

ENDOCRINE DISORDERS OF ANIMALS: A FEW GOOD LESSONS

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Are domestic animals just furry humans? Does their endocrine pathology have the same significance as in people? As the veterinary medicine progresses in the modern world, we are discovering that animals can serve as good models for human diseases, but they also come with diseases that human medicine is discovering as new. The role of comparative pathology is gaining significance in all aspects of the "one world-one medicine" concept. We will be focused on common endocrine pathologies of domestic animals that involve adrenal gland, thyroid, pituitary gland, and endocrine pancreas. Addison's disease in dogs (hypoadrenocorticism) results from the reduction in corticosteroid secretion from the adrenal gland due to an autoimmune disorder, granulomatous diseases (histoplasmosis or blastomycosis), infarcts, tumors, or amyloidosis. Addison's disease is not as common as Cushing's disease, but it still occurs with regular frequency in the dog population, primarily in young to middle-aged female dogs. It is extremely rare in cats. The animal is presented with a history of weight loss, lethargy, or muscle weakness, and often chronic anemia. Cushing's disease (hyperadrenocorticism) is a disease of middle aged and older dogs and cats caused by the chronic excessive production of glucocorticoid hormones. It is more common in dogs, but cats in large percentage present with concurrent diabetes mellitus. Animals present with polyuria/polydipsia, polyphagia, alopecia and distended abdomen. Tachypnea, panting, recurrent urinary tract infections, or losses in reproductive ability are other symptoms often present with this disease. Diabetes mellitus most commonly occurs in middle age to older dogs (female) and cats (male), but occasion-

ally occurs in young animals as a genetic trait. It is a chronic endocrine disorder typically associated with obesity, pancreatic disease, or iatrogenic cause (cortisone). The animal presents with polyuria/polydipsia, hyperglycemia, and often with urinary tract infections. Hypothyroidism is a common problem in middle aged dogs, large breed dogs, but rarely occurs in cats. Dogs typically present with obesity, alopecia, and skin problems. Although dysfunction anywhere in the hypothalamic-pituitary-thyroid pathway can result in hypothyroidism, more than 95% of all cases occur as a result of destruction of the thyroid gland by an autoimmune disease, inflammation, atrophy, or neoplasia. Overproduction of parathyroid hormones can be associated with primary hyperparathyroidism, generally seen in older dogs, and rarely in cats. This form is typically associated with neoplastic diseases of parathyroid gland. Secondary nutritional hyperparathyroidism is more common and occurs most frequently in puppies and kittens fed an all-meat or organ diet (such as all liver) or a diet with an imbalance of calcium and phosphorus, and the disease will result in fibrous osteodystrophy. Similar condition exists in reptiles. Secondary renal hyperparathyroidism is associated with chronic renal failure, lack of calcitriol, and the resulting misbalance of calcium and phosphorus in the body. Diet change is necessary in the treatment of this disease. Pituitary adenomas are frequent in older horses that present with hirsutism and sweating. It is more frequent in mares, and usually associated with adenoma of the pars intermedia compressing the overlying hypothalamus as the center for homeostatic regulation of body temperature, appetite, and cyclic shedding of hair.