Cardiomyopathies (CM) are the most common heart diseases in cats. The disease presentations are variable; prediction of disease course is difficult, particularly due to a lack of knowledge of underlying pathogenesis. Congestive heart failure (CHF) and arterial thromboembolism are common late consequences associated with feline cardiomyopathies. In this study, by using proteomic techniques we aimed to identify novel serum biomarkers for feline primary cardiomyopathies with congestive heart failure. The findings may aid understanding disease pathogenesis and assist in disease diagnosis, prognosis, and management.

The study population comprised 15 cats diagnosed with CHF and CM, 5 cats with asymptomatic CM, and 15 healthy cats. Serum proteomic profiles of these different cat groups were obtained by using liquid chromatography-tandem mass spectrometry techniques. The Wilcoxon test and Bonferroni correction were used for statistical analysis on differential protein expressions. In total 28 serum proteins were found differentially expressed between CHF and healthy control cats. Seventeen proteins were upregulated in CHF, mainly involved in lipoprotein metabolism, inflammation, and coagulation pathways. Apolipoproteins, acute phase protein ceruloplasmin, prothrombin, platelet factor 4, and serine protease inhibitors were significantly higher in CHF cats compared with healthy controls (p<0.05). Ten proteins were downregulated in CHF. Tetranectin, a protein regulating fibrinolysis and proteolysis was significantly lower in CHF cats compared with healthy controls (p<0.05). In human medicine this biomarker has recently been associated with coronary artery disease. Subsequent bioinformatics analysis (Gene Ontology) predicted 21 best candidate biomarkers, which were primarily associated with extracellular matrix organization and metabolism.

These results suggest systemic inflammation, coagulation abnormalities, and extracellular matrix remodelling occur in feline cardiomyopathies particularly with CHF. Identification of these biomarkers provides new insights for feline cardiomyopathy research.

DISCLOSURES
Disclosures to report:
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SPEAKER INFORMATION
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