

S8 - Relationship between Chronic Inflammation and Vitamin D Level to Prevalent and Incident Frailty in Older Adults

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Objective: To study the relationship between chronic inflammation as represented by C Reactive Protein (CRP) and vitamin D level in prevalent and incident frailty in older adults in Hong Kong

Method: Archived serum samples from a cohort of 4,000 men and women of age >65 years were analysed for high sensitivity CRP (hsCRP) and 25-OHD. Participant characteristics including demographics, diseases, use of vitamin D supplements, seasons of sample collection were used as covariates. Items in the Fried's phenotype for frailty were recorded at baseline and after 4 years. Logistic regressions and path analysis were used to examine the relationship between hsCRP, 25 ODH with baseline (prevalent) and 4 year (incident) frailty status.

Results: At baseline, significant association with pre/frailty and frailty was found at 25-OHD <40 nmol/L in women (OR 2.4; 95% CI 1.3, 4.6) and <45 nmol/L in men (OR 2.7; 95% CI 1.4, 5.0). After full adjustment, CRP was associated with a small but significant risk for frailty only in women, while vitamin D was protected in both genders. Men with 25-OHD <45 nmol/L were 2.53 time more likely to be frail (95% CI 1.29, 4.95). At 4 years, there was no significant trend found between 25-OHD, CRP and incident frailty. However, very high CRP (>10 mg/L) was associated with 4.8 fold increase in incident frailty (95% CI 1.85, 12.44) in men.

Conclusions: Vitamin D cut-offs associated with frailty were different from that in osteoporosis, and were different between the genders. Low vitamin D level was associated with frailty, irrespective of CRP levels. Both vitamin D and CRP levels cannot predict incident frailty after 4 years.

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