Coe R¹, Sanchez-Masian D¹.

Author information

Abstract

OBJECTIVE: To describe a case of successful management of epidural-subdural abscess and severe meningitis with secondary brain herniation in a dog.

CASE SUMMARY: A rhino-sinusotomy was performed in a 3-year-old mixed-breed dog for management of refractory sinonasal aspergillosis. Initial recovery was good, but the dog became acutely stuporous 36 hours after surgery. Evidence of increased intracranial pressure with brain herniation and midline shift secondary to an epidural abscess was observed on magnetic resonance imaging. Decompressive craniectomy and drainage of the abscess was performed. Intensive nursing care and physiologic support was performed with consciousness returning 7 days after initial stupor. The dog was discharged 14 days after craniectomy and was ambulatory with support.

NEW/UNIQUE INFORMATION PROVIDED: Intracranial abscesses are rarely described in dogs and few had a successful outcome reported. All previous reports have been of brain abscesses or empyema, rather than a combination of epidural and subdural abscessation. Additionally, the process of sino-rhinotomy for management of aspergillosis has not been previously linked to intracranial abscess formation. To the authors' knowledge, this is the first report of successful management of an epidural-subdural abscess and suggests that even with cases with low modified Glasgow Coma Scale scores outcome may be positive.

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KEYWORDS: MRI; aspergillosis; bacterial meningitis; canine; epidural

Inaccurate point-of-care blood glucose measurement in a dog with secondary erythrocytosis.

McQuinn ER¹, Viall AK², Hirschfield MA¹, Ward JL¹, Jeffery U³, LeVine DN¹.

⊕ Author information

Abstract

BACKGROUND: Point-of-care (POC) portable blood glucose meters (PBGMs) are convenient and inexpensive tools for assessing patient blood glucose concentrations. They are often used to quickly diagnose hypoglycemia or collect serial glucose readings in diabetic patients. However, POC meters have been previously identified in human and veterinary literature to be inaccurate when utilized in patients with abnormal HCT. This problem may not be reflected in manufacturer guidelines referenced by practitioners in the POC setting.

KEY FINDINGS: A 1.5-year-old dog, previously diagnosed with multiple congenital cardiac malformations, right-to-left cardiac shunting and secondary erythrocytosis, presented to a veterinary emergency center minimally responsive and without detectable pulses. PBGM measurement identified hypoglycemia. Following stabilization of the dog, serial glucose assessments showed discordant results between PBGMs and the reference laboratory biochemistry analyzer. A pathological cause for hypoglycemia was not identified and PBGM readings were determined to be erroneously low due to the dog's abnormally high HCT.

SIGNIFICANCE: This case demonstrates the limitations of using PBGMs to assess blood glucose in a dog with secondary erythrocytosis. The report emphasizes the need for judicious use of PBGMs in critically ill patients and that these glucometers may not be reliable in patients with abnormal HCT values.

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KEYWORDS: glucometer; glucose meter; hypoglycemia; polycythemia; right-to-left shunt

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Successful treatment of a severe cannabinoid toxicity using extracorporeal therapy in a dog.

Culler CA¹, Vignani A¹.

⊕ Author information

Abstract

OBJECTIVE: To describe the use of extracorporeal therapy (ECT) to treat severe cannabinoid intoxication in a dog with severe hyperlipidemia.

CASE SUMMARY: A 7-month-old female intact Labrador Retriever presented with seizures and severe hyperesthesia that were refractory to multiple anticonvulsant medications and required induction of general anesthesia with propofol and mechanical ventilation. The dog's urine yielded a strong positive signal for delta-9-tetrahydrocannabinol (THC) on urine drug test and exposure to THC oil was confirmed by the owner. Bloodwork revealed severe hyperlipidemia such that IV lipid emulsion was considered contraindicated. The dog was treated with a 3-hour ECT session, using charcoal hemoperfusion and hemodialysis in series. Neurologic signs improved during the session and mechanical ventilation was discontinued. Immediately after the session, the dog's mentation was significantly improved and seizures and hyperesthesia had ceased, although the dog remained moderately ataxic. The dog was hospitalized for 36 hours following the ECT session for continued monitoring. The dog fully recovered and was successfully discharged.

