Predicting death from tumour necrosis factor-alpha and interleukin-6 in 80-year-old people

Ageing is associated with low-grade inflammation and markers such as IL-6 possess prognostic value. Tumour necrosis-alpha (TNF-alpha) initiates the inflammatory cascade and has been linked to several age-associated disorders. It remains, however, unknown if TNF-alpha is associated with mortality in old populations. The aim of the present study was to investigate if serum levels of TNF-alpha were associated with all-cause mortality independently of interleukin (IL)-6 in a prospective study of 333 relatively healthy 80-year-old people. A Cox regression model was used to explore effects of TNF-alpha and IL-6 on survival in the following 6 years. A total of 133 participants died during this follow-up period. TNF-alpha was associated with mortality in men, but not in women, whereas low-grade elevations in IL-6 were associated strongly with mortality in both sexes. TNF-alpha explained only 7% of the variability in IL-6 and effects of the two cytokines were independent of each other as well as of other traditional risk factors for death [smoking, blood pressure, physical exercise, total cholesterol, co-morbidity, body mass index (BMI) and intake of anti-inflammatory drugs]. These findings indicate that at least in old populations chronic elevated levels of TNF-alpha and IL-6 have different biological functions that trigger age-associated pathology and cause mortality.