

Assessing Mental Status in Dementia: The Behavioral Neurology Assessment - Right time? Right place?

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The assessment of cognitive function is becoming increasingly important both in primary care and in neurological practice as the Canadian population ages and as public awareness of Alzheimer disease and other dementias grows. Not only is the number of dementia cases projected to triple over the next three decades,¹ but the baby-boomers can be anticipated to seek the opinion of specialists with concerns about mild symptoms that may be prodromal to dementia. Unfortunately, despite the significant advances in neuroimaging and biomarkers, the diagnosis of dementia remains clinical, probabilistic and exclusionary. It is based around assessment done within offices and clinics. Neurologists are charged with evaluating cognitive function in these settings and deciding on the need for further diagnostic work-up, the optimal use of neuropsychological assessment resources and long-term prognostication. Within neurological practice, measures of cognitive assessment are sought that are both brief and easy to administer; yet these same instruments run the significant risk of not being able to discriminate between where normality ends and where dementia begins, thereby defying their own utility.

At the present time, neurologists can select from a range of quite brief to more comprehensive scales for their clinical use.^{2,3} The most widely used is the Mini Mental State Examination (MMSE),⁴ with its many limitations. It generally requires ~ten minutes to administer and has come to represent the common currency in the assessment of dementia. In this issue of the journal, Darvesh et al.⁵ present their validation and normative data for a new instrument —the Behavioural Neurology Assessment (BNA)— using the MMSE as their comparative standard.

In their paper, the authors present data on two forms of the BNA: the Short Form that will require 20-30 minutes and the Long Form that will likely take 40-50 minutes. Within both forms the BNA seems to provide a welcome balance across cognitive domains, with good coverage of memory, language, visuo-spatial and executive functions. It is furthermore theoretically sound, as it recognizes that domains other than memory (particularly executive functions), may be compromised in early dementia and are a critical part of cognitive assessment. The sensitivity, specificity and predictive values reported are encouraging and invite serious consideration for the uptake of this instrument into neurological practice. However, there remain a number of important issues that potential users will need to

consider and which are not sufficiently addressed within the current study.

There is no argument that the BNA outperforms the MMSE. There is also a convincing case that the extra time allotment for the BNA is worth considering in exchange for better diagnostic discrimination. However, the current study does not actually address the place of the BNA in relationship to other scales of similar length and capabilities to assess a multiplicity of cognitive domains. For the BNA Short Form, the ADAS-Cog,⁵ the Mattis Dementia Rating Scale,⁶ and the Modified Mini Mental State Examination⁷ are the current standards. Each has its own limitations allowing that the BNA could emerge as a preferred instrument: however, there is no *prima facie* evidence from the current study to support any such preference.

For the BNA Long Form, at just under an hour, the natural comparator will be a full neuropsychological test battery. The Long Form will clearly exceed available time for most clinicians within an office setting and, in turn, will likely only have uptake within dedicated dementia clinics. Were the BNA Long Form as accurate as a full neuropsychological battery in defining mild to moderate dementia and its etiologies, neuropsychological assessments could be limited to those patients for whom a large degree of diagnostic uncertainty exists (subtle impairments, multiple potential causes). Again, the current study does not allow the prospective user to form an evidence-based opinion on the comparability of the Long Form with a neuropsychological test battery.

In the current study, there is an issue around the setting of care for which the instrument is purported to serve. Darvesh et al.⁵ have compared the score distribution of clinic patients diagnosed with dementia to the distribution of healthy controls recruited from the community. The accuracy rates yielded through such a comparison are bound to decrease as the score distributions begin to overlap with less polarized study groups. For example, within the specialty dementia clinic almost 30% of referrals are for assessment of mild cognitive impairment (MCI).⁸ Indeed the American Academy of Neurology Practice Parameter on MCI has recommended that MCI be identified so that individuals can be evaluated and monitored appropriately.⁹ How the BNA will perform around the problem of MCI is unknown, again leaving considerable uncertainty around its utility within the referral clinic. There is clearly an opportunity for additional research on this very important issue.

The BNA provides a well-formulated and standardized new instrument with potential for uptake into clinical settings of care. The Short Form is a better candidate for use within office and clinic settings while the Long form will almost exclusively find its place in specialty clinics. We can be hopeful that this important research directed at developing cognitive assessment measures continues to pursue some of the still unanswered questions that will ultimately define its utility.

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