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Association of physical activity with cognitive function, behavioural symptoms, and caregiver's burden in Chinese dementia patients

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Introduction: Dementia patients show impairments of memory and other cognitive functions with consequent decline in activities of daily living. Besides cognitive symptoms, demented patients can also exhibit behavioural and psychological symptoms of dementia, which are stressors leading to family caregivers' burden. Physical activity may give rise to benefits in cognitive function, and may reduce behavioural symptoms and caregivers' burden. The objective of this study was to investigate the associations of physical activity level with cognitive function, behavioural and psychological symptoms and caregivers' burden in Chinese dementia patients in Hong Kong.

Methods: This was a cross-sectional study. A total of 201 dementia patients were recruited from the Geriatric Clinic in Queen Mary Hospital from May 2013 to August 2013. Data on demographic, comorbid diseases, cognitive function (Mini-Mental State Examination [MMSE] and Montreal Cognitive Assessment [MoCA]), physical function (Alzheimer's Disease Cooperative Study Activities of Daily Living Inventory [ADCS-ADL]), physical activity (Physical Activity Scale for the Elderly [PASE]), and behavioural symptoms (Neuropsychiatric Inventory [NPI]) were collected. Burden of the subjects' family caregivers were assessed with the Zarit Burden Interview (ZBI).

Results: A total of 201 subjects (70 males and 131 females) were recruited. In bivariate analysis, the PASE score was significantly associated with the MMSE score (rho = 0.259, $P < 0.001$), the MoCA score (rho = 0.311; $P < 0.001$), the NPI score (rho = –0.225, $P = 0.001$), and the ZBI score (rho = –0.253, $P < 0.001$). In multivariate analyses, using general linear models, the PASE score was independently associated with the MMSE score ($F = 5.57$, $P = 0.001$), the MoCA score ($F = 7.10$, $P < 0.001$), and the NPI score ($F = 2.89$, $P = 0.037$) after adjusting for significant confounders in univariate analyses. The subjects' ADCS-ADL score ($F = 15.65$, $P < 0.001$) and the NPI score ($F = 8.55$, $P = 0.004$) were independent predictors of the caregiver's ZBI score.

Conclusion: Physical activity is associated with improvements in both cognitive function, and behavioural and psychological symptoms among Chinese dementia patients in Hong Kong. However, there is no relationship between patients' physical activity level and their family caregivers' burden.

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Visit-to-visit blood pressure variability is associated with periventricular white matter hyperintensity in healthy hypertensive elderly Chinese

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Background: Visit-to-visit blood pressure variability (BPV) has been reported to be associated with the severity and prognosis of symptomatic stroke, but its correlation with silent stroke is unclear. We aimed to evaluate the relationship between BPV and silent cerebral vascular lesions (SCVL).

Methods: A total of 239 healthy hypertensive Chinese aged more than 65 years were recruited. SCVLs including silent brain infarcts (BIs), microbleeds (MBs), and white matter hyperintensity (WMH) were determined by magnetic resonance images on a 3T scanner. The severity of WMH was rated using the Fazekas white matter scale. Previous 3-year blood pressure measurements were collected from the electronic medical record. BPV parameters—including standard deviation, coefficient of variation, successive variation, and variation independent of mean blood pressure—were calculated. Statistical analyses were performed to evaluate the significance of relationships.

Result: Of the patients, 26 (10.9%) and 12 (5.0%) had severe periventricular WMH and deep WMH (Fazekas score = 3), respectively. Both systolic and diastolic BPV parameters were correlated with the severity of periventricular WMH ($P < 0.05$) but not the severity of deep WMH, presence of BIs or MBs. The relationship between BPV parameters and periventricular WMH still existed after adjustment for age and other factors.

Conclusion: BPV was an independent predictor of severe periventricular WMH in healthy hypertensive elderly.