

시스플라틴 유발 아포프토시스 LLC-PK1 세포모델에서 α -Lipoic acid(LA)의 보호

고려대학교 의과대학 신장내과¹, 신장병 연구소²

김정엽¹ · 이영모¹ · 왕준광¹ · 배소연² · 권영주¹ · 표희정¹

α -Lipoic Acid (LA) Attenuates Cisplatin-induced Apoptosis by Inhibition of Mitochondrial Bax Translocation in vitro

Jeong-Yup Kim¹, Young-Mo Yee¹, Joon-Kwang Wang¹, So-Yon Bae², Young-Joo Kwon¹, Heui-Jung Pyo¹

Korea University Medical College, Division of Nephrology¹, Institute of Renal Disease²

Background : Renal tubule cell apoptosis plays a role in cisplatin-induced nephrotoxicity. α -Lipoic acid (LA), a thiol antioxidant, is known to be cytoprotective in cell death models through involvement in the death receptor apoptosis pathway. Mitochondrial Bax expression is also known to critical pathway to apoptosis. We hypothesized that LA would attenuate cisplatin-induced apoptosis through inhibition of expression of mitochondrial bax translocation, cytochrom c, and caspase-3.

Methods and Materials : LLC-PK1 cells were treated with cisplatin (50 μ M, 100 μ M) and each group cells were treated with LA (1 mM) or solvent. After 6hr and 12hr, we evaluated apoptosis by FACS and Tunnel assay. Cytosolic bax, mitochondrial bax, cytochrome c and caspase 3 were checked by Western blot in each group.

Results : Cisplatin-induced cell death is dose-dependently increased. In FACS analysis, cisplatin induced apoptosis was attenuated in LA treated group. In LA treated group, mitochondrial Bax, cytochrom c and caspase-3 levels were decreased, but cytosolic Bax levels were increased comparing to solvent group. This effect similarly appeared in 50 μ M, 100 μ M cisplatin group.

Conclusion : We demonstrated that LA attenuates cisplatin-induced apoptosis by inhibition of mitochondrial bax translocation in vitro.

Key Words : 아포프토시스, 백스단백질

Bax protein, α -lipoic acid (LA), Apoptosis