CANADIAN STROKE BEST PRACTICE RECOMMENDATIONS

MOOD, COGNITION AND FATIGUE FOLLOWING STROKE

Table 2A: Diagnostic Criteria for Vascular Cognitive Impairment and Dementia

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Table 2A: Diagnostic Criteria for Vascular Cognitive Impairment and Dementia (Gorelick et al, 2011; Sachdev 2014)

1. The term *VCI* characterizes all forms of cognitive deficits from major Vascular Dementia (VaD) to Mild Cognitive Impairment (MCI) of vascular origin
2. These criteria cannot be used for subjects who have an active diagnosis of drug or alcohol abuse/dependence. Subjects must be free of any type of substance for at least 3 months.
3. These criteria cannot be used for subjects with delirium.

Cognitive Domains Assessed in Vascular Cognitive Disorders (Sachdev et al, 2014)

1) Attention and processing speed (sustained attention, divided attention, selective attention, information processing speed)
2) Frontal-executive function (planning, decision making, working memory, responding to feedback/error correction, novel situations, overriding habits, mental flexibility, judgment)
3) Learning and memory [immediate memory, recent memory (including free recall, cued recall), and recognition memory]
4) Language (naming, expressive, grammar and syntax, receptive)
5) Visuoconstructional-perceptual ability (construction, visual perception, and reasoning)
6) Praxis-gnosis-body schema (praxis, gnosis, right/left orientation, calculation ability, body schema, facial recognition)
7) Social cognition (recognition of emotions and social cues, appropriate social inhibitions, theory of mind, empathy).

Description and Criteria for Categories of Cognitive Impairment

Gorelick et al 2011 *	Sachdev et al 2014 ^
Vascular Mild Cognitive Impairment (VaMCI) 1. VaMCI includes the 4 subtypes proposed for the classification of MCI: amnestic, amnestic plus other domains, nonamnestic single domain, and nonamnestic multiple domain. 2. The classification of VaMCI must be based on cognitive testing, and a minimum of 4 cognitive domains should be assessed: executive/attention, memory, language, and visuospatial functions. The classification should be based on an assumption of decline in cognitive function from a prior baseline and impairment in at least 1 cognitive domain. 3. Instrumental activities of daily living could be normal or mildly impaired, independent of the presence of motor/sensory symptoms.	**Mild cognitive disorder** A. Acquired decline from a documented or inferred previous level of performance in ≥1 cognitive domains as evidenced by the following (a) Concerns of a patient, knowledgeable informant, or a clinician of mild levels of decline from a previous level of cognitive functioning. Typically, the reports will involve greater difficulty in performing the tasks, or the use of compensatory strategies; and (b) Evidence of modest deficits on objective cognitive assessment based on a
Probable Vascular Mild Cognitive Impairment (VaMCI)	

1. There is cognitive impairment and imaging evidence of cerebrovascular disease and a. There is a clear temporal relationship between a vascular event (e.g., clinical stroke) and onset of cognitive deficits, or b. There is a clear relationship in the severity and pattern of cognitive impairment and the presence of diffuse, subcortical cerebrovascular disease pathology (e.g., as in CADASIL). 2. There is no history of gradually progressive cognitive deficits before or after the stroke that suggests the presence of a nonvascular neurodegenerative disorder.	validated measure of neurocognitive function (either formal neuropsychological testing or an equivalent clinical evaluation) in Z1 cognitive domains. The test performance is typically in the range between 1 and 2 SDs below appropriate norms (or between the third and 16th percentiles) when a formal neuropsychological assessment is available, or an equivalent level as judged by the clinician. **B.** The cognitive deficits are not sufficient to interfere with independence (ie, instrumental activities of daily living are preserved), but greater effort, compensatory strategies, or accommodation may be required to maintain independence.
Possible Vascular Mild Cognitive Impairment (VaMCI) There is cognitive impairment and imaging evidence of cerebrovascular disease but 1. There is no clear relationship (temporal, severity, or cognitive pattern) between the vascular disease (e.g., silent infarcts, subcortical small-vessel disease) and onset of cognitive deficits. 2. There is insufficient information for the diagnosis of VaMCI (e.g., clinical symptoms suggest the presence of vascular disease, but no CT/MRI studies are available). 3. Severity of aphasia precludes proper cognitive assessment. However, patients with documented evidence of normal cognitive function (e.g., annual cognitive evaluations) before the clinical event that caused aphasia *could* be classified as having probable VaMCI. 4. There is evidence of other neurodegenerative diseases or conditions in addition to cerebrovascular disease that may affect cognition, such as a. A history of other neurodegenerative disorders (e.g., Parkinson disease, progressive supranuclear palsy, dementia with Lewy bodies); b. The presence of Alzheimer disease biology is confirmed by biomarkers (e.g., PET, CSF, amyloid ligands) or genetic studies (e.g., *PS1* mutation); or c. A history of active cancer or psychiatric or metabolic disorders that may affect cognitive function.	
Unstable Vascular Mild Cognitive Impairment (VaMCI)	

