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ORIGINAL RESEARCH COMMUNICATION

Nutritional status in patients with diabetes and chronic kidney disease: a prospective study[1,2,3]

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Background: A poor nutritional status reduces the life expectancy of diabetes patients undergoing hemodialysis.

Objective: The study objective was to specify the nutritional outcome in patients with chronic kidney disease (CKD) and well-controlled diabetes.

Design: Forty-five diabetes patients with CKD were enrolled in a cooperative-care program designed to control glucose, blood pressure, LDL cholesterol, and the albumin excretion rate (AER). Their glomerular filtration rate (GFR), body composition, serum albumin (SA), and resting energy expenditure were assessed and compared at baseline and 2 y later.

Results: Thirty-five patients did not start dialysis. Their glycated hemoglobin, blood pressure, LDL cholesterol, and AER improved; their GFR declined slowly (-3.3 mL · min^{-1} · 1.73 m^{-2} · y^{-1}). Their body mass index (BMI), lean body mass, and SA increased. The GFR decline was correlated negatively with the initial BMI ($r = -0.37$, $P < 0.05$) and positively with the initial GFR ($r = 0.34$, $P < 0.05$). Ten patients started hemodialysis: except for higher total body water ($P < 0.05$) and extracellular volume ($P < 0.01$), their initial nutritional status did not differ significantly from that of 10 patients with comparable baseline severe CKD but without dialysis. At the second evaluation, patients on hemodialysis lost lean body mass, and their SA was lower than that of the patients with severe CKD ($P = 0.05$); lean body mass was unchanged and SA was higher ($P = 0.01$) in the patients with severe CKD. No significant difference was detected for resting energy expenditure.

Conclusions: Nutritional status improved in CKD patients with well-controlled diabetes without dialysis, and it deteriorated in patients who started dialysis. A high initial BMI was associated with a slower decline in GFR.

Key Words: Nutritional status • diabetes mellitus • chronic kidney disease • prospective study • body composition • resting energy expenditure

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