Antioxidant Effects of Alpha Lipoic Acid in Experimental Model of Uremia

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Introduction: Uremia is the accumulation of uremic toxins in blood, resulting from renal function degeneration. Oxidative stress is results from imbalance in signaling and redox control, contributing to the development of many chronic diseases, such as vascular, respiratory, arthritis, cancer and chronic kidney disease (CKD). We have been studying the antioxidant effects of N-acetylcysteine (NAC) in uremic environment, and here we extended the study analyzing the effects of alpha-lipoic acid (α-LA) in CKD progression. We employed the experimental uremia model in rat to investigate the effect of a chronic treatment with α-LA. Wistar rats were nephrectomized (CKD group), or sham-operated (control-group), and were administered α-LA (6.25 mg/kg/day) from the 7th until the 60th day after surgery in both groups. The CKD, compared to the control group, presented a higher plasma Eₜ(Cys/Cys) (-80.31±10.45 x 104,33±10,93 mV, respectively), a higher plasma urea level (98,11±17,12 x 43,24±19,64 mg/dL, respectively) and higher degree of glomerulosclerosis, as expected. When treated with LA, the CKD group, compared to untreated CKD group, presented a significant lower level of urea (57,53±3,77 x 98,11±17,12 mg/dL, respectively) and redox potential (-107,27±8,78 x -80,31±10,45 mV) after 60 days. These results suggest that α-LA administration may ameliorate the degenerative effects of uremia.

Word Keys: chronic kidney disease, α-lipoic acid, oxidative stress.
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