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Computed tomography (CT) evaluation of hepatic and bone density in dogs with and without hyperadrenocorticism

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Introduction/Purpose: Hyperadrenocorticism is a common endocrine disease in adult dogs, characterized by an increased blood level of cor- tisol inducing osteopenia and steroid hepatopathy. This retrospective study analyzes tomodensitometric appearance of liver and lumbar ver- tebral bodies in dogs with and without hyperadrenocorticism.

Methods: Dogs diagnosed with hyperadrenocorticism referred for CT- scan were paired with a control subject without endocrine pathologies matched for age, sex, and weight. Hepatic, splenic, and bone densities have been assessed placing nine ROIs (regions of interest) in the left lateral, right lateral, and quadrate liver lobes, three splenic ROIs, and one ROI in the body of the second and fifth lumba r vertebrae. A sta- tistical evaluation was performed for the comparison of liver and bone density and liver/spleen HU (Hounsfield Unit) ratio in case and control subjects.

Results: Case group included 21 dogs, 11 females and 10 males; the median age was 11 years (range 8–18 years). The liver lobes den- sities and the mean liver density resulted to be significantly higher in dogs with hyperadrenocorticism compared to controls ($P < .05$).

Liver/spleen ratio was significantly different between the two groups ($P = .001$). Both vertebral body densities (L2 and L5) and mean bone density resulted to be significantly lower in the case group compared to control ($P < .05$).

Discussion/Conclusion: Dogs affected by hyperadrenocorticism show lower lumbar vertebral body density and hepatic modifications refer- able to steroid hepatopathy. The presence of increased liver radioden- sity and osteopenia can support the diagnosis of hyperadrenocorticism in dogs with clinical alterations referable to the disease.