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Title: Plasma levels of β -amyloid peptides in successful aging and cognitive dysfunction in pet dogs.

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Abstract:

Introduction: Aging dogs naturally demonstrate cognitive impairment and neuropathology that models early Alzheimer's disease (AD). In particular, there is evidence that canine cognitive dysfunction syndrome (CDS) is accompanied by cortical deposition of A β peptides and neurodegeneration in aged dogs. Plasma A β levels have been examined in humans as putative biomarkers for AD but to date no similar studies have been conducted for canine dementia.

Aims: The aim of the present study was to assess plasma A β 1-42 and A β 1-40 in a blind study, using successful aging and CDS in pet dogs.

Methods: Severity of cognitive impairment was assessed by means of an owner-based questionnaire. A β plasma levels were measured by ELISA sandwich with ABtest40 and ABtest42 (Araclon Biotech. Zaragoza, Spain).

Results: On average, young dogs presented significantly higher plasma levels of A β 1-42 and A β 1-40 than aged cognitively unimpaired dogs. Interestingly, among aged dogs levels of A β 1-42 and A β 42/40 ratio were significantly higher in mild cognitively affected dogs than in either aged cognitively unimpaired or severe cognitively impaired dogs.

Conclusions: These results suggest that increased plasma A β 1-42 and A β 42/40 ratio could be a biomarker for canine cognitive dysfunction, considered an excellent natural model of early AD.