

Abstract

Background: Age-related diseases including dementia caused great burden to the society. Early intervention to reduce cognitive decline and preserve functioning were compelling public health issue in old age psychiatry. Cognitive training was one of the interventions which may have potential benefit. However previous cognitive training focusing on memory did not show consistent benefit, particularly on the functional aspect. Attention was a fundamental cognitive domain which was impaired early in the cognitive impairment or dementia subjects. The early involvement of attention in the disease pathway of cognitive disorders may lend itself a potential treatment focus in the prevention of further cognitive decline.

Objectives: We aimed to develop and test a novel cognitive training program, called Integrated Attention Training Program (IATP), which focused on attention. This preliminary study aimed at exploring the feasibility of protocol, potential benefits, adverse events, and acceptability of this new training program among community-dwelling older adults. The study investigated the effects of IATP on cognitive performance and daily functioning.

Method: This study was a single-blinded randomized controlled trial. The training component lasted for three months in both arms that was either IATP (intervention group) or health-related education program (active control group). Beside baseline and immediate post-intervention assessment, follow-up assessment was done 6 months after baseline assessment.

Results: 93 participants were recruited from four community elderly centers. 47 participants were randomized to IATP and 46 were randomized to health-related education group. Both

groups showed deterioration in Clinical Dementia Rating - sum of boxes (CDR-SOB) with time and there was no statistically significant difference between the 2 groups ($p=0.631$). Active control group showed earlier deterioration at 3 months after baseline assessment while IATP group showed deterioration at 6 months after baseline assessment. Concerning within group changes, IATP group showed more improvement in attention related tasks including accuracy in Attention Network Test ($p=0.001$), digit backward score ($p=0.002$) and Trail Making Test B ($p=0.001$), as well as delayed CDR-SOB deterioration and less deterioration in Mini-mental State Examination when compared with active control group.

Conclusions: IATP may have some specific benefits on attention. IATP was also a safe and acceptable training program to community-dwelling Chinese older healthy adults in Hong Kong. While the present study showed no superior benefits of IATP on cognition and functioning relative to active control group, future studies should aim to refine the content of the IATP, test the dose-response relationship of the potentially beneficial treatment component over a longer time trajectory, and examine the potential translational benefit from neurocognitive measures to daily functioning of the refined intervention.

Clinical Trial Registration Number: CRE 2012.217-T