

10 - Bedside cognitive examination tools

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© SPMM Course Bedside cognitive examination tools (This section is best read in conjunction with the section on neuropsychological tests in the Applied Neuroscience chapter and the chapter on Rating Scales) MMSE: The Mini-Mental State Examination (MMSE) is the standard screening instrument for dementia introduced by Folstein in 1976. It takes 5-10 minutes to administer and has a median positive Likelihood Ratio of 6.3 and a median Negative Likelihood Ratio of 0.19. □ Brief tool for grading cognitive impairment in elderly and screening for dementia. □ Not very sensitive to change, but used in anti-dementia drugs' clinical trials. □ ADAS-Cog may be better suited to detect change. □ Practice effect may occur with MMSE. □ It is a 30point scale □ With less than 9 years of formal education, the cut off for suspecting dementia must be 21/22 and not the usual 23/24. □ Insensitive to early decline. □ Doesn't pick up frontal executive defects Bulbar Palsy Bulbar Palsy •LMN weakness of 9-12 cranial nerves •Wasted, fasciculating tongue •Nasal speech •Lost jaw jerk and gag reflex •emotional lability not seen •MND, polio, botulism, myasthenia gravis, muscular dystrophies Pseudobulbar palsy Pseudobulbar palsy •bilateral supranuclear (UMN) lesions of lower cranial nerves •Stiff tongue; wasting seen only in later stages •Donald-duck speech •Exaggerated jaw jerk; preserved gag reflex •emotional lability (pathological emotionalism) •MND, multiple sclerosis, multiinfarct dementia and severe head injury.

© SPMM Course ITEMS in MMSE o Orientation (10) o Registration (3) and recall (3) tasks (6 points total) o Attention task (5) o Multistep command (3) o Naming (2) o Repetition language (1) o Reading comprehension (close your eyes, 1 point) o Writing (1) o Visual construction (copy interlocking polygons, 1 point) Clinical interview with carers and patients is the best diagnostic tool for any disorder including dementia; overreliance on MMSE scores can be counterproductive. The clock drawing test: Clock drawing test requires verbal understanding (comprehension), short-term working memory to process the instruction and spatially coded knowledge in addition to constructive skills and planning (executive function). (It does not test orientation to time!) □ Watson introduced a 7 scores screening method with a good degree of reliability. The placing of any three digits in a quadrant is considered to be correct. An error score of one is assigned to each of the first three quadrants containing any errors, and an error score of four is assigned for the

fourth quadrant if it contains an error. Thus, a maximum error score of seven can be obtained. The normal range for the score is 0-3. A score of 4 or greater in this scoring system has a sensitivity of 87%, a specificity of 82% and a kappa value of 0.70 for identifying dementia (according to the NINCDS-ADRDA criteria for probable dementia). □ The test has a high correlation with the MMSE and other tests of cognitive dysfunction. □ It can also be used in diagnosing unilateral neglect and inattention. □ Subjects of low education, advanced age and depression perform more poorly. There are many methods of administering and scoring. □ Normal clock-drawing ability reasonably excludes cognitive impairment

Addenbrooke's cognitive examination (ACE-Revised): □ ACE-R evaluates six cognitive domains (orientation, attention, memory, verbal fluency, language and visuospatial ability). It is useful for detecting dementia and mild cognitive impairment.

© SPM Course □ Frontal tests such as verbal fluency are also included in the ACE, making it more sensitive to frontal types of dementia than MMSE. (Hodges R et al., 2000). It is also effective for differentiating the subtypes of dementia, such as Alzheimer's disease, frontotemporal dementia, progressive supranuclear palsy, and other forms of dementia associated with parkinsonism (Rittman et al., 2013). □ The normative data provided with ACE-R (revised version) states that there are two defined cut-offs (<88: sensitivity=0.94, specificity=0.89; <82: sensitivity=0.84, specificity=1.0). The likelihood ratio for a positive test of dementia at a cut-off of 82 is 100:1. □ Language domain receives the major share of the scoring in ACE.

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