NEW OR UNIQUE INFORMATION PROVIDED: To the authors' knowledge, this is the first published report to document ECT to treat THC intoxication in veterinary medicine. ECT may be considered as a treatment option for severe THC intoxication that is refractory to standard therapy or where severe hyperlipidemia precludes use of IV lipid emulsions.

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KEYWORDS: THC; charcoal hemoperfusion; hemodialysis; toxicology

Investigation of burnout syndrome and job-related risk factors in veterinary technicians in specialty teaching hospitals: a multicenter cross-sectional study.

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⊕ Author information

Abstract

OBJECTIVES: To investigate veterinary technician burnout and associations with frequency of self-reported medical error, resilience, and depression and job-related risk factors.

DESIGN: Cross-sectional observational study using an anonymous survey conducted between November 2017 and June 2018.

SETTING: Four referral teaching hospitals in the United States and Canada.

SUBJECTS: A total of 344 veterinary technicians were invited to participate. Response rate was 95%. Overall 256 surveys were ultimately analyzed.

INTERVENTIONS: Burnout, depression, and resilience were measured using validated instruments. Respondents reported perceptions of workload, working environment, and medical error frequency. Associations between burnout and factors related to physical work environment, workload and schedule, compensation package, interpersonal relationships, intellectual enrichment, and exposure to ethical conflicts were analyzed.

MEASUREMENTS AND MAIN RESULTS: Burnout, characterized by high emotional exhaustion, depersonalization, and low sense of personal accomplishment was common, and was positively associated with perceived medical errors, desire to change career, and depression. Burnout levels on all 3 burnout subscales were higher in this population than previously reported for a contemporaneous group of trauma nurses working with human patients ($P < 0.05$). Burnout was negatively associated with resilience. Respondents' feelings of fear or anxiety around supervisor communications, perception that patient load was too high to allow for excellent patient care, and perceived lack of available assistance during sudden workload increases were all associated with burnout.

CONCLUSIONS: Burnout in veterinary technicians is common and is associated with numerous undesirable outcomes. Work-related interventions to reduce burnout should focus on improving supervisor relationships and maintaining an appropriate patient:caregiver ratio.

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KEYWORDS: depression; emotional exhaustion; medical errors; resilience; staff turnover

Evaluation of serum 25-hydroxyvitamin D concentrations in a heterogeneous canine ICU population.

Cazzolli DM¹, Prittie JE¹, Fox PR², Lamb K³.

Author information

Abstract

OBJECTIVE: To identify the prevalence of low serum 25-hydroxyvitamin D (25-OH-D) concentrations in critically ill dogs and determine whether vitamin D concentration measured at admission correlates with illness severity and patient outcome.

DESIGN: Prospective observational study from December 2013 to July 2014.

SETTING: Private referral teaching hospital ICU.

ANIMALS: One hundred eleven critically ill dogs admitted to the ICU, and 28 apparently healthy control dogs.

INTERVENTIONS: Measurement of 25-OH-D concentration and assessment of physiological parameters required to calculate illness severity scores.

MEASUREMENTS AND MAIN RESULTS: Blood was sampled to measure serum 25-OH-D concentration, point-of-care laboratory data (packed cell volume, total plasma protein, venous blood gas, electrolytes, plasma lactate, and blood glucose concentration), platelet count, and serum albumin within 12 hours of admission. Primary disease etiologies were determined. Mentation score, Acute Patient Physiologic and Laboratory Evaluation (APPLE) fast score, length of ICU hospitalization, and survival to discharge were recorded. Low serum 25-OH-D concentrations were detected in 25% (28/111) of the ICU cohort; 25-OH-D concentrations (median; IQR) (89.2; 26.3 ng/mL [222; 140.0 nmol/L]) were significantly lower in hospitalized dogs compared with the healthy cohort (127.5; 44.5 ng/mL [318; 111.0 nmol/L]) ($P < 0.0001$). Serum 25-OH-D concentrations had a weak positive correlation with albumin ($r = 0.34$, $P = 0.0003$), but not with any other blood analyte evaluated. Serum concentration of 25-OH-D was also weakly correlated with APPLE_{fast} score ($r = 0.31$, $P = 0.001$). 25-OH-D concentrations (median; IQR) were significantly higher in ICU dogs that survived to discharge (95.5; 55 ng/mL [238; 137 nmol/L]) compared with nonsurvivors (60.0; 54 ng/mL [149; 135 nmol/L]; $P < 0.001$).

