Screening tools for virtual assessment of cognition

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Clinical question

What screening tools can be used for virtual assessment of cognition?

Bottom line

Medical practice has changed dramatically during the coronavirus disease 2019 (COVID-19) pandemic, including more widespread use of video and telephone calls for clinical care. A recent paper in the *Canadian Geriatrics Society Journal of CME* summarizes options for virtual assessment of cognition and is free to access at **https://canadiangeriatrics.ca/2020/05/virtual-approaches-to-cognitive-screening-during-pandemics**.[1] Even when we return to face-to-face office visits, there might be individuals who need to be assessed through virtual visits, such as those living in remote regions or those with limited ability to attend in person.

Evidence

- Canadian guidelines suggest evaluation of cognitive concerns should include history of onset, nature, progression of impairment, and review of medications and medical conditions. Assessment should focus on cognitive function, ideally with corroboration from family and others. Physical examination is needed to look for neurological findings and to rule out serious illness that might worsen cognition.[2] Many of these items are feasible to a degree via video or teleconference, but in-person assessment is likely required at some point during the initial evaluation.
- A 2020 literature review found that virtual care might help with earlier diagnosis, patient monitoring (especially those living in remote places), and support for both persons with dementia and their caregivers. Physicians should pay attention to the emotional effects of telehealth, as not all caregivers and patients get the same benefit from this mode of care compared to in-person care.[3]
- There are tools that have been validated for telephone assessment. However, none have been as extensively validated as their in-person counterparts. These tools for telephone assessment include the following:
  - -Telephone Interview of Cognitive Status: This is derived from the familiar (to older physicians at least) Mini-Mental State Examination (MMSE), and takes approximately 5 to 10 minutes to administer. It assesses orientation, attention, short-term memory, sentence repetition, immediate recall, verbal description naming, word opposites, and praxis. Nevertheless, the Telephone Interview of Cognitive Status is copyrighted by PAR, Inc, which charges for forms and instruction manuals.[4]
  - -Telephone-based MMSE instruments: There are at least 3 other instruments derived from the MMSE—the Adult Lifestyles and Function Interview,[5] the Telephone MMSE,[6] and the Telephone-Assessed Mental State.[7] Telephone-based MMSE scores are correlated with in-person MMSE scores.[6]
  - -Telephone-based Montreal Cognitive Assessment (MoCA): There are 2 telephone versions of the MoCA; both are similar to the MoCA-Blind, which does not contain the items in the original MoCA that require visual abilities. They seem sensitive in detecting mild cognitive impairment and dementia.[8] While there is a copyright, the MoCA can be used without permission for health professionals.[9]
- There are tools that have not been validated for telephone assessment; these tools are purely oral and might lend themselves to telephone use when using the aforementioned tools is not possible. The Ottawa 3DY is a brief cognitive screening tool employed by the Regional Geriatric Program of Eastern Ontario for virtual cognitive assessment.[10] It is composed of 4 questions that do not require equipment, paper, or pencil: day of the week, date, DLROW (WORLD spelled backwards), and year. Reviews comparing the Ottawa 3DY performance with that of other cognitive dysfunction screening tools have been done.[11]

Approach

The environment for virtual care should be quiet and private. The patient should participate without assistance, unless requested by the assessor. Family members often try to help loved ones during office assessments, and monitoring this remotely might be difficult.

As with conventional testing, physicians need to interpret the findings in the context of the patient's vision, hearing, education level, and daily function (activities of daily living and instrumental activities of daily living). Once dementia is diagnosed, monitoring for functional loss and development of challenging behaviour or safety issues is crucial. If caregivers can be present, virtual assessment can assess for further functional loss and development of concerning symptoms.

When video equipment is available and of good quality, it is possible to complete full versions of tests like the MoCA and the MMSE[12] while observing patient responses. The authors of the MoCA have

developed instructions on how to administer it virtually: **https://mailchi.mp/mocatest/remote-moca-testing?e=bbeb81559c**. This means that the patient will need to access the test by printing it at home or receiving a copy in the mail.

Implementation

There are barriers to remote assessment, as family physicians have experienced during the pandemic. Telephone audio quality might be poor and patients being assessed might have hearing impairments. Not all families can support audiovisual assessment; telephone assessment remains far more common. For cognitive assessments, some patients might write down the words they have been asked to recall, thereby invalidating that aspect of memory testing. The lack of visual cues during telephone assessments might also be problematic. It is difficult to assess visuospatial abilities and to administer tests relevant to fitness to drive, such as the Trail Making A and B tests,[13] in a virtual environment.

Face-to-face and virtual assessments should complement each other, with initial assessments done in office (or part virtual and part in person) and some follow-up done virtually when appropriate and feasible. To those living rurally or at a distance, balancing face-to-face with virtual visits should be considered. The College of Family Physicians of Canada and other organizations provide helpful information on setting up and optimizing telehealth approaches: **https://www.cfp.ca/sites/default/files/pubfiles/PDF%20Documents/Blog/telehealth_tool_eng.pdf.**[14]

To learn more about virtual cognitive screening, please see **https://canadiangeriatrics.ca/2020/05/virtual-approaches-to-cognitive-screening-during-pandemics.**[1]

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Competing interests
None declared

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