EFFECTS OF ATENOLOL, CAPTOPRIL, AND THEIR COMBINATION ON OXIDATIVE STRESS IN HYPERTENSIVE PATIENTS

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Abstract

Oxidative stress plays an important role in the pathogenesis of hypertension, and oxidative imbalance involved in the development of endothelial dysfunction and vascular complications like atherosclerosis. It is important now a day to evaluate the antioxidant effects of antihypertensive drugs in addition to blood pressure lowering effects, since this may provide a better treatment approach and participate in the prevention of complications of hypertension. We studied the antioxidant effects of atenolol, captopril, and their combination on 60 hypertensive patients aged from 45 – 60 years, treated for one year with different treatment lines and compared the results with healthy controls. Serum reduced glutathione (GSH) levels were estimated as a marker of oxidative status in the blood and lipid peroxidation at endothelial cell membrane was evaluated by measuring its byproduct, malondialdehyde (MDA) in the blood utilizing spectrophotometric techniques. Oxidative imbalance was present in all hypertensive patients in comparison with controls. Serum GSH levels significantly reduced and serum MDA levels significantly elevated in patients used atenolol and
captopril alone, while patients used atenolol/captopril combination significantly maintained blood GSH and MDA at levels closer to that of controls. Combination therapy was found to reduce GSH depletion and lipid peroxidation more than captopril, and captopril more than atenolol. In conclusion, combination therapy provides better protection against oxidative stress associated with hypertension, and hence better prevention of complications like atherosclerosis than both atenolol and captopril used alone.

**Key words:** Atenolol, Captopril, Oxidative Stress, Hypertension.
Introduction

Blood pressure control is the most important component in the management of patients with hypertension. In particular, β-blockers and angiotensin converting enzyme inhibitors (ACEIs) are widely used for the treatment of hypertension [1,2]. In addition to blood pressure control, prevention of complications represents a great challenge in the management of hypertension, since hypertension is considered as cardiovascular risk factor that increases the