CONCLUSIONS: Low serum 25-OH-D was recorded in one-quarter of critically ill dogs, and was significantly lower in nonsurvivors in comparison to survivors. There was weak correlation between serum 25-OH-D and illness severity. Further studies are required to clarify relationships between vitamin D status and outcome.

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KEYWORDS: canine; clinical epidemiology; illness severity; outcome; vitamin D

Association of abdominal effusion with a single decompressive cystocentesis prior to catheterization in male cats with urethral obstruction.

Gerken KK¹, Cooper ES¹, Butler AL², Chew DJ¹.

Author information

Abstract

OBJECTIVE: To evaluate the occurrence of abdominal effusion and its association with decompressive cystocentesis in male cats with urethral obstruction.

DESIGN: Prospective observational clinical study.

ANIMALS: Forty-five male neutered, client-owned cats with naturally occurring urethral obstruction.

PROCEDURES: Laboratory testing and point-of-care ultrasonography were performed. Presence of abdominal effusion was evaluated using the Focused Assessment with Sonography for Trauma (FAST) technique at presentation. Decompressive cystocentesis was then performed prior to catheterization by a standardized technique. Repeat FAST examination was performed 15 minutes after cystocentesis and the following day to further assess for the presence of abdominal effusion.

RESULTS: A mean volume of 92.3 ± 35.2 mL of urine was removed from each cat via cystocentesis prior to catheterization. At presentation, 15 of 45 (33%) had abdominal effusion (13/15 with scant effusion, 2/15 with mild), with an additional 7 cats developing scant effusion 15 minutes post-cystocentesis. By the following day, 4 cats still had scant effusion present. No significant complications secondary to cystocentesis were reported. No association was found between severity of azotemia, or volume removed by cystocentesis, and the presence of effusion at presentation or after decompressive cystocentesis was performed.

CONCLUSIONS AND CLINICAL RELEVANCE: A single decompressive cystocentesis prior to catheterization did not lead to development of clinically significant abdominal effusion or other discernable complications and appears to be a safe procedure in this population of patients. Abdominal effusion may be found at presentation in cats with urethral obstruction. The significance of this effusion remains to be determined.

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KEYWORDS: UO; abdominal effusion; decompressive cystocentesis; male cats; urethral obstruction

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Effect of peritoneal lavage on bacterial isolates in 40 dogs with confirmed septic peritonitis.

Marshall H¹, Sinnott-Stutzman V¹, Ewing P¹, Bracker K¹, Kalis R¹, Khorzad R¹.

Author information

Abstract

OBJECTIVE: To evaluate bacterial isolates, antimicrobial drug susceptibility, and change in resistance among pre- and post-lavage culture samples in dogs with septic peritonitis.

DESIGN: Prospective observational study.

SETTING: Private practice referral hospital.

ANIMALS: Forty client-owned dogs with confirmed septic peritonitis requiring surgical intervention.

INTERVENTIONS: All dogs had perioperative abdominal lavage following source control with 200 to 300 mL/kg 0.9% sterile saline. Pre- and post-lavage aerobic and anaerobic culture samples were evaluated.

