IN VIVO EVALUATION OF ANTIOXIDANT ACTIVITY OF OLMESARTAN UTILIZING OXIDIZED ALBUMIN

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Angiotensin II type 1 receptor blockers (ARBs) inhibit the renin-angiotensin system, which have been shown to effective treatments for hypertension. Regardless of their ability to lower blood pressure, these compounds had also been reported to protect the organs, such as kidney and heart. Although, the mechanisms of these protective effects have not been fully studied, some protection may be due to their antioxidant effects. The aim of the present study was to characterize the relationship between antioxidant activity and renoprotective or blood pressure lowering effect of ARB olmesartan in 5/6 nephrectomy rat. In 5/6 nephrectomy rat, the degree of oxidized albumin ratio, as a marker of protein oxidation in blood, a blood pressure, serum creatinine concentration, and urinary protein excretion were significantly higher than sham operated rat. On the other hand, olmesartan suppressed significantly these parameters. Interestingly, oxidized albumin ratio was decreased after four weeks administered with olmesartan. Furthermore, we tested correlation between antioxidant property and renal protective or antihypertensive effect of olmesartan. As a result, oxidative stress was well correlated with renal function compared to blood pressure. In conclusion, oxidative stress contributes to the progression of renal failure, which the reducing oxidative stress by olmesartan may cause to renoprotective rather than antihypertensive effect.