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Cyclosporine 투여 rat에서 녹차 추출물의 신보효 효과

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Renoprotective Effects of Green Tea Extract on Renin Angiotensin Aldosterone System in Chronic 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 green tea extract (GTE) prevents the development of CsA-induced nephrotoxicity and found its mechanisms.

Methods : 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-GTE group (CsA plus GTE 100 mg/Kg/day subcutaneous injection), GTE group (GTE alone).

Results : There were significant increased serum blood urea nitrogen and creatinine in CsA group compared with that of control group and significantly improved in CsA-GTE group compared with that of CsA group ($p<0.01$). Biochemical analysis showed that the plasma renin activity and serum concentration of aldosterone were significantly increased in CsA group compared with control group and significantly decreased in CsA-GTE group compared with CsA group ($p<0.05$). Total amount of renin protein expression was significantly higher in the CsA group than in the control group and was lower in the CsA-GTE group than that of CsA group ($p<0.05$). 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-GTE group.

Conclusion : CsA-treatment increases the plasma renin activity and intrarenal renin levels and induces the nephrotoxicity. The protective effects of GTE on CsA-induced structural and functional alternations of the kidney may be blockage of RAAS.

Key Words : 신이식, 사이클로스포린, 녹차추출물
Kidney transplantation, Cyclosporin, Green tea extract