

OSTEOSCOOP

News on current events in osteoporosis and rheumatology

Inflammation markers are predictive of fractures

N°12 - December 2007

The inflammation of aging hypothesis purports that aging is the accumulation of damage, which results, in part, from chronic activation of the inflammatory process. This process is believed to play an important role in deterioration of the cardiovascular system and skeleton. Cytokines play major roles in regulating bone remodeling in the bone microenvironment, but their relationship to fractures is uncertain.

A recent study [1] tested this hypothesis by investigating a population of 2985 well-functioning white and black women and men (42%, black; 51%, women) 70–79 years of age enrolled in the Health Aging and Body Composition Study. Inflammatory markers were measured, including interleukin 6 (IL-6), TNF α , C-reactive protein (CRP), and soluble receptors (IL-2 sR, IL-6 sR, TNF sR1 and TNF sR2). Soluble cytokine receptors were measured in a subset ($n = 1430$). Total hip bone mineral density was measured by dual-energy x-ray absorptiometry. During 5.8 ± 1.6 years of 95% complete follow-up, incident fractures were confirmed in 268 subjects. The risk of fracture was compared among subjects with the highest inflammatory markers (quartile 4) versus lower levels (quartiles 1, 2, and 3) using proportional hazard models.

Subjects who had fractures were more likely to be white and female. Baseline markers of inflammation were higher among subjects who subsequently experienced an incident fracture. In multivariate models, the relative risk of fracture (95% confidence interval) for subjects with the highest inflammatory markers (quartile 4) compared with those with lower inflammatory markers (quartiles 1, 2, and 3) was 1.34 for CRP; 1.28 for IL-6; 1.28 for TNF α ; 1.52 for IL-2 sR; 1.33 for IL-6 sR; 1.73 for TNF sR1, and 1.48 for TNF sR2. In subjects with three or more (out of seven) high inflammatory markers, the relative risk of fracture was 2.65 in comparison with subjects with no elevated markers (P trend = 0.001).

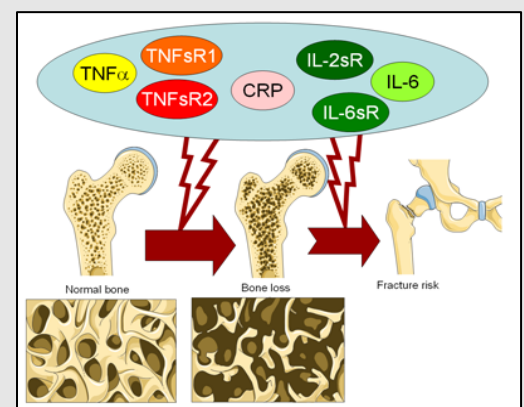
This study indicates that elevated inflammatory markers are predictive of fractures, a finding that extends the inflammation of aging hypothesis to osteoporotic fractures.

1. Cauley JA, et al. *J Bone Miner Res.* 2007;22:1088–1095.

Inflammation markers and fracture risk

Plasma levels of cytokines such as TNF or IL-6, C-reactive protein (CRP), and soluble cytokine receptors (sR) were significantly associated with fractures in patients aged 70-79.

Elevated inflammatory markers are predictive of fractures, a finding that extends the inflammation of aging hypothesis to osteoporotic fractures.



PROTELOS[®]
Treatment of postmenopausal osteoporosis to reduce the risk of hip and vertebral fractures

