Geriatric Grand Rounds

Tuesday, June 15, 2010 12:00 noon
Dr. Bill Black Auditorium
Glenrose Rehabilitation Hospital

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Screening for Dementia in a Multicultural Context

Zahinoor Ismail, BMSc, MD, FRCPC
Assistant Professor, Department of Psychiatry, University of Toronto
Clinical Assistant Professor, Department of Psychiatry, University of Calgary
Head, CAMH Memory Clinic

Disclosure

There are no conflicts of interest to disclose.

Diversity and Assessment

- Objectives
  - Review the principles and practice of dementia assessments
  - Discuss barriers to assessment of dementia in a multicultural context
  - Explore assessment tools that are useful in multicultural populations
Dementia Diagnosis

- Development of multiple cognitive deficits
  - Memory impairment and
  - One or more of:
    - Aphasia
    - Apraxia
    - Agnosia
    - Executive functioning
  - Functional impairment and a decline from previous functioning
  - Gradual onset, continuing course
  - Not due to other medical conditions or drugs

Types of Dementia

- Alzheimer's Dementia
  - Alzheimer's Disease
    - NINCDS-ADRDA
      - Dementia established clinically + cog testing
      - Progressive worsening of cog domains
      - No disturbance of consciousness
      - Not due to other brain/systemic illness
      - Supportive features
        - Altered behavioural patterns
        - FH of similar illness

Alzheimer's Dementia

- Differential Diagnosis
  - Vascular Dementia
    - Abrupt or step-wise
  - Mixed
  - Lewy Body
    - Fluctuations, hallucinations, Parkinson sx
  - Parkinsons Dementia
  - FTLD
    - Early, insidious, gradual
    - Personality change or apathy
    - Behaviour and/or language

Alzheimer's Dementia

- Diagnostic criteria
  - Memory impairment and one or more other cognitive deficits
  - Functional impairment and a decline from previous functioning
  - Gradual onset, continuing course
  - Not due to other medical conditions or drugs

- Supportive features
  - Altered behavioural patterns
  - FH of similar illness

- Differentiation from other conditions
  - Vascular Dementia
  - Lewy Body Dementia
  - Parkinson's Disease
  - Frontotemporal Dementia
  - Other types of dementia

- Alzheimer's Disease
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Vascular Dementia

Epidemiology

- Age 65-74: 1%
- Age 75-84: 6.9%
- Age 85+: 26%

Canadian Study of Health and Aging

Multiculturalism

- 2002: 150 million people lived outside their country of birth
- Toronto is the most multicultural city in the world
- Assessment of cognition does not easily translate across languages or cultures
- What is the role of acculturation?

Cognitive Screening

- Advantages
  - Diagnosis can help explain changes in behaviour, mood, cognition and functioning
  - Allow caregivers to plan for POAs, end of life care
  - Earlier benefit from medication
- Disadvantages
  - False positives
  - Overwhelm health care system
  - Opportunistic case finding
Who to screen...

- High risk individuals
  - Late-onset depression
  - Subjective cognitive impairment
  - Age greater than 75
  - Functional decline
- Screening doesn’t necessarily equate with diagnosis of dementia

Current screening practices

- Specialists
  - MMSE and its variants 100%
  - CDT 72%
  - Delayed word recall 56%
  - Verbal fluency 35%
  - Similarities 27%
  - Trail making 25%

Current screening practices

- Canadian Primary Care
  - MMSE and its variants 76%
  - Delayed word recall 56%
  - CDT 53%
  - Alternating sequences 13%
  - MoCA 5%

Ideal screening test

1. Brief in duration
2. Acceptable to patients
3. Insensitive to confounding factors such as culture, language and education
4. Simple to administer and score
5. Sensitivity and inter-rater reliability
6. Cover a broad range of cognitive functions
“No ifs ands or buts…”

Foreign Language MMSE

<table>
<thead>
<tr>
<th>Language</th>
<th>Language</th>
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<tbody>
<tr>
<td>Afrikaans</td>
<td>Israeli English</td>
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<td>Arabic</td>
<td>Italian</td>
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<tr>
<td>Argentinean Spanish</td>
<td>Japanese</td>
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<td>Austrian German</td>
<td>Kannada</td>
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<td>Belgian Dutch</td>
<td>Korean</td>
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<td>Belgian French</td>
<td>Latvian</td>
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<td>Bosnian</td>
<td>Lithuanian</td>
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<td>Brazilian Portuguese</td>
<td>Macedonian</td>
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<td>Bulgarian</td>
<td>Malay</td>
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<tr>
<td>Chilean Spanish</td>
<td>Malaysian Marathi</td>
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<tr>
<td>Chinese</td>
<td>Norwegian</td>
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<td>Croatian</td>
<td>Polish</td>
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<td>Czech</td>
<td>Portuguese</td>
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<td>Danish</td>
<td>Romanian</td>
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<tr>
<td>Dutch</td>
<td>Russian</td>
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<tr>
<td>Estonian</td>
<td>Russian for Estonia</td>
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<tr>
<td>Farsi</td>
<td>Serbian</td>
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<td>Filipino</td>
<td>Slovakian</td>
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<tr>
<td>Finnish</td>
<td>Slovenian</td>
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<tr>
<td>French</td>
<td>South African English</td>
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<tr>
<td>German</td>
<td>Spanish</td>
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<tr>
<td>Greek</td>
<td>Swedish</td>
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<td>Gujarati</td>
<td>Tamil</td>
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<td>Hebrew</td>
<td>Telugu</td>
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<td>Hindi</td>
<td>Turkish</td>
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<tr>
<td>Hungarian</td>
<td>UK English</td>
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<tr>
<td>Indian English</td>
<td>Ukrainian</td>
</tr>
<tr>
<td></td>
<td>Urdu</td>
</tr>
</tbody>
</table>

