Validation of the Sinhala version of the Montreal Cognitive Assessment in screening for dementia

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Abstract

Objectives To validate the Sinhala version of the Montreal Cognitive Assessment (MoCA) scale in screening for dementia.

Methods The MoCA translation and cultural adaptation was carried using a combined qualitative and quantitative approach. Sample size was calculated to detect a targeted sensitivity of 85% and a specificity of 85%. Sample consisted of 49 participants diagnosed with dementia of the Alzheimer's type (AD) according to DSM-IV criteria and 49 normal controls (NC) aged ≥50 years. All subjects were administered the Mini Mental State Examination (MMSE) and MoCA Sinhala version (MoCA-S). Concurrent validity was assessed using Pearson correlation coefficients between the MoCA-S scores and MMSE scores. Criterion validity was assessed using receiver operating characteristic (ROC) analysis.

Results Mean MoCA scores between NC (26.71, SD 2.4) and AD group (16.78, SD 5.9) were significantly different (t=10.8, p<0.001). Cronbach's alpha of 0.818 indicated good internal consistency. Attention (digit span, sustained attention, and the serial 7 calculation task) had the highest discriminant ability followed by visuospatial skills (trail making, cube drawing and clock drawing). Naming had poor discriminant ability. There was a high, positive correlation between MoCA-S total scores and MMSE total scores. (r=0.907, p<0.001). The area under the ROC curve was 0.975 (95%CI 0.94-1.0) for the MoCA and 0.928 (95% CI 0.87-0.98) for MMSE. A cut-off value of 24 provided the best balance between sensitivity (98.0 7%) and specificity (79.6 %).

Conclusion MoCA-S is a valid and reliable instrument which can be used as a brief screening instrument for dementia in Sri Lanka.

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Introduction

With the increase in the elderly population in Sri Lanka, dementia has become an important health problem. A survey of a semi-urban population in Sri Lanka found an overall prevalence of dementia of 3.98% (95% CI 2.6-5.7) among those aged ≥65 years [1]. Many with dementia remain undiagnosed for years. Early diagnosis is important because intervention with cognitive stimulation, physical exercise, aggressive treatment of risk factors and pharmacological interventions can slow down cognitive deterioration [2].

Apart from lack of public knowledge about dementia, lack of awareness by the medical profession regarding diagnostic criteria and cognitive testing contributes to low rates of detection. In Sri Lanka in a general medical ward 55.2% of patients over 65 years who had a secondary education scored at or below 23 on the MMSE [3]. Many of these patients would not have been identified by clinicians as requiring interventions for cognitive impairment.

Clinical diagnosis of dementia is made using standardised operational criteria such as the DSM-IV criteria (Diagnostic and Statistical Manual) or the NINCDS-ADRDA criteria (National Institute of Neurological and Communicative Disorders and Stroke and Alzheimer's Disease and Related Disorders Association) [4, 5]. Neuropsychological tests are used in screening for dementia and are particularly useful for identifying those with early stages of the disorder. Testing also helps detail the areas of cognitive impairment, assess the severity and monitor the progress of the disease.

New knowledge about Alzheimer's and other dementias has led to the recognition of intermediate clinical states where cognitive impairment does not reach the threshold for dementia [6]. Therefore sensitive screening tools which can identify early stages of the disease are being developed.

Mild cognitive impairment (MCI) is defined as an intermediate clinical state between normal aging and dementia and is thought to precede and progress to dementia in many cases [7]. There are several definitions of MCI. Diagnosis of MCI according to Peterson criteria

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