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비당뇨 말기신부전 복막투석 환자에서 FGF-21과 인슐린 저항성과의 관계

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Serum FGF-21 Concentration is Associated with Residual Renal Function and Insulin Resistance in Nondiabetic End-Stage Renal Disease Patients Receiving Chronic Peritoneal Dialysis

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Objective : The purpose of this study was to identify relationships between metabolic parameters and serum fibroblast growth factor-21 (FGF-21) levels in nondiabetic people with end-stage renal disease. We also investigated whether chronic treatment with angiotensin receptor blocker (ARB) alters serum FGF-21 level and variables associated with insulin resistance.

Research Design and Methods : We measured serum concentrations of FGF-21, beta-Klotho, inflammatory markers, and metabolic parameters in healthy people (n = 63) and nondiabetic patients receiving peritoneal dialysis (PD, n=72). The patients were treated with ARB for 6 months, and the changes in FGF-21 concentration and metabolic parameters were assessed.

Results : Serum FGF-21 concentration was 7 times higher in patients with PD than in healthy controls (754.2±463.5 vs. 86.9±60.2 pg/mL, $p<0.001$). In controls, only lipid parameters correlated positively with FGF-21 concentration. In PD patients, residual renal function (RRF, $r=0.456$; $p<0.001$) and Kt/V urea correlated negatively with FGF-21 concentration. Inflammatory markers (interleukin-6, fibrinogen, high sensitivity C-reactive protein), insulin, and homeostasis model assessment of insulin resistance (HOMA-IR) correlated positively with serum FGF-21 concentration. RRF, HOMA-IR, and fibrinogen concentration were independent predictors of serum FGF-21 concentration. After 6 months ARB treatment, serum FGF-21 concentration declined significantly by 13% and HOMA-IR and inflammatory markers improved in PD patients.

Conclusion : Serum FGF-21 concentration was elevated markedly in patients receiving PD. Serum FGF-21 concentration was dependent on RRF and was significantly associated with inflammatory markers and HOMA-IR. Chronic treatment with ARB significantly lowered serum FGF-21 concentration.

Key Words : FGF-21, 인슐린저항성, 잔여신기능
FGF-21, insulin resistacne, residual renal function