

Cognitive impairment in patients with clinical vestibular diagnoses

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Background:

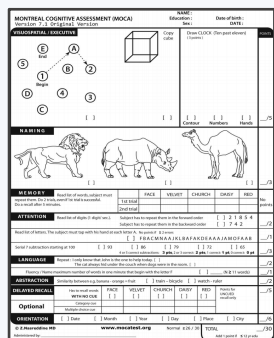
- Vestibular system provides balance, postural control, visuospatial orientation.
- Central and peripheral vestibular components degrade with aging.¹
- Recent studies: accelerated loss of vestibular function is linked to cognitive impairment.²
- Neurocognitive disorders are increasingly prevalent and carry a large societal burden.

Aim: To further characterize the relationship between vestibular deficits and cognitive dysfunction.

Design/Methods:

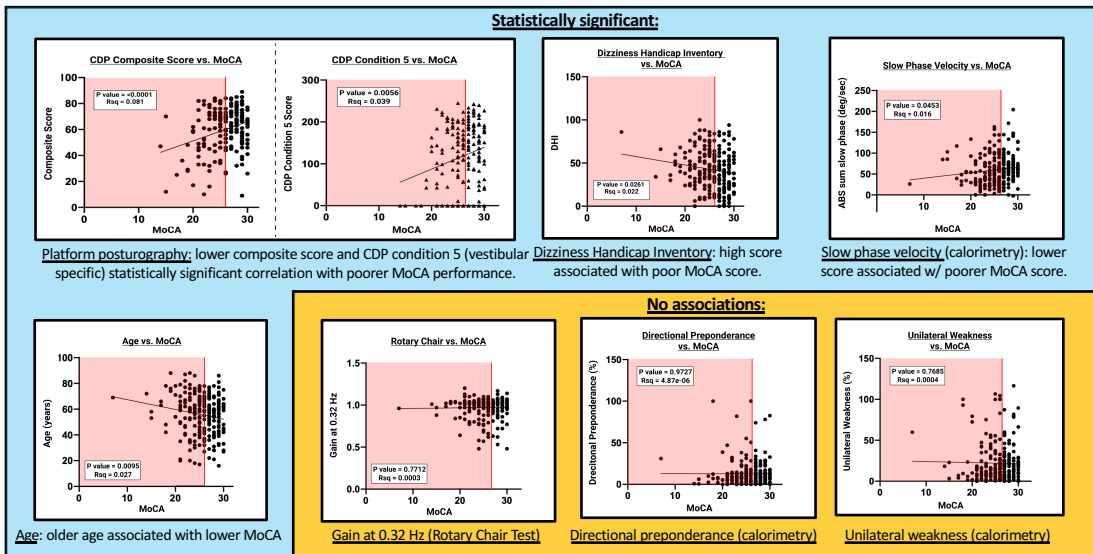
- Retrospective analysis of 227 patients referred to the University of Washington Vestibular Lab.
 - Mean age: 56.1 years; 59.4% female
- All patients underwent Montreal Cognitive Assessment (MoCA) prior to extensive vestibular testing.

Semicircular canal function:	<ul style="list-style-type: none"> • Videonystagmography (VNG) • Rotational chair test (RCT) • Video head impulse testing • Post head shake nystagmus
Otolith function:	<ul style="list-style-type: none"> • Cervical vestibular evoked myogenic potentials (cVEMP) • Ocular vestibular evoked myogenic potentials (oVEMP) • Subjective visual vertical
Functional assessments:	<ul style="list-style-type: none"> • Dynamic visual acuity • Dizziness Handicap Inventory (DHI) • Platform posturography



Findings:

- 44% of all patients had abnormal (<26) MoCA scores.
- oVEMP performance worse in subjects with lower MoCA scores (**P value = 0.039**)



Conclusions:

- Patients with vestibular issues have a higher incidence of cognitive dysfunction.
- Poor performance on functional vestibular tests (posturography, DHI) is weakly associated with abnormal cognitive function.
- Traditional unilateral measurements of lateral SCC function show no correlation with cognitive status.
- Abnormal utricular function weakly correlated with poorer cognitive status; saccular function has no correlation.

Next steps:

- Analyze audiometric data, control for hearing loss.
- Prospective study of Alzheimer's patients.

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References:

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2. Harun A, Oh ES, Bigelow RT, Studenski S, Agrawal Y. Vestibular Impairment in Dementia. *Otol Neurotol*. 2016;37(8):1137–1142. doi:10.1097/MAO.0000000000001157