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Press Release Title: Narrowing of Neck Artery Without Warning May Signal Memory and Thinking Decline

Abstract Title: #003 Asymptomatic Carotid Stenosis is Associated with Cognitive Dysfunction

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Objective: This cross-sectional data from our prospective cohort study is the first comparison of cognitive function between patients with asymptomatic atherosclerotic carotid artery stenosis (ACS) versus patients with similar vascular comorbidities but no stenosis, thus accounting for confounding vascular cognitive impairment (VCI). Furthermore, validated normative data was utilized to compute standardized scores allowing ascertainment of clinical significance of the results.

Background: The impact of ACS on cognitive function remains controversial. Existing information is based on comparisons with healthy controls, varied cognitive batteries, and inadequate standardization of scores.

Design/Methods: 67 consecutive patients with 50% diameter-reducing ACS and 60 control patients with vascular co-morbidities without ACS underwent comprehensive cognitive testing. Stenosis was confirmed by duplex ultrasonography; asymptomatic status by neurologic and NIH Stroke Scale testing. Cognitive scores were adjusted for age, sex, education, and race using normative data. An overall index of cognitive function and five domain-specific composite scores were computed. Independent sample t-tests were used to compare groups, and Cohen’s d was calculated to determine effect sizes.

Results: The two groups did not differ with respect to vascular risk factors (e.g., diabetes, hypertension, coronary artery disease). The ACS group performed worse on the overall neurocognitive composite score (t=2.8; p.01; d=.52) and the motor/processing speed (t=3.5; p.01; d=.69) and learning/memory (t=2.6; p.05; d=.48) domain scores. A trend of poorer performance for executive function and attention/working memory emerged (d=.35 & .26, respectively). The groups did not differ on the language domain.

Conclusions: We demonstrate, for the first time, that carotid stenosis without a neurologic deficit is not necessarily “asymptomatic” and is associated with greater cognitive impairment compared to patients with similar risk factors but no stenosis. This effect is driven primarily by poor motor/processing-speed and learning/memory, with deficits ranging from mild to moderate. Further studies will be needed to confirm these findings and to elucidate their mechanisms.

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