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소아 투석환자에서 잔여신기능 소실의 위험인자

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Risk Factors of Losing Residual Renal Function (RRF) in Children on Peritoneal Dialysis (PD)

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Objectives : Maintaining RRF is known to reduce cardiovascular complications and mortality in patients on dialysis. However, only a few studies on RRF have been performed in children on PD. Thus we investigated the risk factors of deterioration of RRF in children on PD.

Methods : Total 55 children (M:F=36:19, median age 13 years) on PD were retrospectively studied. The renal Kt/V, renal creatinine clearance (Ccr) and urine volume per body surface area (UV/BSA) were measured every 3-6 months for 4.5±3.5 years. A total of 137 measurements of RRF in 55 patients were analyzed along with clinical and biochemical parameters to determine the risk factors of faster deterioration of RRF, measured by the three indicators of renal Kt/V, Ccr and UV/BSA.

Results : Yearly change of RRF was as follows: renal Kt/V −0.2±0.8, renal Ccr −6.2±33.1 mL/min/1.73m^2 and UV/BSA −179±787 mL/1.73m^2 per year. Presence of hypertension by the definition of NHBPEP correlated with more rapid decline in renal Kt/V (p=0.001), renal Ccr (p=0.010) and UV/BSA (p=0.000); high systolic blood pressure was correlated with all the three markers of RRF, while high diastolic blood pressure showed correlation only with UV/BSA. Low hemoglobin level was associated with loss of renal Kt/V (p=0.024) and Ccr (p=0.002), but not with UV/BSA. However gender, age, underlying disease, baseline RRF, BMI standard deviation score, PD modalities and duration, peritoneal permeability, echocardiographic findings such as LV mass index, fractional shortening and indices of LV function were not associated with the rate of decline of RRF.

Conclusion : Hypertension and anemia are associated with more rapid loss of RRF in children on PD. Prospective studies are necessary to prove the causal relationship between these factors and RRF loss.

Key Words : 잔여신기능, 소아, 혈압, 헤모글로빈
Residual renal function, Children, Hypertension, Hemoglobin