

THE EFFECT OF METHIMAZOLE TREATMENT FOR FELINE HYPERTHYROIDISM ON THE CT APPEARANCE OF THE THYROID GLANDS IN CATS. J.L. Bush, S. Nemanic, and J. Gordon. Oregon State University, OR, 97331.

Introduction: Hyperthyroidism is diagnosed based on clinical signs and elevated serum total thyroxine (TT₄) levels. Imaging diagnosis is made with nuclear scintigraphy, and recently non-contrast computed tomography (CT) has been shown to be a reliable alternative in anesthetized hyperthyroid cats. Our goals were to establish a CT thyroid imaging protocol in awake cats, compare the thyroid gland CT appearance of euthyroid cats to hyperthyroid cats pre- and post-methimazole, and determine whether thyroid size or attenuation pre-treatment correlated with methimazole dose.

Methods: Six hyperthyroid cats received CT pre- and post-methimazole treatment (at least 30 days after normal TT₄ level), and were compared to seven euthyroid cats. Hyperthyroid cats were imaged awake in a Mousetrap[®] restraint device or cat carrier. CT imaging characteristics measured included size (maximum length, width, and height), shape, location and attenuation.

Results: Thyroid volume was significantly larger in pre-methimazole (mean = 76.35mm) and post-methimazole hyperthyroid cats (mean = 66.12mm) compared to euthyroid cats (mean = 19.4mm; p = 0.005, p = 0.03, respectively). Methimazole treatment significantly lowered attenuation (mean = 81.11 HU) compared to pre-methimazole hyperthyroid (mean = 91.53 HU; p = 0.03) and euthyroid cats (mean = 97.01 HU; p = 0.03). Dose of methimazole ranged from 2.5 mg to 7.5 mg daily. There was no significant correlation between thyroid size, attenuation and methimazole dose.

Conclusion: Euthyroid and hyperthyroid cats are easily imaged awake with CT. Methimazole significantly lowers thyroid attenuation but not size in hyperthyroid cats. Pre-treatment CT does not predict methimazole dose in hyperthyroid cats.