

European Veterinary Conference Voorjaarsdagen ■ 9–11 April 2015 ■ Amsterdam

The annual European Veterinary Conference Voorjaarsdagen (translated, means *spring days*) is held in Amsterdam, The Netherlands, where more than 1000 veterinarians and hundreds of veterinary technicians gather for 3 days of practical lectures and sessions.

Small Intestinal Dysbiosis

Small intestinal dysbiosis refers to alterations in small intestinal microbiota numbers and/or composition. Antibiotic-responsive diarrhea, tylosin-responsive diarrhea, intestinal dysbiosis, and small intestinal bacterial overgrowth are terms describing similar conditions; it is unknown, however, whether they describe the same clinical entity, as the underlying cause of these conditions can be difficult to elucidate. Existing protective mechanisms that help prevent dysbiosis include gastric acid, intestinal motility (especially the propulsive small intestinal movements), and antibacterial activity of pancreatic juice. Disease affecting any of these mechanisms could lead to small intestinal dysbiosis. The diarrhea associated with small intestinal dysbiosis is chronic and may be intermittent. Weight loss is variably present. Duodenal juice cultures are difficult to perform and/or interpret. The most practical, albeit insensitive, diagnostic test is the combination of serum folate and cobalamin concentrations. Serum Trypsin-like immunoreactivity should also be measured, as enzymatic treatment of exocrine pancreatic insufficiency patients will generally negate the need for further therapies. Treatments for patients without an identifiable primary cause include antibiotics (eg, tylosin 25 mg/kg q12h for 6 weeks), prebiotics (eg, fructooligosaccharides), probiotics, and synbiotics (ie, a combination of pre- and probiotics). Likely the most practical synbiotic approach is to use a prebiotic-fortified food with additional probiotic supplementation. Cobalamin supplementation may be beneficial for some. Some patients require prolonged or life-long antimicrobial therapy.—*Steiner J*

Respiratory Disease in Pet Rodents

Respiratory disease is commonly seen in rodents, which are increasingly popular as pets. Poor husbandry and diet are often implicated as underlying causes of respiratory illness in pet rodents. A large, properly ventilated cage is essential to help prevent ammonia buildup, which can act as a potent respiratory irritant, potentiating opportunistic respiratory colonization. In addition, it is recommended to avoid overcrowding and not to house different species together, as some animals may be carriers of organisms that are pathogenic to a different species. Weight loss, anorexia, poor coat condition, red ocular or nasal staining, sneezing, dyspnea, wheezing, and nasal discharge can all be signs of respiratory disease in rodents. Care must be taken to not stress a dyspneic rodent during physical examination.

Diagnostics to consider include thoracic radiographs and culture and susceptibility testing of nasal swabs or tracheal/bronchial lavage fluid. Numerous viruses and bacteria—including *Mycoplasma pulmonis*, Sendai virus, *Bordetella bronchiseptica*, *Streptococcus pneumoniae*, and rat coronaviruses—cause respiratory illness in rodents. Less

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common causes of respiratory disease, such as pulmonary/alveolar histiocytosis, foreign body pneumonitis, and metastatic disease should be considered as well.

Treatment is aimed at controlling the organism and improving quality of life. Therapies may include oxygen, systemic and nebulized antimicrobials, and nutritional support. Corticosteroids are considered in end-stage disease. Owners must understand that relapses after initial clinical response are common.
—Mancinelli E

Gastritis and Gastric Ulcers

Gastric disease in dogs and cats can be secondary to clinical conditions including gastric ulceration, gastritis, neoplasia, or inflammatory infiltration of the gastrointestinal tract. Gastritis, or gastric mucosal inflammation, may be acute, chronic, idiopathic, or secondary to underlying causes. *Physaloptera rara*, the stomach worm, although rare and difficult to diagnose, should be considered in patients with chronic vomiting. Combination antibiotic usage along with an antacid is often successful in treating *Helicobacter* spp-like organisms when identified in patients with chronic gastritis unresponsive to traditional therapy. Gastric ulcerations or erosions are areas of

