ABSTRACTS

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SELECT DISORDERS OF THE PEDIATRIC CANINE AND FELINE PATIENT

Margret L. Casal, Dr med vet, PhD, Dipl. ECAR

Introduction - The most common reason for presenting feline and canine pediatric patients to the veterinary clinic are diarrhea, respiratory disease, and stunted growth. Pediatric patients are not just small versions of the adult animals. Their immune system and many of the metabolic processes are not fully developed yet. Unlike adults, puppies and kittens are not able to respond to stressful situations, such as going to a new home or being exposed to a whole new group of animals. Therefore, pediatric patients are more susceptible to infectious diseases, and the illness will be more pronounced due to limited reserves and decreased ability to respond to dehydration, hypothermia, and hypoglycemia. The most common clinical signs associated with these infectious diseases are of gastrointestinal and respiratory origin. For the reasons stated above, symptoms need to be recognized early and a working diagnosis should be made as soon as possible so that treatment can be initiated to reduce both severity and duration of the illness.

Vomiting and Diarrhea - Vomiting and diarrhea are among the most common clinical signs observed in both neonatal and pediatric patients. The younger the patient the more quickly these signs will lead to dehydration and hypoglycemia. As compensatory mechanisms are not fully developed in pediatric patients, the clinical signs need to be dealt with as quickly as possible. A thorough history will reveal nutritional deficits or dietary indiscretion. Careful abdominal palpation may reveal the presence of foreign bodies, inflamed intestines, pancreatitis, and other abnormalities. A fecal sample should be visually examined for quality (consistency, color, and smell), for viruses (e.g. ParvoCite test), parasites (e.g. Toxocara/Toxascaris., Trichurus vulpis, Ancyclostomatous spp., Giardia spp., Isospora spp.), bacteria (e.g. Campylobacter, Salmonella, Clostridia, bacterial overgrowth). Diagnosis of metabolic and genetic disorders takes somewhat more time and requires complete blood cell counts, serum biochemistry screens, urinalyses, and specialized assays, such as serum ammonia, serum bile acids, biopsy samples of relevant organs, ultrasound, radiography, biochemical enzyme assays, and more. While specific treatment depends on the inciting cause, dehydration, hypoglycemia, and other clinical signs must be addressed immediately. Fluid replacement, oral or IV dextrose, antidiarrheals, or antiemetics may need to be administered.

Respiratory diseases - In kittens, upper respiratory diseases are more common, while lower respiratory diseases predominate in puppies. Clinical signs include nasal and ocular discharge, sneezing, coughing, lethargy, weakness, and anorexia. Vaccination history and origin of the pediatric patient may suggest specific causes for the respiratory disease presented. A physical examination should include careful auscultation of lung fields, trachea, and heart to allow localization of the most prominent symptoms and an ocular examination if appropriate. In kittens, upper respiratory infections are usually “diagnosed” by the presenting clinical signs. For example, mostly ocular discharge and conjunctivitis accompanied by mild nasal discharge point towards a feline herpes viral infection whereas oral lesions with no ocular lesions are more common in caliciviral infections. If an accurate diagnosis is needed, samples can be submitted for specialized viral cultures (e.g. distemper in dogs, rhinotracheitis in kittens). Microbiology cultures and antibacterial sensitivity assays should be performed either by obtaining nasal swabs, tracheal washes, or ocular swabs if primary or secondary bacterial infections are suspected. Treatment may involve antibiotics, fluids, and high quality nutrition. Especially in kittens with upper respiratory infections, it may be necessary to come
up with creative ideas to entice them to eat (e.g. heating the food, adding fish sauce, etc.). After the puppy or kitten has improved, a discussion with the owner should involve an appropriate vaccination and health program.

**Stunted Growth** - A variety of environmental, congenital, and genetic disorders may result in stunted growth. A detailed history may reveal inappropriate nutrition, poor environmental conditions, or inadequate preventative healthcare. The history should also include that of the parents, the littermates, related animals, and if any animals of the same breed have shown any of the same clinical signs. A careful physical examination may reveal facial dysmorphia (e.g. growth hormone deficiency, mucopolysaccharidosis, hypothyroidism), short limbs (e.g. achondroplasia), or cataracts (e.g. diabetes mellitus). Comparison to littermates and review of weight charts may reveal the extent and onset of growth retardation. Diagnostics may need to be extensive in the case of congenital or genetic diseases. Blood smears may show inclusions in white blood cells suggesting a lysosomal storage disease. Elevations in serum bile acids suggest portosystemic shunts, while decreased trypsin-like activity may indicate pancreatic insufficiency or vitamin B12 deficiency. A diagnosis is essential to determine the extent of treatment and if therapy is even possible. Congenital diseases such as hypothyroidism in kittens need to be treated as soon as possible to prevent long term effects of thyroid hormone deprivation.

**Summary** - Pediatric dogs and cats are among the most challenging patients but often the most rewarding. A detailed history, if available, and a thorough physical examination using most senses (smell, observation, palpation, and auscultation) are the most essential tools and with experience, provide the basis for choosing the right diagnostic approach. Therapy may need to be directed towards treating the most detrimental symptoms first before specific therapy can be initiated. Most importantly, it is important not to give up on the youngest of our patients, as they can be incredibly resilient and most will make great pets.