



Diseases Associated with Oxidative Stress

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DESCRIPTION

A role of oxidative stress has been postulated in many conditions, including atherosclerosis, inflammatory condition, certain cancers, and the process of aging. Oxidative stress is now thought to make a significant contribution to all inflammatory diseases (arthritis, vasculitis, glomerulonephritis, lupus erythematosus, adult respiratory diseases syndrome), ischemic diseases (heart diseases, stroke, intestinal ischemia), hemochromatosis, acquired immunodeficiency syndrome, emphysema, organ transplantation, gastric ulcers, hypertension and preeclampsia, neurological disorder (Alzheimer's disease, Parkinson's disease, muscular dystrophy), alcoholism, smoking-related diseases, and many others. An excess of oxidative stress can lead to the oxidation of lipids and proteins, which is associated with changes in their structure and functions. Many experiments clearly provide evidences that DNA and RNA are susceptible to oxidative damage. It has been reported that especially in aging and cancer, DNA is considered as a major target.

The term is used to describe the condition of oxidative damage resulting when the critical balance between free radical generation and antioxidant defense is unfavorable. Oxidative stress, arising as a result of an imbalance between free radical production and antioxidant defense, is associated with damage to a wide range of molecular species including lipids, proteins, and nucleic acids. Short-term oxidative stress may occur in tissues injured by trauma, infection, heat injury, hyperoxia, toxins, and excessive exercise. Synthetic and natural food antioxidants are used routinely in foods and medicine especially those containing oils and fats to protect the food against oxidation. There are a number of synthetic phenolic antioxidants, butylated hydroxyl toluene and butylated hydroxyanisole being prominent examples. These compounds have been widely uses as antioxidants in food industry, cosmetics, and therapeutic industry. However, some physical properties of butylated hydroxytoluene and butylated hydroxyanisole such as their high volatility and instability at elevated temperature, strict legislation on the use of synthetic

food additives, carcinogenic nature of some synthetic antioxidants, and consumer preferences have shifted the attention of manufacturers from synthetic to natural antioxidants. In view of increasing risk factors of human to various deadly diseases, there has been a global trend toward the use of natural substance present in medicinal plants and dietary plats as therapeutic antioxidants. It has been reported that there is an inverse proportional relationship between the dietary intake of antioxidant-rich foods and medicinal plants and the outbreak of human illness. Free radicals come in a variety of shapes, sizes and chemical configurations. Free radical damage can alter the instructions encoded in the DNA strand. Circulating Low-Density Lipoprotein (LDL, sometimes called bad cholesterol) molecules are more likely to be trapped in the arterial wall. Alternatively, you can change the membrane of the cell to change the flow of what goes in and out of the cell. Excessive chronic levels of free radicals in the body cause a condition called oxidative stress, which can damage cells and cause chronic illness.

The healthpromoting factors that are present in vegetables and fruits and other antioxidant-rich foods are not really antioxidants. But other substances or other dietary factors, may contains antioxidants. It can be determinned by lifestyle choices. The effects of large amounts of antioxidants used in dietary supplement may differ from the effects of small amounts of antioxidants consumed in foods.

Differences with inside the chemical composition of antioxidants in ingredients as opposed to the ones in dietary supplements might also additionally have an impact on their effects. For example, 8 chemical sorts of diet E are found in ingredients. Vitamin E dietary supplements, on the alternative hand, usually encompass simplest form such as alpha-tocopherol. Alpha-tocopherol additionally has been utilized in nearly all studies research on diet.

For a few sicknesses, unique antioxidants are probably greater powerful than those which have been tested.

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