

Adriamycin 유도 신병증에서 DPPIV 차단이 신기능에 미치는 효과

고려대학교 안산병원 내과¹, 안양 샘병원², 원광대학교 산본병원 내과³, 인하대학교 병리과⁴

민혜숙¹, 김성진², 김기태¹, 차진주¹, 김정은¹, 기정연¹, 이지은³, 김현욱³, 한지영⁴, 강영선¹, 차대룡¹

Effects of DPPIV Inhibitor on Renal Function in Mice Model of Adriamycin Induced Nephropathy

Hye Sook Min¹, Sung Jin Kim², Ki Tae Kim¹, Jin Joo Cha¹, Jung Eun Kim¹, Jung Yeon Ghee¹
Ji Eun Lee³, Hyun Wook Kim³, Jee Young Han⁴, Young Sun Kang¹, Dae Ryong Cha¹

Department of Internal Medicine¹ Korea University Ansan Hospital
Sam Hospital in Anyang²

Department of Internal Medicine³ Wonkwang University Sanbon Hospital
Department of Pathology⁴ Inha University

Background: The murine model of adriamycin(ADR) induced nephropathy is characterized by severe proteinuria, development of podocyte injury and glomerulosclerosis. The aim of the present study is to investigate the mechanism and preventive effect of fibrosis in glomerular, tubular and interstitial tissue associated with DA1229 treatment in ADR-induced nephropathy.

Methods: The 6-week-old balb/c mice were divided in four groups as follows: Group 1) untreated with DA1229 after injection of ADR(control of Group 2), Group 2) immediately treated with DA1229 for 3 weeks after injection of ADR (prevention protocol), Group 3) untreated with DA1229 after injection of ADR(control of Group 4), Group 4) treated with DA1229 for 2 weeks after 3 weeks of injection of ADR(therapeutic protocol).

Results: Treatment with DA1229 showed the preventive effect on weight gain and renal hypertrophy after 5 weeks of injection of ADR. Plasma DPPIV activity was significantly decreased in treatment with DA1229. DPPIV activity in kidney was significantly increased after injection of ADR and decreased in treatment with DA1229. Proteinuria and albuminuria was significantly increased in injection of ADR. Interestingly, proteinuria was significantly decreased in both prevention and therapeutic treatment groups. Inflammatory and fibrotic molecules in kidney tissue were significantly inhibited in treated with DA1229. Urinary excretion of nephrin was significantly decreased in treated with DA1229. Infiltration of macrophages and glomerular and tubular fibrosis were increased after injection of ADR and significantly decreased in treated with DA1229.

Conclusion: Our data suggest that renoprotective effects of DA1229 in ADR-induced nephropathy may be associated with protective effect of podocyte injury and anti-inflammatory effect. DA1229 may be used as potential therapeutic agents in a variety of glomerular diseases inducing proteinuria.

Key Words: DPPIV, Adriamycin 유도 신병증, 족세포
DPPIV, Adriamycin induced nephropathy, Podocyte