

Chronic inflammation and oxidative stress as a major cause of age-related diseases and cancer.

Khansari N¹, Shakiba Y, Mahmoudi M.

Author information

1 Department of Immunology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran. khansari@nematk.com

Abstract

Chronic inflammation is a pathological condition characterized by continued active inflammation response and tissue destruction. Many of the immune cells including macrophages, neutrophils and eosinophils are involved directly or by production of inflammatory cytokine production in pathology of chronic inflammation. From literatures, it is appear that there is a general concept that chronic inflammation can be a major cause of cancers and express aging processes. Moreover, many studies suggest that chronic inflammation could have serious role in wide variety of age-related diseases including diabetes, cardiovascular and autoimmune diseases. Inflammatory process induces oxidative stress and reduces cellular antioxidant capacity. Overproduced free radicals react with cell membrane fatty acids and proteins impairing their function permanently. In addition, free radicals can lead to mutation and DNA damage that can be a predisposing factor for cancer and age-related disorders. This article reviews the antioxidant defense systems, free radicals production and their role in cancer and age related diseases and also some of the recent patent relevant to the field. Study of the role of free radicals in human diseases can help the investigators to consider the antioxidants as proper agents in preventive medicine, especially for cancer and aging processes.