



Title	Comprehensive Index of Frailty: a multi-dimensional construct from the Hong Kong Centenarian Study
Author(s)	Kwan, JSK; Lau, BHP; Cheung, KSL
Citation	The 20th Medical Research Conference (MRC 2015), Hong Kong, 17 January 2015. In Hong Kong Medical Journal, 2015, v. 21 suppl. 1, p. 28, abstract no. 37
Issued Date	2015
URL	http://hdl.handle.net/10722/208361
Rights	Hong Kong Medical Journal. Copyright © Hong Kong Academy of Medicine Press.

Comprehensive Index of Frailty: a multi-dimensional construct from the Hong Kong Centenarian Study

JSK Kwan¹, BHP Lau², KSL Cheung³

Departments of ¹Medicine and ²Psychology; ³Sau Po Centre on Ageing, The University of Hong Kong, Hong Kong

Introduction: Frailty is a global epidemiological and clinical phenomenon that can lead to poor long-term outcome. A better understanding of its components is essential for future developments of management strategies. We sought to assess the incremental validity of a new Comprehensive Index of Frailty over Frailty Index in predicting self-rated health and functional dependency among the oldest-old adults.

Methods: We conducted a cross-sectional community-based centenarian study. A quota sampling method was used to recruit a geographically representative sample of 124 community-dwelling Chinese near- and centenarians. Two validated instruments (Chinese Longitudinal Healthy Longevity Survey and Elderly Health Centre questionnaire) were administered through face-to-face interviews. Frailty was first assessed using a 32-item Frailty Index (FI-32). Then a new Comprehensive Index of Frailty (CIF) was constructed by adding 12 more items in the psychological, social/family, environmental, and economic domains to the FI-32. Hierarchical multiple regression was used to explore whether the new CIF provided significant additional predictive power for self-rated health and instrumental activities of daily living (IADL) dependency.

Results: The mean age was 97.7 (standard deviation, 2.3; range, 95-108) years, and 74.2% were female. Using the Frailty Index for reference, 16% of our participants were non-frail, 59% were pre-frail, and 25% were frail. Frailty according to FI-32 significantly predicted self-rated health and IADL dependency beyond the effect of age and gender. Inclusion of the new CIF into the regression models provided significant additional predictive power beyond FI-32 on self-rated health, but not IADL dependency.

Conclusions: Psychological, social/family, environmental, and economic factors are essential elements of a frailty assessment tool. Our result supports the concept that a comprehensive model of frailty should be a multi-dimensional and multi-disciplinary construct. Future studies should validate this construct in different settings and age-groups, using our new CIF.

Adipose-specific inactivation of c-Jun NH2-terminal kinase alleviates atherosclerosis in ApoE-deficient mice

KHM Kwok, FYL Li, YC Chan, RLC Hoo, D Ye, A Xu, KSL Lam

Department of Medicine, The University of Hong Kong, Hong Kong

Introduction: Inflammation in adipose tissues is observed in obesity, a major risk factor for atherosclerosis. This study aimed to investigate whether adipose-specific inactivation of c-Jun NH₂-terminal kinase (JNK) can protect against atherosclerosis.

Methods: Transgenic mice expressing an adipose-specific dominant negative form of JNK (dnJNK) were crossbred with ApoE^{-/-} mice to generate ApoE^{-/-}/dnJNK (ADJ) mice. ApoE^{-/-} and ADJ mice were fed a high-fat-high-cholesterol diet for 10 weeks and examined for atherosclerosis, adipose tissue inflammation, and metabolic phenotypes. For transplantation study, epididymal white adipose tissues (eWAT) from dnJNK or wild-type C57 donors were transplanted into ApoE^{-/-} recipients, which were subjected to atherosclerosis assessment.

Results: ADJ mice developed significantly less atherosclerotic plaques in the aorta and aortic root, as shown by Oil Red O staining. Macrophage infiltration and the expression of pro-inflammatory cytokines in adipose tissues were markedly reduced in eWAT in ADJ mice. ApoE^{-/-} mice receiving eWAT transplantation from ADJ donor mice, but not wild-type donor mice, were protected from atherosclerosis, as shown by Oil Red O staining.

Conclusion: JNK inactivation in adipose tissues can alleviate atherosclerosis, suggesting a therapeutic potential in atherosclerosis management.

Acknowledgement

This study was supported by the Hong Kong Research Grant Council (GRF769410).