damaged gastric mucosa that can cause more severe issues including significant blood loss and life-threatening gastrointestinal perforations. Therapy is aimed at treating or removing the underlying cause, most commonly ulcerogenic drugs (eg, NSAIDs) or corticosteroids, which diminish the natural protective mechanisms of the stomach lining. Medications used to treat gastric ulcers include agents such as calcium carbonate or aluminum hydroxide, which buffer gastric acid in the gastric lumen. Additionally, antacids such as H₂-receptor antagonists (eg, famotidine) and proton pump inhibitors (eg, omeprazole) may be effective at decreasing gastric acid secretion. Sucralfate is a gastromucosal protectant that relies on gastric acid exposure to break down into its active ingredient; this adheres to damaged gastric tissue. Misoprostol, a synthetic prostaglandin, is highly effective at preventing ulceration in patients receiving NSAIDs or glucocorticoids, but utility for treatment of existing lesions is unproven.—Steiner J

Feline Hereditary Diseases—Peculiarities and Recent Progress

More than 230 hereditary disorders and genetic predispositions, similar to those in dogs, are known; molecular genetic tests are available for more than 2 dozen. Some of these

continues

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disorders represent possible models for studying similar diseases in humans. Feline breed variability is more restricted than canine breed variability, with several simple attributes (dominant or recessive) distinguishing the breeds. Single nucleotide polymorphism panels can define breeds and disease-causing mutations; most are autosomal recessive traits, whereas others are X-chromosomal recessive or autosomal dominant with incomplete penetrance. These disorders span hematologic problems, muscular diseases, storage diseases, heart defects, metabolic derangements, renal disorders, and ocular diseases; DNA testing is available for many of these. Though hereditary eye disorders are uncommon in cats, 2 retinopathies are seen in Abyssinians. Hereditary bleeding disorders are also rare, but coagulation factor XII deficiency is seen in many DSH cats. In some breeds, hip dysplasia and patellar luxation are more common than previously thought. Cancer is less attributable to genetics in cats than in dogs, except in the case of lymphoma. Some cats also appear to have a genetic predisposition for certain viral infections. Cats are more amenable to transplantation, and immune-mediated diseases are less common. The feline genome sequence has been recently completed, which will greatly enhance the understanding of feline hereditary disease.—Giger U

Esophageal Problems in Dogs and Cats

The normal esophagus is lined by squamous epithelium and bicarbonate-rich mucus. The musculature is composed entirely of striated muscle in dogs, whereas in cats the bottom 30%-50% is smooth muscle. Regurgitation may be the only clinical sign of esophageal pathology and must be distinguished from vomiting and dysphagia. Clinical examination and observation of the patient eating food from the floor vs an elevated point may help differentiate between the 2. Pharyngeal or throat paralysis, enlarged lymph nodes, non-compressible thorax (in small dogs and cats) or neurologic signs commonly accompany an esophageal problem. Myasthenia gravis or megaesophagus secondary to endocrinopathies should be ruled out. Radiology is an excellent diagnostic tool, with fluoroscopy, radiocontrast swallows (iodine preferred over barium), and endoscopy providing ancillary help. Foreign bodies are a common esophageal problem. Esophagitis may occur secondary to a host of insults to the esophageal lining. Fasting, fluid therapy, H₂ blockers, and sucralfate treat the mucosal damage caused by such events. Prokinetics and a gastric tube may also be necessary. Esophageal strictures have similar causes and treatment includes balloon dilatation or bougienage. Judicious use of corticosteroids may be used to decrease inflammation and

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BRIEF SUMMARY: Before using, consult the product insert, a summary of which follows.

CAUTION: Federal law restricts this drug to use by or on the order of a licensed veterinarian.

INDICATIONS: For relief of pain and inflammation associated with osteoarthritis and for control of postoperative pain associated with soft tissue and orthopedic surgeries in dogs.

CONTRAINDICATIONS: Carprofen should not be used in dogs exhibiting previous hypersensitivity to carprofen.

