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시스플라틴에 의한 신독성에서 리포산의 보호 효과

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Protective Effect of Alpha-lipoic Acid on Cisplatin-induced Nephrotoxicity by Regulation of Inflammation

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Background : Cisplatin, a chemotherapeutic agent, is used in the treatment of malignant tumors. However, cisplatin can have various side effects such as nephrotoxicity, neurotoxicity, emetogenesis and ototoxicity. Inflammation is an important mechanism for cisplatin nephrotoxicity. Alpha-lipoic acid (α-LA) has an anti-inflammatory effect that modulates both adhesion molecule expression in human endothelial cells and monocyte adhesion by inhibiting the nuclear factor-κB (NF-κB) signaling pathway. The purpose of this study was to investigate the anti-inflammatory effect of α-LA on cisplatin-induced renal injury and to examine the mechanism of protection.
Methods : C57BL/6 mice were treated with cisplatin (20 mg/kg) with or without treatment with α-LA (100 mg/kg for 3 d). Renal function, histological changes, adhesion molecule expression and inflammatory cell infiltration were examined. The effect of α-LA on NF-κB activity was evaluated for nuclear translocation and phosphorylation of NF-κB p65 subunits in kidney tissue.
Results : α-LA significantly improved renal function, which was measured by blood urea nitrogen, serum creatinine level, and renal tubular injury score, after cislatin administration. α-LA also decreased the expression of intercellular adhesion molecule-1 (ICAM-1) and monocyte chemoattactant protein-1 (MCP-1) as well as the infiltration of CD11b-positive macrophages. α-LA also decreased the cisplatin-induced increase of phosphorylation and nuclear translocation of NF-κB p65 subunits in kidney tissue.
Conclusion : These results suggested that α-LA treatment ameliorates cisplatin-induced acute kidney injury by regulation of inflammatory adhesion molecule expression and NF-κB activity.

Key Words : 급성신장손상, 시스플라틴, 염증반응
Acute Kidney Injury, Cisplatin, Inflammation