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쥐에서 Cyclosporin 유발 신독성에 대한 EGCG (Epigallocatechingallate)의 신보호효과

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Renoprotective Effect of EGCG, Epigallocatechingallate, in Cyclosporine Treated Rats

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Purpose : Cyclosporine A (CsA) is a potent and effective immunosuppressive agent, but use is frequently accompanied by severe nephrotoxicity. Renin angiotensin aldosterone system (RAAS) activation plays an important role in CsA nephropathy. For the aims we tested whether the administration of epigallocatechi gallate (EGCG) prevents the development of CsA induced nephrotoxicity and found its mechanisms.

Method : The rats were treated for 21 days and divided into 4 groups (n=6/group): control group (0.9% saline injection), CsA group (30 mg/Kg/day by intraperitoneal injection), CsA-EGCG group (CsA plus EGCG 30 mg/Kg/day subcutaneous injection), EGCG group (EGCG alone).

Results : There were significant increased serum blood urea nitrogen, creatinine, and decreased creatinine clearance in CsA group compared with control group and significantly improved in CsA-EGCG group compared with CsA group ($p<0.01$). Biochemical analysis showed that plasma renin activity and serum concentration of aldosterone were significantly increased in CsA group compared with control group and significantly decreased in CsA-EGCG group compared with CsA group ($p<0.05$). There were no significantly difference in concentration of CsA and angiotensin converting enzyme. In the histologic examination, there were proximal tubular necroses and mild interstitial inflammation in the kidneys of rats in CsA group but no significant pathologic changes in CsA-EGCG group.

Conclusion : Chronic CsA treatment stimulates the expression of renin and induces the nephrotoxicity. The protective effects of EGCG on CsA induced structural and functional alternations of the kidney may be blockage of RAAS.

Key Words : EGCG, 사이클로스포린 A, 신독성, 레닌-안지오텐신
Epigallocatechingallate, EGCG, Cyclosporine A, Nephrotoxici