MEASUREMENTS AND MAIN RESULTS: Thirty-five of 40 dogs (87.5%) survived to hospital discharge. The likelihood of an aerobic organism to have multidrug resistance (resistance to 3 or more antimicrobial classes) post-lavage was a third of that pre-lavage (odds ratio [OR] 0.34, 95% CI [0.17-0.68], P = 0.01). Thirty-nine of 40 dogs (97.5%) received appropriate empiric antimicrobial therapy based on pre- and post-lavage culture results, of which 5 (12.8%) did not survive to discharge. The single dog with inappropriate antimicrobial therapy survived to discharge. The most frequent isolates detected included *Escherichia coli*, *Clostridium perfringens*, and *Enterococcus faecalis*. The same organism based on species was isolated in pre- and post-lavage cultures in 32 dogs, accounting for 59 anaerobic and aerobic isolates. There was a new bacterial isolate detected in 20 dogs, accounting for 46 isolates and an overall total decrease of 14 isolates between pre- and post-lavage culture (P = 0.09).

CONCLUSIONS: This study suggests that there is a significant decrease in the likelihood of isolating a multidrug resistant organism following peritoneal lavage, and aerobic and anaerobic culture results have the potential to change following peritoneal lavage, although this cannot be confirmed without further studies. Overall survival rates were higher than previously reported in the literature for septic peritonitis.

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KEYWORDS: antimicrobial; canine; culture; multidrug resistance; sepsis

The use of mental metronomes during simulated cardiopulmonary resuscitation training.

Kneba EJ¹, Humm KR¹.

[+](#) Author information

Abstract

OBJECTIVE: To evaluate the effect of a mental metronome on chest compression rate at the point of training and 10 weeks later.

METHODS: A prospective observational study was performed using veterinary students without training in CPR. Students received a lecture and demonstration of CPR. The "Song group" (SG) listened to "Stayin' Alive" performed by the Bee Gees and were asked to think about the tempo during chest compressions. The "No Song group" (NSG) was given no guidance on achieving the correct chest compression rate. After the demonstration, both groups were instructed to perform chest compressions at a rate of 100 compressions per minute on a canine manikin, and the actual rate of compressions administered was calculated (Assessment 1). This task was repeated approximately 10 weeks later (Assessment 2).

RESULTS: Eighteen students were in the SG and 12 in the NSG. Seventy-eight percent of the SG performed chest compressions between 90 and 110 per minute during Assessment 1, compared with 50% during Assessment 2. The NSG had an 8% success rate at both assessments. Compression rate variance did not change in either group over time.

CONCLUSION: Mental metronomes are valuable teaching tools that can help students to perform chest compressions at the recommended rate.

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KEYWORDS: CPR; chest compression; instruction; retention rate

Survival of a dog with accidental colchicine overdose.

Goodman IH¹.

[+](#) Author information

Abstract

OBJECTIVE: To describe the treatment and clinical course of a dog accidentally prescribed 10 times the recommended dose of colchicine (0.3 mg/kg/d instead of 0.03 mg/kg/d).

CASE SUMMARY: After glaucoma surgery, a 1-year-old male neutered Pomeranian weighing 6.8 kg was prescribed 1,000 µg colchicine twice a day per os. The dog presented to the emergency department after the first dose with vomiting and was treated as an outpatient. Two colchicine doses later, the dog presented with vomiting, ocular pain, and increased intraocular pressure. The dog's vital signs were normal, and the dog was admitted for rehydration, analgesia, and revision glaucoma surgery the next day. Two hours after revision surgery, the dog developed vomiting and diarrhea. Postoperatively, the dog was hypothermic (36.3°C), persistently hypertensive (227 mm Hg), and bradycardic (60/min). Biochemistry revealed metabolic acidosis and increased hepatic enzyme activities. Mannitol was administered for presumed cerebral edema. Later, the dog developed bradycardia due to second-degree atrioventricular heart block, which responded to atropine. Total hospitalization was 9 days. Treatment included IV fluids, IV lipid emulsion, N-acetylcysteine, activated charcoal, gastroprotectants, antiemetics, opioids, antimicrobials, and barrier nursing due to transient neutropenia.

