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**Dogma in Dentistry**
This discussion addressed certain dogmas that exist in veterinary dentistry. First, a wait-and-see approach is no longer appropriate; as many as 85% of dogs and cats >2 years of age suffer from periodontitis. Exposed pulp causes pain, and root canal or extraction is indicated. For cats with resorptive lesions, a crown amputation should only be pursued with supportive radiographic evidence. In root canal therapy, the straight-line approach does not refer to straight-line access to the root apex, but rather a straight line to the root canal; otherwise, the file may bend, resulting in separation. Straight-line access to the root apex is not possible in most animals because of curvature of the roots. Many clients believe that deciduous teeth have no roots; however, they do, but these roots are lost during the process of teething. Many clients also do not realize that a major part of the jaw is resected with maxillectomy and mandibulectomy, as patients tend to tolerate this procedure well. Finally, stage-2 resorptive lesions have been presumed to be without pain; however, discomfort results from exposed dentine pulp organ when the lesion penetrates the dentine, so this stage should also be expected to cause discomfort.—Tutt C

**Evidence-Based Corticosteroid Therapy in Critical Illness**
The benefits of corticosteroids are many, including multiple antiinflammatory actions, which contribute to possible justification for corticosteroid use in cases with overwhelming inflammation. A condition exists in human patients, originally termed relative adrenal insufficiency and later renamed critical illness-related corticosteroid insufficiency (CIRCI), in which systemic hypotension refractory to fluid therapy and vasopressors responds to corticosteroid supplementation. This hypotension is likely caused by down-regulation of smooth muscle adrenergic receptors which are modulated by glucocorticoids. Recent research, however, has led to yet another proposed name for this condition: sick euadrenal syndrome, which may be more appropriate as it reflects adrenal insufficiency not related to a diseased adrenal gland.

Although researchers are unsure if this condition exists in veterinary patients, several thoughts can be extrapolated from human medicine. First, it seems reasonable to use low doses of supplemental corticosteroids in fluid-resuscitated patients with hypotension refractory to vasopressors. Also, the decision to use corticosteroids should be based on clinical diagnosis and continued based on response to therapy—not on results of an ACTH stimulation test. Despite what is known about this condition in human patients, it is important to realize that there is still much unknown regarding corticosteroids in critically ill veterinary patients.—Schoeman JP

**The Pitfalls of PCR Diagnosis**
Use of the polymerase chain reaction (PCR) assay has grown significantly, becoming instrumental not only as a genetic and forensic tool but also as an important means of identifying disease-causing organisms. PCR works by amplifying certain regions of DNA in biologic samples so the PCR product can be visualized and identified. Several types of PCR exist (eg, conventional, real-time). Real-time PCR differs in that fluorescent signals are detected as the product accumulates; the amount of fluorescence is
proportional to the number of DNA copies, allowing the assay to be quantitative.

It is important that every PCR assay have a validation process, which includes determining analytical sensitivity and specificity, as well as reproducibility and efficiency. Some of the more common problems that arise with PCR include false negatives and false positives. False negatives can occur because of insufficient sample size, sample degradation during handling, inhibition of the PCR by certain organic and inorganic compounds, and failure of the assay reagent. False positives can occur because of sample contamination and loading errors when running the assay. Problems with PCR can also arise during test result interpretation, highlighting the importance of reviewing any results in light of clinical signs and pathogenesis of the infection being tested.—Sykes JE

When Things Go Wrong in Chemotherapy
Before offering chemotherapy, veterinarians must understand this specialized branch of medicine. The clinician must have a tissue diagnosis to choose the correct treatment protocol; stage the disease for appropriately aggressive treatment; identify possible comorbidities before beginning treatment; get baseline values for organ function and recheck them at appropriate intervals; react correctly to changes in parameters; weigh the patient at each visit; be proficient regarding chemotherapeutics and supportive medications; adhere to established protocols; educate staff and clients about safety; reassess when necessary, and avoid overreacting if things go wrong.

Most chemotherapeutics cause myelosuppression; prednisolone and low-dose vincristine are the exceptions. If neutrophil counts dip below $4.0 \times 10^9$ cells/L, consideration should be given to halting treatment and instituting prophylactic antibiotics. Nausea and vomiting are common, whether caused by death and desquamation of alimentary epithelium or, as with cisplatin and doxorubicin, by direct stimulation of the chemoreceptor trigger zone. Prevention or symptomatic treatment includes antiemetics, antacids, IV fluids, antibiotics, antiinflammatory drugs, and bland diets. 1-asparaginase, doxorubicin, cisplatin, and cytotoxic bines can cause hypersensitivities that lead to anaphylaxis. If anaphylaxis is seen, the drug should be stopped immediately and the patient treated with a combination of IV fluids, corticosteroids, adrenaline, and/or antihistamines. Phlebitis or tissue necrosis can occur with perivascular injection or extravasation of doxorubicin, vincristine, vinblastine, and, to a lesser degree, cisplatin and carboplatin. Proper restraint, use of IV catheters, and precise technique are crucial. Some drugs have specific toxicities, such as hemorrhagic cystitis seen with cyclophosphamides and cardiotoxicity with doxorubicin.—Zambelli A

Redefining Chronic Pancreatitis
Pancreatitis, acute or chronic, is typified by subclinical to severe disease (usually less severe with chronic), potential systemic complications, pancreatic inflammatory infiltration (neutrophils and macrophages acutely, lymphocytes and plasma cells chronically), and peripancreatic fat or pancreatic necrosis. Chronic pancreatitis causes permanent changes including pancreatic fibrosis and atrophy. A necropsy study found chronic pancreatitis twice as often as acute pancreatitis in dogs, a similar ratio to that seen in cats. Risk factors include breed predilection (eg, miniature schnauzer, English cocker spaniel), hypercalcemia, hypertriglyceridemia, idiosyncratic reactions to medications, and long-term exposure to potassium bromide or phenobarbital. A potential autoimmune component is suggested by the frequent association of pancreatitis with inflammatory bowel disease and hepatitis or cholangitis.

Clinical signs are often nonspecific (eg, lethargy, anorexia, diarrhea, vomiting, abdominal discomfort). Diabetes mellitus may be concurrent. Diagnostics should include a fecal smear and flotation, a therapeutic trial of a broad spectrum anthelminthic, bloodwork, and urinalysis. Exocrine pancreatic insufficiency should be excluded via serum trypsin-like immunoreactivity concentration. Although serum pancreatic lipase immunoreactivity concentration (PLI) is specific for lipase of exocrine pancreatic origin, it loses sensitivity with less severe disease. Abdominal ultrasound usually lacks sensitivity for chronic pancreatitis. Concurrent conditions must be treated, but specific therapy for pancreatitis remains undefined. Ultra low-fat diets have proven helpful in canine chronic pancreatitis, while only moderate fat restriction is needed in cats. Monitoring serum PLI every 2–3 weeks helps track progression. Treatment with steroids for chronic pancreatitis shows promising results in some potentially autoimmune cases. Cyclosporine treatment is also emerging.—Steiner JM cb