S-C12

복막 투석 환자에서 인슐린 저항성과 심혈관 합병증 발생과의 연관성에 대한 연구

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윤창연, 기연경, 이은영, 주영수, 한인미, 한승규, 이미정, 오형중, 박정탁, 한승혁, 강신욱, 유태현

Insulin Resistance is associated with New Onset Cardiovascular Events in Non-diabetic, Prevalent Peritoneal Dialysis Patients

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Background: Chronic exposure of high glucose and consequent abdominal obesity might be potential sources of insulin resistance in prevalent peritoneal dialysis (PD) patients. Even though a small sample-sized study reported that insulin resistance was associated with cardiovascular morbidity and mortality, further clarification about the clinical significance of insulin resistance is needed in this population. The aim of this study was to elucidate the prognostic value of insulin resistance on new-onset cardiovascular events in non-diabetic and prevalent PD patients.

Methods: Non-diabetic end-stage renal disease (ESRD) patients maintained PD more than 3 months were recruited and prospectively followed up. Insulin resistance was assessed by homeostatic model assessment of insulin resistance (HOMA-IR) using fasting insulin and glucose levels. The primary outcomes were new cardiovascular events or death during follow-up period.

Results: Among 201 subjects, 99 patients (49.3%) were male and mean age was 53.1 years. Mean HOMA-IR was 2.58. HOMA-IR was positively associated with body mass index, serum calcium and triglyceride, and was negatively associated with high density lipoprotein-cholesterol. In addition, previous cardiovascular (CV) diseases were significantly related with high HOMA-IR. In multivariate linear regression for the association of HOMA-IR with clinical and biochemical variables, body mass index, systolic blood pressure, triglyceride and previous CV disease were remained for independent association with HOMA-IR. During a mean follow up of 40.2 months, thirty-six (17.9%) patients were developed new cardiovascular events. When patients were divided into three groups according to HOMA-IR, the highest tertile of HOMA-IR showed significantly higher cardiovascular outcomes compared to lower two-third group (p=0.014). Cox regression analysis revealed that HOMA-IR was an independent predictor after adjusting for demographic, biochemical and PD related parameters (OR=1.17, 95% confidence interval: 1.04-1.33, p=0.011).

Conclusions: Insulin resistance measured by HOMA-IR is an independent risk factor for cardiovascular morbidity and mortality in non-diabetic and prevalent ESRD patients undergoing PD.

Key Words: 심혈관계 합병증, 인슐린 저항성, 복막 투석
Cardiovascular event, Insulin resistance, Peritoneal dialysis