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Comparing the Psychometric Properties of Hong Kong Version of the Montreal Cognitive Assessment Applying Age and Education Corrected Normative Data and Single Cut-Off in Diagnosing Cognitive Impairment in Hong Kong Elders

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Introduction

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Objectives

to evaluate the performance between single and age and education corrected cut off in classifying cognitive impairment (CI) by using Hong Kong version of the Montreal Cognitive Assessment(HK-MoCA).

Methodology

HK-MoCA scores were collected from patients attending the cognitive clinic of United Christian Hospital in 2011-2013. A total of 274 patients (dementia, n=122; mild cognitive impairment(MCI), n=85; normal, n=42) were recruited. The MoCA scores were evaluated by different cutoffs. Age and education corrected cutoff scores were at 16th, 7th and 2nd percentile as according to the diagnostic criteria used in major (2nd percentile) and mild (16th percentile) neurocognitive disorders in the Diagnostic and Statistical Manual of Mental Disorders 5th edition and Petersen's criteria (7th percentile) for MCI. Comparison was made with the single cutoff of 21/22 for MCI and CI and 18/19 for dementia validated in a local study.

Result

To differentiate MCI from normal with single cut off , the sensitivity was 83.5% and specificity 69.0%. Using age and education corrected cut off, sensitivity and specificity were 35.3% and 90.5% and 47.1% and 88.1% when the 7th percentile and 16th percentiles were selected respectively. To detect dementia from controls, single cut off had 91.8% sensitivity and 90.5% specificity while age and education corrected

cut off at 2ndpercentile had sensitivity of 49.2% and specificity 97.6%. For identifying CI from normal, the sensitivity and specificity were 93.2% and 69.0% in single cutoff respectively, in comparing with 63.8% and 88.1% in age and education corrected cut off at 16thpercentile (Table 1). The accuracy of single cut off in correctly identifying tested patients into appropriate groups was 77.4% but only 46.4% if age and education corrected cut off were used. Conclusions: HK-MoCA is a handy tool in aiding diagnosis of cognitive impairment for its relatively short administration time and incorporation of essential cognitive domains. However, choosing an appropriate cut-off is essential to improve its psychometric properties. In the present study, a single cut-off for each level of cognitive impairment with inherent simple education adjustment has a better sensitivity when compared with proper age and education corrected cut-off with a trade-off of slightly lowered specificity.