Problems with the MMSE

- Poor assessment of frontal / exec function
- Designed in an English speaking population
- MMSE scores are influenced by age, education, ethnicity, and language of interview
- Some words can’t be translated and some concepts are not relevant to other cultures
- Excluding items that were culturally biased, resolved inter-ethnic diff in “severe” dementia

Excerpt 1983, J. Nervous & Mental Dis
MMSE bias

- Sao Paolo Ageing & Health Study
  - High false positive rate of dementia diagnosis in older illiterate adults
  - Recommend cutoff score of 14/15 for diagnosis in those with no formal education
  - Cutoff of 17/18 for those with >1 year
  - MMSE grossly overestimates dementia (vs DSM criteria) in this population

Clock Drawing Test

- "This is a clock face. Please fill in the numbers and then set the time to 10 past 11"

CDT

- Sensitivity to Deterioration in Dementia
  - Many scoring systems, most of which have good psychometric properties
  - 1 minute to perform
  - Provides a visual (and thus tangible) example for family and caregivers
  - Much less susceptible to bias due to education, language and culture
**Mini-Cog**

- Community sample of culturally, linguistically and educationally heterogeneous older adults
  - Mini-Cog had a sensitivity of 99% and correctly classified 96% of the subjects in the initial study of 249 subjects. Administration time was 3 minutes.
  - Mini-Cog was found to be equal or better than the MMSE in detecting dementia in multiethnic elderly individuals, easier to administer to non-English speakers, and is less biased by low education and literacy.

**RUDAS – a culturally sensitive tool**

**Rowland Universal Dementia Assessment Scale (RUDAS)**

- Developed specifically for a multicultural population
- Item development
  - Identify important cognitive domains
  - Propose potential items to measure cognition in each of the domains
  - Optimize the psychometric validity, and cultural and linguistic equivalents of the proposed items
- Develop a full list of items to test in a culturally heterogeneous population
RUDAS item development

- 1st health: identify cognitive domains
  - Memory, learning, attn, language, v/s…
- 1st culture: assess cultural relevance of domains
  - All culturally relevant
- 2nd health: propose potential items
  - List of ~80 items
- 2nd culture: assess items for cultural and linguistic fairness
  - Refined list of items
- 3rd health: revised validity of culture modified items
- 3rd culture: final culture and linguistic item review
  - List of 60 items for testing

MMSE development

- Napkin (serviette)

RUDAS clinical testing

- Patient demographics

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>MEASURE</th>
</tr>
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<tbody>
<tr>
<td>Age in years (mean ± SD)</td>
<td>77.9 ± 7.0</td>
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<tr>
<td>Female (%)</td>
<td>68.7</td>
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<tr>
<td>Years in Australia (median, Q1–Q3)</td>
<td>52.5, 40–76</td>
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<tr>
<td>Preferred language other than English (%)</td>
<td>34.0</td>
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<tr>
<td>Interpreter used (%)</td>
<td>29.5</td>
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<tr>
<td>Years of education (median, Q1–Q3)</td>
<td>9, 6–10</td>
</tr>
<tr>
<td>MBI score (median, Q1–Q3)</td>
<td>19, 17–20</td>
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<tr>
<td>Lawton IADL score (median, Q1–Q3)</td>
<td>5, 3–7</td>
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<tr>
<td>GDS score (median, Q1–Q3)</td>
<td>5, 3–8</td>
</tr>
<tr>
<td>CDR:</td>
<td></td>
</tr>
<tr>
<td>No dementia (%)</td>
<td>21.7</td>
</tr>
<tr>
<td>Questionable dementia (%)</td>
<td>30.7</td>
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<tr>
<td>Mild dementia (%)</td>
<td>22.3</td>
</tr>
<tr>
<td>Moderate dementia (%)</td>
<td>19.3</td>
</tr>
<tr>
<td>Severe dementia (%)</td>
<td>4.8</td>
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</tbody>
</table>

RUDAS Item 1

- 4-item grocery recall (Memory)
  - Tea
  - Cooking oil
  - Eggs
  - Soap
RUDAS Item 2

- Body orientation (Visuospatial)
  - Show me your right foot
  - Show me your left hand
  - With your right hand, touch your left shoulder
  - With your left hand, touch your right ear
  - Point to or indicate my left knee
  - Point to or indicate my right elbow
  - With your right hand, point to or indicate my left eye
  - With your left hand, point to or indicate my left foot

RUDAS Item 3

- Fist-palm alternation task (Praxis)

RUDAS Item 4

- Cube copying (Visuoconstructual Drawing)

RUDAS Item 5

- Crossing the road (Judgment)
  - Asked how they would cross a very busy street or similar thoroughfare where there is no pedestrian crossing or traffic lights
RUDAS Item 1 recall

- “…we have just now arrived at the shop…”

RUDAS Item 6

- Name as many animals as possible in one minute (Memory recall)

RUDAS


RUDAS

- Diagnostic accuracy excellent vs DSM-IV criteria
  - Scores lower than 23 detected dementia with a sensitivity of 89% and a specificity of 98%
  - Gender, years of education and preferred language were not predictors of dementia
  - Can simply be translated into other languages
RUDAS

- However
  - Designed to detect dementia in the primary care setting
  - Further work is needed in other settings
  - Is it sensitive to change?
    - Further longitudinal studies are needed

Cultural awareness

- You are now aware of cultural and educational biases on assessment of cognition

- How does this affect your practice or day to day interactions with patients of different cultures?