

Modulation of (Na,K)-ATPase activity by membrane fatty acid composition: Therapeutic implications in human hypertension

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Oxidative stress (OS) plays a key role in the pathophysiology of essential hypertension and is associated with changes in the cell membrane fatty acid composition and fluidity. As (Na,K)-ATPase is modulated by the surrounding lipid microenvironment, lipid peroxidation could alter the interactions of this enzyme with the membrane components. Thus, modifications in the membrane fatty acid profile will translate into effects on (Na,K)-ATPase activity. Accordingly, a decrease in this enzyme activity has been reported in hypertensive patients. The aim of this study was to evaluate the relationship between membrane fluidity and fatty acid composition and (Na,K)-ATPase activity in erythrocytes of essential hypertensive patients supplemented with antioxidant vitamins C and E. A double-blind, randomized, placebo-controlled study was conducted in 120 men with essential hypertension assigned to receive vitamin C (1 g/day) + E (400 IU/day) or placebo for 8 weeks. Measurements included OS related p