

Paricalcitol은 복막투석을 시행받는 5/6 nephrectomy rat에서 cardiovascular fibrosis와 inflammation을 예방한다

부산대학교 의학전문대학원 내과학교실 신장내과

이동원, 이하린, 김민정, 김주희, 김일영, 성은영, 송상헌, 이수봉, 곽임수

Paricalcitol, Vitamin D Receptor Activator Prevents Cardiovascular Fibrosis and Inflammation of 5/6 Nephrectomy Rat on Peritoneal Dialysis

Dong Won Lee, Harin Rhee, Min Jung Kim, Joo Hui Kim, Il Young Kim, Eun Young Seong
Sang Heon Song, Soo Bong Lee, Ihm Soo Kwak

Pusan National University School of Medicine, Department of Internal Medicine, Division of Nephrology

Objectives: Vitamin D receptor expressions in kidney, myocardium and also peritoneum suggest the potential role of vitamin D receptor activators (VDRA). We investigated whether the selective VDRA, paricalcitol (19-nor-1.25-dihydroxyvitamin D₂) suppresses rennin-angiotensin-aldosterone system (RAAS), and thus reduces cardiovascular inflammation and fibrosis as well as peritoneal pathology of 5/6 nephrectomy rat model on peritoneal dialysis (PD).

Methods: Male Wistar rats were divided into 4 groups; Sham operated normal control (group A), 5/6 nephrectomized ESRD control (group B), 5/6 nephrectomy with PD (group C), same as group C and paricalcitol (200 ng IP, three times/week) (group D). PD was performed for 4 weeks via silicone peritoneal catheter implanted into rat peritoneal cavity and tunneled subcutaneously.

Results: After 4 weeks of PD, BUN and serum creatinine in group C and D were decreased ($p < 0.05$ vs. group B). D/P urea in group C and D were significantly increased ($p < 0.05$). Paricalcitol treatment (group D) increased E-cadherin, and decreased α SMA and TGF- β significantly ($p < 0.05$, vs. group C). Peritoneal fibrosis scores and neovascularization in group D were decreased ($p = NS$ vs. group C). Peritoneal inflammation scores, thickness (μ m) and α SMA staining in group D were decreased ($p < 0.05$ vs. group C). Moreover, myocardial fibrosis scores and aortic inflammation scores were decreased in group D ($p < 0.05$ vs. group C).

Conclusions: A selective VDRA, paricalcitol attenuates cardiovascular as well as peritoneal inflammation and fibrosis of 5/6 nephrectomy rat model on PD.

Key Words: 복막투석, 비타민 D, 심혈관 섬유화

Paricalcitol, Peritoneal dialysis, Cardiovascular fibrosis