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만성 복막투석 환자에서 FGF21의 역할

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The Role of Circulating Fibroblast Growth Factor-21 in the Chronic Peritoneal Dialysis Patients

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Objective: In experimental studies, fibroblast growth factor-21 (FGF-21) has shown to exert positive metabolic effects, inducing overweight reduction, lowering elevated glucose and triglyceride levels and increasing insulin sensitivity. A number of human studies also have reported elevated levels of FGF21 in patients with obesity, increased insulin resistance and fatty liver. However, the physiologic role in the humans is still controversial. We therefore investigated whether circulating FGF21 may act as a metabolic regulator in the setting of chronic renal failure.

Methods: Baseline plasma FGF21 levels were measured using an enzyme-liked immunosorbent assay (R&D system) in total 68 patients on peritoneal dialysis. Baseline metabolic parameters were assessed and prospective association of FGF21 with clinical morbidity was analyzed in a 2 year prospective study.

Results: All 68 patients (mean age=49.1±10.6, PD vintage 44.5±29.9 months) had residual GFR less than 2 ml/min/1.73m^2. Baseline FGF 21 showed wide variation ranging from 256.00 to 35896.00 pg/ml (mean 4400.18±6100.35). Serum FGF21 level did not significantly differ in the presence of diabetes, hypertension. There were no associations between BMI, HOMA IR, HOMA beta levels, inflammatory markers(CRP, MCP-1, IL-6, TNF-α) and FGF21. Lipid profile and the fat component of the body (ATI) were also not correlated with FGF21. The use of CAPD decreased FGF21 level compared to APD (p=0.01) and those with increased vascular calcifications (measured by calcification score) showed increased level of FGF21 (p=0.035). During median follow up of 30months, 9 (13.6%) patients had cardiovascular events and 35(53%) patients experienced infection which needed hospitalization. Serum FGF21 level did not increase the risk of cardiovascular complications nor infection.

Discussion: These findings suggest that FGF21 might not have any metabolic role in the setting of chronic dialysis patients.

Key Words: FGF21, 복막투석, 합병증
FGF21, Peritoneal dialysis, Complications