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Determinants of life space mobility relating nutritional status in diabetic elderly hemodialysis patients

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【Purpose】 The purpose of this cross-sectional survey was to explore the relationships between life space mobility and the related factors, such as nutritional status, muscle mass and atherosclerosis in elderly maintenance hemodialysis patients with Diabetes Mellitus (DM).

【Methods】 Life space mobility for a total of 121 community dwelling outpatient aged 65 years and older, who were undergoing maintenance hemodialysis three times per week was surveyed using Life space assessment (LSA) whose scores are associated with a person's physical capacity and other factors that may limit his/her mobility. Patients were divided into DM (n = 48) and non-DM (n = 73) group. Parameters relating muscle mass, atherosclerosis, nutritional status, cardiac function, anemia, inflammation and obesity were compared between DM and non-DM group, and the association between LSA and them was investigated by multiple regression analysis.

【Results】 Mean age of the patients was 73.0 ± 5.8 years, with 46.3% women (n = 56). LSA score for DM and non DM group were 65.6 ± 22.4 and 72.1 ± 21.8 respectively. Serum Creatinine (Cr), Toe brachial index (TBI) and normalized protein catabolic rate (nPCR) in DM group were significantly lower than those in non-DM group. Pulse wave velocity (PWV) in DM group was significantly higher than that of non-DM group. In multiple regression analysis, LSA score in DM group was independently associated with Cr ($\beta = 0.546$, $p < 0.001$) and Geriatric Nutritional Risk Index (GNRI) ($\beta = 0.334$, $p = 0.005$), while LSA score in non-DM group was associated with Cr ($\beta = 0.368$, $p = 0.001$) and nPCR ($\beta = 0.298$, $p = 0.006$).

【Discussion】 Lower Cr, TBI and higher PWV in hemodialysis patients with DM compared to those in non-DM patients suggest less muscle mass and more severe atherosclerosis. This study demonstrated that Cr and GNRI was significantly associated with LSA score in DM group. Interventions to improve life space mobility may be helpful to prevent muscle wasting in maintenance hemodialysis patients with DM.