Cognitive Function, Progression of Age-related Behavioral Changes, Biomarkers, and Survival in Dogs More Than 8 Years Old

**Background**
Canine cognitive dysfunction (CCD) is an age-dependent neurodegenerative condition dominated by changes in behavioral patterns. Cohort studies investigating cognitive status in dogs are lacking.

**Objectives**
To investigate cognitive function, progression of age-related behavioral changes, survival, and possible biomarkers of CCD in aged dogs.

**Animals**
Fifty-one dogs >8 years old; 21 with no cognitive deficits, 17 with mild cognitive impairments (MCI) and 13 with CCD.

**Methods**
Longitudinal study. Recruitment period of 12 months and an observational period of 24 months including a baseline and 3 planned subsequent assessments. Cognitive status was determined using validated questionnaires. Plasma A-peptides were quantified using commercial ELISA assays and cytokines by a validated immunoassay.

**Results**
Signs characterizing dogs with CCD were aimless wandering, staring into space, avoid getting patted, difficulty finding dropped food and anxiety. Thirty-three percent of dogs with a normal cognitive status progressed to MCI and 22% classified as MCI progressed to CCD during the study period. For 6 dogs diagnosed with CCD, signs of cognitive dysfunction increased with time. A diagnosis of CCD did not affect survival. The level of plasma A(42) was significantly increased (P < .05) in the CCD group (92.8 ± 24.0 pg/mL) compared to the MCI (77.0 ± 12.3 pg/mL) and normal group (74.9 ± 10.0 pg/mL), but no significant differences in concentrations of systemic inflammatory markers were detected.

**Conclusions**
Canine cognitive dysfunction is a progressive disorder with an individual variability in the rate of cognitive decline and clinical signs. Plasma A(42) seems to be an interesting plasma biomarker of CCD.