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General Mental Status Examination - Part II (Cognitive Testing)
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Clinical Skills Education Title: General Mental Status Examination – Part II (Cognitive Testing)

Overview

Cognitive testing is a part of the neurological and psychiatric mental status examination, which is performed to assess an individual's intellectual functioning, memory, attention, problem solving abilities, and language skills. Cognitive impairment can be caused by a variety of medical and psychiatric diseases and also by certain classes of medications, such as anticholinergic drugs, anticonvulsants, and benzodiazepines. In some patients, cognitive decline is the first manifestation of an underlying pathological condition.

Cognitive testing involves administering a series of questions and pencil and paper tasks. The results of cognitive assessment provide a baseline of the patient's cognitive abilities. They also allow for the documentation of cognitive decline and the ability to monitor cognitive function over the course of treatment.

If a patient appears to be cognitively intact, then a few informal questions may be used and the answers documented. If the initial screening raises a concern regarding the patient's cognitive functioning, then further quick screening may be accomplished with a tool, such as the Mini-Cog test.

Procedure

The screening questions below may be used for cognitive assessment if there are no signs of significant dementia. If there is a suspicion of cognitive impairment, either from the history-taking or from the prior questions of the mental status testing, then it may be appropriate to use a more extensive and formal validated test of cognitive functioning, rather than performing the screening exam.

1. Test the patient for orientation by asking, "Please tell me the name of this location, the month, and the year."

2. Test the patient for attention.

2.1 List seven random numbers to the patient slowly and at a rate of about one number per second. (Seven is the number of digits in a phone number and within what a normal individual can recall.)

2.2 First, ask the patient to repeat all seven numbers in the order they were recited. Then, ask the patient to list five of the same numbers in reverse order.

2.3 If a patient cannot repeat seven digits in the order recited, ask them to repeat three. If they can accomplish that, then try four, five, and so on, until as many as seven numbers can be remembered correctly.

3. Test the patient's remote memory by asking what they were doing when they heard about 9/11 or the Kennedy assassination.

4. Test the patient's recent memory by asking questions with answers that can be easily verified, such as the time of today's appointment or today's weather.

5. Check for information by asking the patient to name the last four US Presidents. When testing memory and information, it is important to consider the age, cultural background, and educational level of the patient.

6. Assess the patient's calculation ability.

6.1 "Serial sevens."

6.1.1 Tell the patient, "I want you to count by subtracting seven from one hundred, and keep subtracting seven from your answer until I say you are done". Repeat this instruction twice, if needed.

6.1.2 Tell the patient to stop after they subtract seven from one hundred down to about seventy-two or sixty-five. Note the accuracy and speed of the patient's responses, and the effort required for each answer.

6.2 Ask the patient to solve a simple "supermarket math" problem, such as, "If oranges are twenty-five cents each, and I buy three oranges, how much money would I get back if I paid with a five dollar bill?"

7. Test the construction ability.

7.1 Have a sheet of paper, a pencil, and a picture of intersecting polygons ready.

7.2 Point at the picture and instruct the patient to copy the drawing as accurately as possible.

7.3 Check the accuracy of the drawing. All the lines need to be drawn with no lines added.

7.4 Alternatively, ask the patient to copy a drawing of a cube. The patient's drawing should be three-dimensional, and the lines need to be similar lengths and parallel.

8. Test for verbal fluency.

8.1 Have a timer ready.

Comment [AS1]: I could find an image of intersecting polygons or a cube drawing if necessary

8.2 Tell the patient, "Tell me as many words you can think of that begin with the letter of the alphabet, which I am going to ask you in a moment. You can say any kind of word you want, except for names (proper nouns) like Alice or Alabama, and numbers or words that begin with the same sound but have a different suffix (ending) like love, lover, loving. I will ask you to stop when one minute is up."

8.3 Ask the patient to say as many words they can think of that begin with the letter "F" on your mark. Normally, the patient should be able to come up with eleven or more words in one minute.

9. Screening for dementia can be performed by administering a Mini-Cog test.

9.1 Instruct the patient that you are about to recite three unrelated words, and that you want them to remember these words.

9.2 Recite the words.

9.3 Ask the patient to repeat the words just recited.

9.4 Clock drawing test.

9.4.1 Tell the patient to draw the face of a clock on a blank sheet of paper.

9.4.2 Instruct the patient to put numbers on the clock face.

9.4.3 Ask the patient to draw the hands of the clock at a specific time, such as 10:20.

9.4.4 Ask patient to repeat the three words they were asked to recall earlier.

9.4.5 Scoring and interpretation of the Mini-Cog test:

9.4.5.1 Give the patient one point for each word they recall after the clock drawing test. Patients who recall all three words are considered to not be demented.

9.4.5.2 Patients who recall one or two words are classified based on the results of the clock drawing test. The clock drawing test is calculated as normal if all the numbers are in a normal sequence and the position of the hands correctly represents the time requested. If the clock is normal, they are categorized as non-demented. If it is abnormal, they are considered to be demented.

Summary
Assessment of the cognitive function is performed in both the informal, qualitative manner and by administering quantitative testing tools. When performing the informal assessment, it is

important to take into account a patient's age and cultural and educational background, so the testing of the patient's grasp of information and ability to recall past events can be modified accordingly. The physician needs to provide a reassuring and supportive environment and should not rush through the examination, because performance anxiety can affect the test results.

With the rapid growth of the aging population, it is especially important for a physician to be familiar with screening tests that allow for early detection of dementia. One such brief screening instrument is the Mini-Cog test, which includes memory testing with a three item recall test and a clock drawing test, and only takes three minutes to administer. If the results of the Mini-Cog test suggest a cognitive deficit, as seen in a demented patient, then the further quantitative cognitive assessment is performed by a formal cognitive screening test, such as the Mini-Mental Status Exam (MMSE)® or Montreal Cognitive Assessment (MoCA). These tests are quantifiable and reproducible. They can determine the degree of a patient's cognitive impairment and can also establish a baseline score for comparison of repeated testing over time, possibly after therapeutic interventions.