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Submitting author: Mr Tang Lap Nin
Post title: Advanced Practice Nurse, United Christian Hospital, NULL

A study of the Hong Kong version of Montreal Cognitive Assessment (HK-MoCA) as a predictor of conversion from mild cognitive impairment to dementia

Tang LN(1),Lau ML(1),Chan CC(1),Tam YY(1),Yung CY(1),Li HS(1),Yeung PY(2)
(1)Medicine and Geriatrics,United Christian Hospital,(2)Rehabilitation Unit,Kowloon Hospital

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Introduction
The HK-MoCA is a brief and feasible cognitive screening instrument for use in Chinese older adults in Hong Kong clinical setting. It has been validated that it is much sensitive to detect mild cognitive impairment (MCI) compared with the Cantonese version of Mini-Mental State Examination (C-MMSE) which has ceiling effect and needs to be purchased due to copyright issues*. The optimal cutoff score to differentiate MCI persons from normal is 21/22 with a high sensitivity of 0.828 and specificity of 0.735, and score of 18/19 to identify dementia with sensitivity of 0.923 and specificity of 0.971. However, its use in monitoring the disease progression is largely unknown.

Objectives
1.To study the yearly conversion rate of MCI to dementia   2.To examine the usefulness of the HK-MoCA in predicting conversion to dementia from MCI.

Methodology
A total of 275 subjects aged over 60 were referred to a public hospital based cognitive clinic for suspected cognitive impairment from 12/2011 to 5/2013. Referred cases were assessed using HK-MoCA on first visit, baseline demographic data (age, gender and educational level) were collected, and subtypes of MCI were diagnosed by experienced geriatricians according to DSM-IV criteria. All subjects were followed in the clinic for 2 years. Statistical analysis including descriptive, between groups comparison, and logistic regression were performed.

Result
A total of 92 subjects were diagnosed having MCI at first visit. Twenty one (22.8%) were lost in follow-up. There was no statistical difference between the defaulted and follow-up groups with regard to HK-MoCA score and demographics.   The age and HK-MoCA score (mean/standard deviation) of 71 subjects with follow-up data available was 76.24/8.2 years and 16.85/4.8 respectively.   One was dead within a

year. Of the remaining 70 patients, 30.0% and 44.3% was converted to dementia at first and second year respectively. There was no statistical significance in age, education and gender between the converter and non-converter groups. However, score of HK-MoCA was significantly lower in the converter group (14.94/5.07 vs 18.73/3.91, p=0.001) and the conversion rates were different among MCI subtypes (Table 1). Logistic regression however confirmed the HK-MoCA score was the only variable to predict conversion (Exp(B) = 0.809, p=0.001). The conversion rates were higher with the subjects scoring lower than cut-off scores for MCI and dementia at 1st and 2nd year follow-up (Figure 1 & 2). However, the difference in conversion rates was statistically significant with dementia cutoff score of 18/19 (Odd ratio=2.88; CI= 1.05-7.89; p=0.033) but not with MCI score of 21/22 (Odd ratio=1.86; CI=0.51-6.90; p=0.066).