1. Subjects with the diagnosis of probable or possible VaMCI whose symptoms revert to normal should be classified as having "unstable VaMCI."

Possible Vascular Dementia (VaD)

There is cognitive impairment and imaging evidence of cerebrovascular disease but

1. There is no clear relationship (temporal, severity, or cognitive pattern) between the vascular disease (e.g., silent infarcts, subcortical small-vessel disease) and the cognitive impairment.
2. There is insufficient information for the diagnosis of VaD (e.g., clinical symptoms suggest the presence of vascular disease, but no CT/MRI studies are available).
3. Severity of aphasia precludes proper cognitive assessment. However, patients with documented evidence of normal cognitive function (e.g., annual cognitive evaluations) before the clinical event that caused aphasia *could* be classified as having probable VaD.
4. There is evidence of other neurodegenerative diseases or conditions in addition to cerebrovascular disease that may affect cognition, such as
   a. A history of other neurodegenerative disorders (e.g., Parkinson disease, progressive supranuclear palsy, dementia with Lewy bodies);
   b. The presence of Alzheimer disease biology is confirmed by biomarkers (e.g., PET, CSF, amyloid ligands) or genetic studies (e.g., *PS1* mutation); or
   c. A history of active cancer or psychiatric or metabolic disorders that may affect cognitive function.

Probable Vascular Dementia (VaD)

1. There is cognitive impairment and imaging evidence of cerebrovascular disease and
   a. There is a clear temporal relationship between a vascular event (e.g., clinical stroke) and onset of cognitive deficits, or
   b. There is a clear relationship in the severity and pattern of cognitive impairment and the presence of diffuse, subcortical cerebrovascular disease pathology (e.g., as in CADASIL).

Dementia* or major cognitive disorder

A. Evidence of substantial cognitive decline from a documented or inferred previous level of performance in ≥ 1 of the domains outlined above. Evidence for decline is based on:
   a) Concerns of the patient, a knowledgeable informant, or the clinician, of significant decline in specific abilities; and,
   b) Clear and significant deficits in objective assessment based on a validated objective measure of neurocognitive function (either formal neuropsychological testing or equivalent clinical evaluation) in ≥ 1 cognitive domains. These typically fall ≥ 2 SDs below the mean (or below the third percentile) of people of similar age, sex, education, and sociocultural background, when a formal neuropsychological assessment is available, or an equivalent level as judged by the clinician.

B. The cognitive deficits are sufficient to interfere with independence (e.g., at a minimum requiring assistance with instrumental activities of daily living, ie, more complex tasks such as managing finances or medications).

2. There is no history of gradually progressive cognitive deficits before or after the stroke that suggests the presence of a nonvascular neurodegenerative disorder.	
Dementia 1. The diagnosis of dementia should be based on a decline in cognitive function from a prior baseline and a deficit in performance in 2 cognitive domains that are of sufficient severity to affect the subject's activities of daily living. 2. The diagnosis of dementia must be based on cognitive testing, and a minimum of 4 cognitive domains should be assessed: executive/attention, memory, language, and visuospatial functions. 3. The deficits in activities of daily living are independent of the motor/sensory sequelae of the vascular event.	

Notes: VCI indicates vascular cognitive impairment; VaD, vascular dementia; MCI, mild cognitive impairment; CADASIL, cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy; CT/MRI, computed tomography/magnetic resonance imaging; PET, positron emission tomography; CSF, cerebrospinal fluid; and VaMCI, vascular mild cognitive impairment.

^ Sachdev, P., et al. (2014). "Diagnostic criteria for vascular cognitive disorders: A VASCOG Statement." Alzheimer Dis Assoc Disord **28**(3): 206-218