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당뇨가 있는 투석 환자에서 당 조절과 사망률에 대한 연구; 나이와 투석 종류의 영향

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Glycemic Control and Mortality in Diabetic Patients on Dialysis: Effect of Age and Dialysis Type

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Though the improved glycemic control prevents diabetic nephropathy progression and lowers mortality and cardiovascular event in the early stage of CKD, it remains unclear whether glycemic control is beneficial in the advanced CKD or ESRD. In this study, we evaluate the effect of HbA1c on mortality in the diabetic patients on dialysis according to the age and dialysis types. Among 3,302 patients enrolled in Clinical Research Center for End Stage Renal Disease in Korea between 2008 and 2013, we included patients with underlying diabetes mellitus or initial HbA1c >6.5%. Age and HbA1c were categorized as <54 (young), 55-64 (middle) and ≥65 (old) years old and <6.5%, 6.5-7.9% (reference group), and ≥8%, respectively. The association between HbA1c and mortality was analyzed using Kaplan-Meier method and Cox proportional hazards models. Among a total of 1,241 patients, 870 (70.1%) patients received hemodialysis (HD), and 366 (29.5%) did peritoneal dialysis (PD). Diabetic ESRD was 1055 patients (85%) and others are non-diabetic cause of ESRD. During the mean follow-up of 19.1 months, 141 patients (11.4%) died. When patients on HD were analyzed using Kaplan-Meier method, HbA1c ≥8% group showed worse survival only in young patients (log rank, p=0.017), but it did not in middle and older patients. In case of PD, poor glycemic control elevated mortality in both young (p=0.011) and middle aged patients (p=0.012), but it could not change mortality in older patients. Interestingly, in patients aged over 70 years old, strict glycemic control (HbA1c<6.5) showed rather worse survival than modestly controlled group (HbA1c 6.5-7.9%) (p=0.038). When we adjusted for sex, hemoglobin, modified Charlson comorbidity index and dialysis vintage, HbA1c ≥8% significantly increased mortality in young HD patients (hazard ratio [HR] 5.2; 95% confidence interval [CI] 1.2-22.6; p=0.028), young PD patients (HR 12.9; 95% CI 1.4-117.4; p=0.023), and middle aged PD patients (HR 3.8, 95% CI 1.3-10.5; p=0.011). However, in middle-aged HD patients and old dialysis patients, poor glycemic control did not affect mortality. In this study, we elucidated that target of glucose control should be individualized according to age and dialysis type in diabetic patients on dialysis. Improving glycemic control is beneficial only in young dialysis patients and middle aged PD patients. However, mortality of middle aged HD and older dialysis patients were not affected from glucose control.

Key Words: 당뇨, 투석, 당화혈색소

Diabetes mellitus, Dialysis, Hemoglobin A, Glycosylated