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Proinflammatory cytokines, aging, and age-related diseases.

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Abstract

Inflammation is a physiological process that repairs tissues in response to endogenous or exogenous aggressions. Nevertheless, **a chronic state of inflammation may have detrimental consequences. Aging is associated with increased levels of circulating cytokines and proinflammatory markers. Aged-related changes in the immune system, known as immunosenescence, and increased secretion of cytokines by adipose tissue, represent the major causes of chronic inflammation. This phenomenon is known as "inflamm-aging."** High levels of interleukin (IL)-6, IL-1, tumor necrosis factor- α , and C-reactive protein are associated in the older subject with increased risk of morbidity and mortality. In particular, cohort studies have indicated TNF- α and IL-6 levels as markers of frailty. The low-grade inflammation characterizing the aging process notably concurs at the pathophysiological mechanisms underlying sarcopenia. In addition, proinflammatory cytokines (through a variety of mechanisms, such as platelet activation and endothelial activation) may play a major role in the risk of cardiovascular events. **Dysregulation of the inflammatory pathway may also affect the central nervous system and be involved in the pathophysiological mechanisms of neurodegenerative disorders (eg, Alzheimer disease).** The aim of the present review was to summarize different targets of the activity of proinflammatory cytokines implicated in the risk of pathological aging.