WARNINGS: Keep out of reach of children. Not for human use. Consult a physician in cases of accidental human exposure. **For use in dogs only.** Do not use in cats. All dogs should undergo a thorough history and physical examination before initiation of NSAID therapy. Appropriate laboratory tests to establish hematological and serum biochemical baseline data prior to, and periodically during, administration of any NSAID should be considered. **Owners should be advised to observe for signs of potential drug toxicity (see Adverse Reactions, Animal Safety and Post-Approval Experience).**

PRECAUTIONS: As a class, cyclooxygenase inhibitory NSAIDs may be associated with gastrointestinal, renal and hepatic toxicity. The use of parenteral fluids during surgery should be considered to reduce the potential risk of renal complications when using NSAIDs perioperatively. The most frequently reported effects have been gastrointestinal signs. Events involving suspected renal, hematologic, neurologic, dermatologic, and hepatic effects have also been reported. Patients at greatest risk for renal toxicity are those that are dehydrated, on concomitant diuretic therapy, or those with renal, cardiovascular, and/or hepatic dysfunction. Concurrent administration of potentially nephrotoxic drugs should be approached cautiously, with appropriate monitoring. Concomitant use of carprofen with other anti-inflammatory drugs, such as other NSAIDs or corticosteroids, should be avoided because of the potential increase of adverse reactions, including gastrointestinal ulcerations and/or perforations. Carprive Injection is not recommended for use in dogs with bleeding disorders (e.g., Von Willebrand's disease), as safety has not been established in dogs with these disorders. The safe use of Carprive Injection in animals less than 6 weeks of age, pregnant dogs, dogs used for breeding purposes, or in lactating bitches has not been established. Safety has not been established for IV or IM administration. If additional pain medication is warranted after administration of the total daily dose of carprofen, alternative analgesia should be considered.

The use of another NSAID is not recommended. Consider appropriate washout times when switching from one NSAID to another or when switching from corticosteroid use to NSAID use.

INFORMATION FOR DOG OWNERS: Carprive Injection, like other drugs of its class, is not free from adverse reactions. Owners should be advised of the potential for adverse reactions and be informed of the clinical signs associated with drug intolerance. Adverse reactions may include decreased appetite, vomiting, diarrhea, dark or tarry stools, increased water consumption, increased urination, pale gums due to anemia, yellowing of gums, skin or white of the eye due to jaundice, lethargy, incoordination, seizure, or behavioral changes. **Serious adverse reactions associated with this drug class can occur without warning and in rare situations result in death (see Adverse Reactions). Owners should be advised to discontinue Carprive Injection therapy and contact their veterinarian immediately if signs of intolerance are observed.** The vast majority of patients with drug related adverse reactions have recovered when the signs are recognized, the drug is withdrawn and veterinary care, if appropriate, is initiated. Owners should be advised of the importance of periodic follow up for all dogs during administration of any NSAID.

ADVERSE REACTIONS: There were no serious adverse events reported during clinical field studies for the injectable formulation. The following categories of abnormal health observations were reported.

Percentage of Dogs with Abnormal Health Observations Reported in Clinical Field Studies with the Injectable

Observation*	carprofen (n=168)	Placebo (n=163)
Vomiting	10.1	9.2
Diarrhea/Soft stool	2.4	3.7
Dermatitis	0.6	1.2
Dysrhythmia	0.6	0.6
Swelling	0	1.2
Dehiscence	1.2	0
WBC increase	13.7	6.7

*A single dog may have experienced more than one occurrence of an event.

Post-Approval Experience:

Although not all adverse reactions are reported, the following adverse reactions are based on voluntary post-approval adverse drug experience reporting. The categories of adverse reactions are listed by body system.

Gastrointestinal: Vomiting, diarrhea, constipation, inappetence, melena, hematemesis, gastrointestinal ulceration, gastrointestinal bleeding, pancreatitis.

Hepatic: Inappetence, vomiting, jaundice, acute hepatic toxicity, hepatic enzyme elevation, abnormal liver function test(s), hyperbilirubinemia, bilirubinuria, hypoalbuminemia. Approximately one-fourth of hepatic reports were in Labrador Retrievers.

Neurologic: Ataxia, paresis, paralysis, seizures, vestibular signs, disorientation.