NEW OR UNIQUE INFORMATION PROVIDED: This is the first report to describe the successful treatment of a dog with colchicine overdose. The systemic effects were presumed to be secondary to colchicine toxicosis rather than diet, infection, or other drug reaction, and may have been compounded by a second anesthetic episode. Gastrointestinal signs, symptoms of cerebral edema, cardiac arrhythmias, and neutropenia were documented. One other report of colchicine overdose in a dog exists, and that patient was euthanized. This report demonstrates that complete recovery with intensive care is possible; however, the prognosis remains guarded.

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KEYWORDS: arrhythmia < cardiovascular; cerebral edema; colchicine; dog; toxicosis

Utilization of whole body computed tomography in polytrauma patients.

Dozeman ET¹, Prittie JE¹, Fischetti AJ².

Author information

Abstract

OBJECTIVE: To determine the safety, feasibility, and utility of whole body computed tomography (WBCT) in polytrauma patients. A second objective was to describe the utilization of the VetMouse Trap for sedated WBCT in polytrauma patients.

METHODS: A prospective, observational study in a high-volume private practice. Any cat or dog weighing <20 kg that presented to the emergency department following a polytrauma was eligible. Patients were given analgesia and sedation prior to placement in the VetMouse Trap. A WBCT was then performed.

RESULTS: A total of 16 patients (8 dogs and 8 cats) met inclusion criteria. All patients presented with blunt trauma; 3 also had evidence of penetrating wounds. Five (31.25%) patients met inclusion criteria for WBCT based on their neurological evaluation. Five (31.5%) were non-ambulatory with suspicion of orthopedic injury, and 37.5% met additional criteria for WBCT. The most common areas of injury were head (43.7%), lungs (25%), and pelvis (25%). Four patients (25%) had evidence of cavitory effusion that was not seen on focused assessment using sonography for trauma (FAST) scan. No patient had any adverse events during the CT.

CONCLUSION: This study demonstrated successful WBCT imaging of the sedated small animal polytrauma patient with the VetMouse Trap.

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KEYWORDS: computed tomography; polytrauma; small animal

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Postmortem urinary tract changes in cats with urethral obstruction.

Mauro KD¹, Bradley CW¹, Drobotz KJ¹.

Author information

Abstract

OBJECTIVE: To report the gross and histopathological postmortem findings of the urinary tract and compare them to clinical severity of disease in cats with urethral obstruction (UO).

DESIGN: Retrospective, observational, descriptive study.

SETTING: University teaching hospital.

ANIMALS: Fourteen cats from 2000 to 2014 with UO that had a complete postmortem examination.

INTERVENTIONS: None.

MEASUREMENTS AND MAIN RESULTS: Bladder lesions were moderate-severe in 10 of 14 (71%) and mild in 4 of 14 (29%) cats. Bladder lesions were diffuse in 8 of 14 (57%), multifocal in 3 of 14 (21%), and focal in 3 of 14 (21%) cats. Lymphocytic cystitis was noted in 11 of 14 cats (78%), and neutrophilic cystitis was noted in 10 of 14 (71%) bladders. Urethral lesions were moderate-severe in 4 of 14 (29%), mild in 4 of 14 (29%), and no urethral lesions were identified in 6 of 14 (43%) cats. Ureteral lesions were mild in 1 of 14 (7%), and no ureteral lesions were identified in 13 of 14 (93%) cats. There were moderate-severe histopathological renal lesions in 5 of 14 cats (36%), mild renal lesions in 6 of 14 (43%), and no renal lesions were identified in 3 of 14 cats (21%). Renal lesions were multifocal in 10 of 14 (71%) and regional in 1 of 14 cats (7%). In the kidneys, the most common inflammatory infiltrate was lymphoplasmacytic. The severity of urethral lesions was not associated with the severity of bladder lesions ($P = 1.0$). Hyperkalemia paralleled the severity of bladder ($P = 0.02$) and renal lesions ($P = 0.04$). An association between the severity of bladder lesions and degree of azotemia could not be determined due to small sample size and removal of the most azotemic cats.

