백서의 UUO모델에서 C-phycocyanin의 신보호 효과

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C-phycocyanin Ameliorates Renal Injury Induced by Unilateral Ureteral Obstruction in mice

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Introduction and Aims: Unilateral ureteral obstruction (UUO) is a good model of chronic kidney disease showing renal inflammation and fibrosis. Inhibition of inflammation and fibrosis are major factor of inhibition of progression in chronic kidney disease. It was reported that C-phycocyanin(PC) with potent antioxidant properties, has significant protection against inflammation and fibrosis in blood and liver in vivo. We evaluated whether C-phycocyanin ameliorates renal injury induced by UUO in mice.

Methods: We used HK-2 cell and male C57BL/6 mice. We divided mice into 4 groups; sham, PC treated sham, control UUO, and PC treated UUO groups. For inducing fibrosis in HK-2 cell, we used TGF-β. In mice, we evaluated renal mRNA of MCP-1 and TGF-β by realtime RT-PCR. We evaluated renal TGF-β and α-SMA by immunohistochemistry and western blot. In HK-2 cells, we evaluated mRNA of MCP-1 and α-SMA, the protein of α-SMA by western blot, and confocal microscopy.

Results: PC significantly decreased α-SMA and MCP-1 mRNA expressions, and α-SMA protein expression in TGF-β treated cells (all, $p<0.05$). And PC significantly decreased the renal MCP-1 and TGF-β mRNA expressions, and TGF-β and α-SMA protein expression in UUO kidneys ($p<0.05$). PC also significantly decreased the magnitude of inflammation and fibrosis in renal histology.

Conclusion: The results of the present study suggest that C-phycocyanin has an anti-inflammatory and anti-fibrotic effects on experimental UUO model in mice and TGF-β treated HK-2 cells.

Key Words: 급성신손상-C-phycocyanin-섬유화
Aacute renal failure-C-phycocyanin -fibrosis