Urinary: Hematuria, polyuria, polydipsia, urinary incontinence, urinary tract infection, azotemia, acute renal failure, tubular abnormalities including acute tubular necrosis, renal tubular acidosis, glucosuria.

Behavioral: Sedation, lethargy, hyperactivity, restlessness, aggressiveness.

Hematologic: Immune-mediated hemolytic anemia, immune-mediated thrombocytopenia, blood loss anemia, epistaxis.

Dermatologic: Pruritus, increased shedding, alopecia, pyotraumatic moist dermatitis (hot spots), necrotizing panniculitis/vasculitis, ventral ecchymosis. In rare situations, injection site reactions including necrosis, abscess and seroma formation, and granulomas have been reported with the injectable formulation.

Immunologic or hypersensitivity: Facial swelling, hives, erythema. In rare situations, death has been associated with some of the adverse reactions listed above. To report a suspected adverse reaction call Norbrook at 1-866-591-5777.

ANIMAL SAFETY: Clinical field studies were conducted on 331 dogs undergoing orthopedic or soft tissue surgery. Dogs were administered 2 mg/lb of carprofen subcutaneously two hours prior to surgery and once daily thereafter, as needed, for 2 days (soft tissue surgery) or 3 days (orthopedic surgery). The type and severity of abnormal health observations in carprofen- and placebo-treated animals were approximately equal and few in number (see Adverse Reactions). Changes in clinicopathologic indices of hematopoietic, renal, hepatic, and clotting function were not clinically significant. The mean post-treatment serum ALT values were 8.4 IU and 7.0 IU less than pre-treatment values for dogs receiving carprofen and placebo, respectively. The mean post-treatment AST values were 1.5 IU and 0.7 IU greater for dogs receiving carprofen and placebo, respectively. Swelling and warmth were associated with the injection site after subcutaneous administration of carprofen injectable. Long term use of the injectable has not been studied.

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resultant fibrosis. Esophageal diverticula and esophageal neoplasias are rare in dogs and cats. Vascular ring anomalies, usually noted when the young animal begins eating solid food, require surgery to correct, as does a hiatal hernia. Causes of cricopharyngeal achalasia are unclear, and fluoroscopy is necessary for diagnosis. Megaesophagus can be congenital or acquired, and diagnosing the underlying cause is critical to successful treatment.—*Burgener IA*

Sedation as an Alternative to General Anesthesia in Pet Birds

Sedation should be considered in place of general anesthesia in birds that are stressed, ill, debilitated, or in respiratory distress. In cases in which general anesthesia is unnecessary, sedation can help with restraint and stress-reduction. Midazolam, a benzodiazepine sedative, can reduce anxiety but has no analgesic effect. Butorphanol, a widely used opioid analgesic, has proven safe in some healthy psittacine species. Suggested doses are 1-3 mg/kg of butorphanol with 0.25-1.0 mg/kg of midazolam by IM injection. Onset is rapid (within 2-3 minutes); length of sedation ranges 20 minutes to several hours. Response is

variable, from mild to profound (often in debilitated patients). Sedation can be useful for cases in which handling produces stress, vocalizations, and increased heart and respiratory rates. Birds in respiratory distress often show improvement in rate and effort with sedation, likely because of decreased anxiety. Although general anesthesia is necessary to completely eradicate patient movement, good quality radiographs can be obtained with sedation in many patients. Lidocaine and bupivacaine are local analgesic agents that can be used at a dose of 1-2 mg/kg each for procedures causing mild-to-moderate discomfort. Sedation plus local analgesia can be used to obtain vascular access or to place intraosseous catheters, as well as for cleansing and wound debridement, abscess lancing, or digit amputation. Although further studies to help determine therapeutic dose ranges as well as safety and efficacy data are needed, sedation use in psittacines has not been associated with increased patient mortality.—*Lennox AM ■ cb*

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Observe label directions. For subcutaneous use in dogs only. Do not use in cats. As with other NSAIDs, rare but serious side effects involving the digestive system, kidneys or liver may occur. Such signs may be serious, resulting in hospitalization or even death. Regular monitoring is required for pets on medication. Pet owners should be advised to discontinue use if side effects occur and contact their veterinarian. See product labeling for full product information.

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