CONCLUSIONS: Substantial renal and urinary bladder inflammatory lesions were found in cats with UO. The severity of these findings paralleled the severity of blood potassium concentrations.

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KEYWORDS: FIC; FLUTD; UO; obstruction; postmortem

Continuous positive airway pressure (CPAP) provision with a pediatric helmet for treatment of hypoxemic acute respiratory failure in dogs.

Ceccherini G¹, Lippi I¹, Citi S¹, Perondi F¹, Pamapanini M¹, Guidi G¹, Briganti A¹.

Author information

Abstract

OBJECTIVE: To evaluate arterial blood gas parameters and pulmonary radiography, before and after provision of continuous positive airway pressure (CPAP) via a pediatric helmet in dogs with acute hypoxemic respiratory failure.

DESIGN: Single-center, observational study conducted from 2016 to 2017.

SETTING: University teaching hospital.

ANIMALS: Seventeen dogs presenting with clinical signs compatible with respiratory failure, confirmed by arterial blood gas analyses.

INTERVENTIONS: For each animal arterial blood samples and thoracic radiographs were performed at arrival (T_0). Hypoxemic dogs ($PaO_2 < 80$ mm Hg), without evidence of pneumothorax or pleural effusion, received CPAP ventilation via a pediatric Helmet for at least 1 hour. At the end of CPAP ventilation, a second arterial blood gas analysis was performed at room air (T_1). The F-shunt was also calculated.

MEASUREMENT AND MAIN RESULTS: Respiratory rate, heart rate and rhythm, mean blood pressure, mucosal membrane color, and rectal temperature were recorded. Tolerance to the helmet was evaluated using a predetermined scoring system. Two dogs were excluded from the study for low tolerance to the helmet. In 15 of 17 dogs, a significant difference between T_0 and T_1 was noted for PaO_2 (60.84 ± 3 mm Hg vs 80.2 ± 5.5 mm Hg), $P(A-a)O_2$ (52.4 ± 4.4 mm Hg vs 35.2 ± 6 mm Hg), PaO_2 / FiO_2 (289.7 ± 14.3 vs 371 ± 21), and $\%SO_2$ (91.3 vs 98.8). In 15 of 17 dogs, the helmet was well tolerated. F-shunt significantly decreased following provision of CPAP (37%; range, 8.4-68% vs 6%; range, -5.6-64.3%).

CONCLUSION: The use of a pediatric helmet appears to be a suitable device for delivery of CPAP in dogs with hypoxemic acute respiratory failure. The device appears to be reasonably tolerated and improved oxygenation in most dogs.

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A prospective multicenter observational study of Viperidae polyvalent immune F(ab)₂ antivenom administration for the treatment of viper envenomation in dogs.

Vanni M¹, Intorre L¹, Corazza M¹, Meucci V¹, Parti S².

Author information

Abstract

OBJECTIVE: To test an equine-derived polyvalent viperid antivenom (EPVA) in the treatment of dogs with evidence of viper envenomation.

DESIGN: Prospective, multicenter observational study.

SETTING: Veterinary emergency and critical care hospitals.

ANIMALS: A total of 82 client-owned dogs with progressive clinical signs after viperid snakebite were enrolled in the study.

INTERVENTIONS: Equine-derived polyvalent viperid antivenom was administered at a dosage of 1 mL/kg body weight, either by IV infusion or SC injection.

MEASUREMENTS AND MAIN RESULTS: A standardized snakebite severity score (SSS) was used to characterize the severity of envenomation and the clinical course after EPVA treatment. Most dogs had improved SSS both at 4 (65.8%) and 8 hours (81.7%) following EPVA administration. Five dogs died. At the 4-week assessment, 3 dogs had slightly abnormal hematological or coagulation parameters; all other surviving dogs showed no abnormalities. Antivenom-related acute or intermediate reactions occurred in 12 dogs (14.6%).

CONCLUSIONS: In the first study on antivenom in dogs in Italy, the effects of progressive viper envenomation were stabilized or reversed in the large majority of dogs receiving EPVA, as confirmed by the SSS analyses.

