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A study of the progression to dementia according to subtypes of mild cognitive impairment in Hong Kong elders

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Introduction

Mild cognitive impairment is the prodrome stage of dementia. Its conversion rate varies according to different studies. One of the reasons is related to its diversity in the underlying etiologies. Classification of MCI in different subtypes may allow higher specificity in predicting progression to dementia. However, there is limited information about the heterogeneity of MCI and how this heterogeneity may influence the rate of progression to dementia in Hong Kong aging population.

Objectives

1.To study the conversion rate of different subtypes of MCI to dementia 2.To verify the usefulness of this classification in predicting conversion of MCI to dementia

Methodology

A total of 275 subjects aged over 60 were assessed at cognitive clinic of a regional hospital for suspected cognitive impairment during the period of 12/2011 to 5/2013. Neuropsychological assessment and relevant laboratory and neuroimaging studies were performed. For those who were diagnosed as MCI, subtypes were ascertained by experienced geriatricians. All subjects were followed in the clinic for 2 years. Statistical analysis including descriptive, between groups comparison, and likelihood ratio were performed.

Result

A total of 92 subjects were diagnosed having MCI. 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 (Table 1). 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, 31 (44.3%) was converted to dementia at second year. The demographic characteristics and HK-MoCA scores of MCI subtypes are shown in Table 2. There were significant differences in age, educational level and

HK-MoCA scores among the three major subtypes. Mixed type MCI was older in age, less educated and scored lower in HK-MoCA score. Compared those MCI of Alzheimer's etiology, subjects with vascular MCI and mixed MCI were more likely converted to dementia (1st year 16.7 vs 37.5 vs 69.2%; 2nd year 33.3 vs 50.0%, and 76.9%) (Figure.1). The difference in conversion rates were significant at both 1st year ($p < 0.001$) and 2nd year ($p = 0.004$). The positive likelihood ratio (LR+) of mixed type MCI converting to dementia was 15.63 and 9.16 at 1st and 2nd year respectively when comparing with MCI of Alzheimer's etiology.