



Mechanism, Diagnosis and Treatment Methods for Hypoxia in Older Adults

Robert Williams*

Department of Geriatrics, University of Leicester, Leicester, United Kingdom

DESCRIPTION

Hypoxia is caused by insufficient oxygen availability to living organisms, resulting in a reduced supply of oxygen to tissues and cells. It is considered a serious threat to human health and is in fact involved in the pathophysiological mechanisms involved in the onset and progression of many diseases. Nevertheless, the potential for controlled hypoxic interventions (hypoxic condition) is to improve cardiovascular health. However, blood rheology is often a forgotten factor in vascular health; aging and hypoxia are suspected of altering blood rheological characteristics. These changes in blood rheology can affect the benefit or risk balance of exposure to hypoxia in the elderly.

The health benefits of hypoxic-exposed blood vessels have been reported primarily in healthy populations, and therefore the combined effects of aging and hypoxia on blood rheology can be detrimental to the elderly. This review provides evidence of hypoxia-related and age-related changes in blood viscosity and its determinants. It is based on an extensive literature review of the effects of hypoxia and aging on blood rheology. Aging increases blood viscosity primarily through increased plasma viscosity, red blood cell aggregation, and decreased RBC deformability. Hypoxia also causes red blood cells aggregation and increased plasma viscosity.

In addition, exposure to hypoxia may increase haematocrit levels and regulate erythrocyte deformability, depending on the hypoxic dose. The beneficial effects of moderate doses are intermittent hypoxia and the harmful effects are chronic continuous or intermittent hypoxia, or if the hypoxic dose is too high. Particular attention is paid to the risks and benefits of blood rheological changes during exposure to hypoxia in the elderly and their clinical association with vascular disease. The transport of oxygen to tissues depends on the ability of blood cells to flow through the circulatory system. Blood flow in the circulatory system depends on many factors. Viscosity, which measures resistance to flow, is a major factor in determining the blood rheological properties of blood.

Red blood cells have an increased oxidative process when the oxygen pressure drops. They result from a dramatic increase in the autoxidation of partially oxygenated hemoglobin and the associated production of superoxide. The release of superoxide by hemoglobin is associated with the degradation of heme, damage to the red blood cells membrane, leads to leakage of reactive oxygen molecules into plasma, and the potentially beneficial release of NO from S-nitrosylated hemoglobin. It has also been shown that these oxidation reactions, when occurring in hemoglobin bound to the RBC membrane, can circumvent the antioxidant defenses of RBC. During aging, increased hypoxia leads to increased oxidative stress, decreased plasticity, and increased viscosity, consistent with large red blood cells. In addition, vitamin B12 deficiency may limit the degree of S-nitrosylation and reduce the release of NO associated with the autoxidation of hemoglobin. A synergistic link between hypoxia and RBC properties that are altered by oxidative stress further increases hypoxia and increases flux depletion during aging or pathological conditions that can lead to ischemic stress provides a mechanism to make it. The association between these blood rheologies and oxidative disorders was validated by blood flow velocity studies in the cerebral and carotid arteries. The best way to prevent hypoxia is to manage asthma daily.

Take medication and use a rescue inhaler. Eat properly and stay active. The most important thing is to get more oxygen into the body. Oxygen is sent through a small plug in to person's nose or through a mask that covers nose and mouth. For many, this is enough to raise oxygen levels to normal levels. Inhalers or oral asthma medications can make breathing easier. If these don't help, doctor may try to give the medicine through a vein in your arm (intravenous drip). A person may need short-term steroids to control lung inflammation or antibiotics to treat the underlying infection. If life is at stake and other treatments do not work, then there is need to use machine to help you breathe.

Correspondence to: Robert Williams, Department of Geriatrics, University of Leicester, Leicester, United Kingdom; E-mail: robert@madrid.uk

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