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KEYWORDS: antivenin; canine; postexposure therapy; snake bite

Prevalence and impact of cholecystitis on outcome in dogs with gallbladder mucocele.

Rogers E¹, Jaffey JA¹, Graham A¹, Hostnik ET², Jacobs C³, Fox-Alvarez W⁴, Van Eerde E⁵, Arango J⁶, Williams F 3rd⁷, DeClue AE¹.

Author information

Abstract

BACKGROUND: Gallbladder mucocele is a potentially life-threatening extrahepatic biliary disease in dogs. The primary aims of this study were to evaluate the prevalence of cholecystitis in dogs with gross and histopathologically confirmed gallbladder mucocele and to investigate if there is an association between cholecystitis, including its subtypes (eg, acute, acute on chronic, with necrosis, chronic), and survival. Our secondary objective was to evaluate if there is an association between cholecystitis and intraoperative bacteriological culture positivity.

KEY FINDINGS: Two hundred nineteen dogs with gallbladder mucocele were included in this multi-institutional retrospective study, of which 63 (28.8%) dogs had histopathological evidence of cholecystitis. The most common forms of cholecystitis were acute on chronic (n = 22/63, 34.9%) and with necrosis (n = 20, 31.7%). Thirty-one (14.1%) dogs had growth of at least 1 bacterial isolate; however, 88.7% had antimicrobials administered within the 48 hours before surgery or intraoperatively. There was not an association between cholecystitis or its subtypes and survival. Furthermore, there was not an association between cholecystitis and intraoperative bacteriological culture positivity. A total of 38 (17.4%) dogs either died or were euthanized during hospitalization.

SIGNIFICANCE: Cholecystitis is a common comorbidity in dogs with gallbladder mucocele but was not associated with decreased survival.

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KEYWORDS: Tokyo guidelines; cholecystectomy; cholecystitis with necrosis

Comparison of native and citrated whole blood samples for rapid thromboelastography in Beagles.

Wang H¹, Nam A², Song K¹, Youn HY², Seo KW¹.

Author information

Abstract

OBJECTIVE: To examine the extent to which rapid thromboelastography (r-TEG) could decrease the testing time in comparison with that required for kaolin-activated thromboelastography (TEG), and to compare 2 types of blood samples (ie, native and citrated whole blood [WB]), for determining r-TEG values in healthy dogs.

DESIGN: Prospective observational study.

SETTING: University teaching hospital.

ANIMALS: Sixteen healthy Beagles.

INTERVENTIONS: Kaolin-activated TEG test using citrated WB samples and r-TEG test using native and citrated WB samples were performed in 16 dogs. At 60 minutes after the initial blood sampling, further samples were collected from a subset of 6 dogs in the same manner to evaluate intraindividual repeatability of r-TEG.

MEASUREMENTS AND MAIN RESULTS: The mean time to maximum amplitude (MA) for r-TEG with native and citrated WB samples was recorded as 1313.9 ± 250.9 seconds and 1351.3 ± 264.6 seconds (mean \pm SD), respectively, and 1779.9 ± 197.0 seconds for kaolin-activated TEG. Coefficients of variation with native and citrated WB samples for r-TEG values, TEG-activated clotting time, clot formation time, α angle, and MA, were determined to be 13.4% versus 18.8%, 11.1% versus 16.6%, 4.2% versus 5.1%, and 10.0% versus 10.0%, respectively. Intraindividual variations were lower for native WB samples than for citrated WB samples.

CONCLUSIONS: The r-TEG test significantly decreased the mean time to MA compared with the kaolin-activated TEG test. In addition, native WB samples showed lower coefficients of variation and intraindividual variation than citrated WB samples in r-TEG analysis; this suggests that native WB samples can provide more consistent results. Therefore, the r-TEG method using native WB samples is recommended for assessment of dogs' hemostatic status when an early diagnosis is required.

