LECTURES

COMMON ENDOCRINE DISEASES IN DOMESTIC ANIMALS

Th. J. Rosol

Ohio State University, Columbus, OH, USA

Thomas J. Rosol, DVM, PhD is Professor of Veterinary Pathology at The Ohio State University and is board certified by the American College of Veterinary Pathologists. His specialty is endocrine and reproductive pathology. Prof. Rosol has authored over 210 papers and mentored over 35 trainees. He currently serves as an advisor for National Institutes of Health and the United States Department of Agriculture. Prof. Rosol will lecture on four common endocrine disorders in domestic and laboratory animals that have similarities to human conditions and emphasize the importance of comparative endocrinology: (1) Hyperthyroidism in cats is a spontaneous, idiopathic disease of older cats. Its incidence has increased dramatically in the past 20 years. Affected cats suffer from clinical hyperthyroidism. Treatment consists of surgery or 131-Iodide. This condition mimics toxic nodular goiter of humans; (2) pars intermedia adenomas occur frequently in older horses and induce a clinical syndrome due to secretion of multiple hormones derived from the precursor hormone, pro-opiomelanocortin; (3) Cushing's disease occurs in dogs due to hyperglucocorticoidism induced by functional adrenal cortical tumors or adenomas of the pars distalis. The clinical syndrome is similar to that in humans. The affected dogs can be treated with drugs that are toxic to the adrenal cortex, such as mitotane; and (4) C-cell hyperplasia and adenomas occur frequently in older rats and can be induced by environmental chemicals or medical drugs. A new class of antidiabetic drugs is being developed based on stimulation of glucagon-like peptide (GLP-1) receptors. GLP-1 receptor agonists induce C-cell hyperplasia and adenomas in rats and mice, but do not induce proliferative lesions in dogs, monkeys, or humans. These examples will demonstrate the importance of studying the spontaneous and induced diseases of the endocrine system in animals to improve our understanding of disease pathogenesis, effects of environmental toxins, and preclinical safety assessment of new drugs.