

## **Abstract**

### **Background**

Hypertension has been suggested to be a risk factor for dementia, but its exact role in contributing to dementia remains to be determined. Pulse pressure, a surrogate marker of arterial stiffness, is a recognized risk factor for cardiovascular diseases. However, little is known if widened pulse pressure is involved in the development of cognitive impairment, especially in the Chinese population.

### **Objectives**

1. To examine the association between pre-existing hypertension and incident significant cognitive impairment in community-dwelling Chinese older people in Hong Kong.
2. To examine the association between widened pulse pressure and incident significant cognitive impairment in community-dwelling Chinese older people in Hong Kong.

### **Methods**

Participants in this community-based retrospective cohort study were drawn from all the older people who attended the Nam Shan Elderly Health Centre in 2005. A total of

1,925 subjects who were 65 years and older, ethnic Chinese, and community-living, with no known history of cerebrovascular accidents or dementia, were recruited. Demographics, medical history, and physical parameters were recorded at baseline. Primary outcome was significant cognitive impairment developed in the following 6 years. Significant cognitive impairment was defined by the presence of clinical dementia, scoring below the cutoff point on the Cantonese version of the Mini-Mental State Examination, and/or a global Clinical Dementia Rating of 1 to 3.

## Results

There was no significant difference in the point prevalence of pre-existing hypertension between subjects with and without incident significant cognitive impairment (65.8% versus 64.2%;  $\chi^2$  test,  $P=0.68$ ). However, subjects with incident significant cognitive impairment had a higher baseline pulse pressure (70mmHg versus 66mmHg; Mann-Whitney U-test,  $P=0.03$ ) and a decreasing trend in pulse pressure with time. Multiple logistic regression showed that the effect of age on the risk of significant cognitive impairment was significant when age reached 75 and above (OR = 1.89,  $P<0.001$ ), whereas pulse pressure had a small but significant effect on the risk of significant cognitive impairment among the younger old subjects (OR = 1.02,  $P=0.03$ ).

**Conclusions**

This study did not find evidence for an association between pre-existing hypertension and incident significant cognitive impairment in the local Chinese older people. However, widened pulse pressure was found to be a potential risk factor for significant cognitive impairment among the younger old Chinese. Further studies are required to ascertain whether there is any association between hypertension and significant cognitive impairment in the local older population and how widened pulse pressure contributes to late-life cognitive impairment.

*Keywords:* hypertension, pulse pressure, cognitive impairment, older people