Exploring the role of the Hong Kong version of Montreal Cognitive Assessment in staging of Alzheimer’s disease in Cantonese speaking older adults in Hong Kong

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Background & Aim

• With an aging population, Dementia is a great health challenge in Hong Kong and around the world, with Alzheimer's disease (AD) being the most common cause

• Staging severity of AD will allow:
  – Communication among clinicians and with patients / carers
  – Service planning
  – Treatment implication – both pharmacological and non-pharmacological treatment

• Currently the Cantonese version of the MMSE has no validated cut-off scores for different stages of AD.

• MMSE has copy right issue

• HK-MoCA is widely used in screening of dementia in Hong Kong, its role in staging of AD is worth exploring

• Aim – to determine the HK-MoCA cut-off score range for severe, moderate and mild AD
Methodology

• Cross-sectional study, matching the score of HK-MoCA against an established standard, the Chinese version of the Clinical Dementia Rating (C-CDR) for grading the severity of AD
• 155 participants with AD were enrolled through convenience sampling in a psychogeriatric specialist outpatient clinic, according to the inclusion and exclusion criteria
• The assessors for C-CDR and HK-MoCA were blinded to each other.
• 33 participants were invited to perform the HK-MoCA a second time for evaluating inter-rater reliability
• The cut-off scores of the HK-MoCA for mild and moderate, and moderate and severe AD were determined by Receiver-operating Characteristic (ROC) analysis.
Results

<table>
<thead>
<tr>
<th>Cut-off scores (Before adjustment for age and education)</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>Area under curve (AUC)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/5 (severe and moderate)</td>
<td>84.4%</td>
<td>91.9%</td>
<td>0.942</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>9/10 (moderate and mild)</td>
<td>86.3%</td>
<td>93.3%</td>
<td>0.953</td>
<td>&lt;0.001</td>
</tr>
</tbody>
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<tr>
<th>Cut-off scores (After adjustment for age and education)</th>
<th>Sensitivity</th>
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</tr>
</thead>
<tbody>
<tr>
<td>4/5 (severe and moderate)</td>
<td>86.7%</td>
<td>97.3%</td>
<td>0.956</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>8/9 (moderate and mild)</td>
<td>90.4%</td>
<td>95.6%</td>
<td>0.961</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stages of AD</th>
<th>Severe</th>
<th>Moderate</th>
<th>Mild</th>
</tr>
</thead>
<tbody>
<tr>
<td>HK-MoCA score range (without adjustment)</td>
<td>≤4</td>
<td>5-9</td>
<td>≥10</td>
</tr>
<tr>
<td>HK-MoCA score range (with age education adjustment)</td>
<td>≤4</td>
<td>5-8</td>
<td>≥9</td>
</tr>
</tbody>
</table>

AD = Alzheimer’s disease.
HK-MoCA = Hong Kong version of Montreal Cognitive Assessment

- The 4 co-investigators demonstrate good interrater reliability for the HK-MoCA
Discussion & Conclusion

- Noted in severe and moderate AD cut-off did not change after adjustment with age and education
- The effect of education on the cut-off score of mild and moderate AD will need further research

- The HK-MoCA is a reliable and valid instrument to differentiate mild and moderate, and moderate and severe AD patients
- This study demonstrates that HK-MoCA does have the potential to be an alternative instrument to the CMMSE in staging of dementia in AD in Cantonese speaking elderly
Key references