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KEYWORDS: activated clotting time; blood sampling; dog; kaolin-activated TEG; rapid TEG

Successful management of Heinz body hemolytic anemia associated with leek (*Allium ampeloprasum*) ingestion in a South American coati (*Nasua nasua*).

Jayson S^{1,2}, Masters N¹, Strike T¹, Rendle M¹, Sparrow S¹, Peters LM², Bates N³.

[+ Author information](#)

Abstract

OBJECTIVE: To describe the diagnosis, management, and outcome of Heinz body hemolytic anemia in a South American coati (*Nasua nasua*) secondary to suspected leek (*Allium ampeloprasum*) toxicosis.

CASE SUMMARY: A South American coati presented with Heinz body hemolytic anemia following addition of leeks to its diet for 2-5 days prior to initial presentation. Administration of a whole blood transfusion from an animal of the same species (conspecific) and supportive care resulted in immediate improvement in clinical signs. Normal behavior fully returned within 6 days of transfusion. Hematological evidence of anemia resolved by 4 weeks and there were no significant features of oxidative injury present by 8 weeks following initial presentation.

NEW INFORMATION PROVIDED: This is the first reported case of Heinz body hemolytic anemia, suspected leek toxicosis, and administration of a blood transfusion in this species.

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KEYWORDS: Allium spp; anemia; blood transfusion; toxicosis; zoo animal

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Evaluation of the agreement between a point-of-care lactate meter and a handheld laboratory analyzer in cats treated in emergency practice.

Acierno MJ¹, Hirsch A², Dedeaux A².

[+ Author information](#)

Abstract

OBJECTIVE: The purpose of this study was to determine if there was agreement between a new point-of-care (POC) lactate analyzer and a handheld laboratory analyzer when measuring blood lactate concentration in cats.

DESIGN: Prospective observational study.

SETTING: University veterinary teaching hospital.

ANIMALS: Fifty-four cats that presented to an emergency service.

INTERVENTIONS: None.

MEASUREMENTS AND MAIN RESULTS: Lactate concentrations as measured by the handheld laboratory analyzer ranged from 0.3 to 15.4 mmol/L. Agreement analysis of the handheld laboratory analyzer and the POC lactate meter demonstrated a bias, -0.06 and limits of agreement ranging from -0.87 to 0.99 mmol/L. Regression analysis demonstrated a coefficient of determination (R^2) of 0.98.

CONCLUSION: Results of the present study indicate that the POC lactate meter provided results that are in agreement with a handheld laboratory analyzer when measuring lactate in clinically ill patients.

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KEYWORDS: analysis; emergency service; feline; lactate meter

Evaluation of an automated point-of-care test system for measuring thrombin-antithrombin complex in dogs.

Kato D¹, Takahashi M¹, Yonezawa T², Ohmi A¹, Takeda S¹, Nakagawa T¹, Hosoda S³, Kanemoto H¹, Fukushima K¹, Ohno K¹, Matsuki N², Tsujimoto H¹.

⊕ Author information

Abstract

OBJECTIVE: To evaluate the utility of the chemiluminescent enzyme immunoassay (CLEIA) method for point-of-care (POC) measurement of canine plasma thrombin-antithrombin complex (TAT) concentration.

ASSESSMENT AND MAIN RESULTS: Plasma TAT concentration was measured in 54 healthy dogs and in 72 dogs with various diseases. A significant correlation was found between TAT concentration measured by CLEIA and that measured by an ELISA that was previously used in dogs. The upper limit of the reference value of TAT concentrations measured by CLEIA was determined to be 0.2 ng/mL based on the TAT concentration in 54 healthy dogs. TAT concentrations exceeded the reference interval in a portion of dogs when a hypercoagulable state may be present.

CONCLUSIONS: Canine plasma TAT concentrations measured using CLEIA were correlated with that measured using ELISA. Hence, a POC testing instrument may be used for early detection of activation of thrombin generation in emergency and critical care settings.

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KEYWORDS: antithrombotic therapy; disseminated intravascular coagulation; dog; hypercoagulable state; thromboembolism

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