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Comparison of Actual Dietary Intakes in Hemodialysis Patients:A Prospective Observational Study

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Objectives: Although appropriate dietary adjustments in hemodialysis (HD) patients are important, most HD patients have difficulty adhering to dietary therapy due to the stress of a restricted-food diet or loss of appetite, which eventually leads to malnutrition and other complications. The actual dietary intakes among HD patients stratified by nutritional status have not yet been studied.

Methods: In total, 111 HD patients from five dialysis centers were stratified into 2 groups based on subjective global assessment (SGA): the well-nourished group vs. the poorly-nourished group. The 7-day dietary intakes and food behaviors of the two groups were compared. Logistic regression analysis was performed to reveal the factors associated with the poorly-nourished status.

Results: The enrolled HD patients consumed an average of 23.44 kcal/kg/day and 0.92 g/kg/day of protein. However, they also consumed an average of 3285 mg/day of sodium, 1856.91 mg/day of potassium, and 760.61 mg/day of phosphorus. The poorly-nourished group ate out and ate fried food significantly more frequently than the well-nourished group. More frequent eating out, more frequent fried food consumption, and lower serum albumin level were significantly associated with the poorly-nourished status.

Conclusions: These findings demonstrate the differences in actual dietary intake patterns and food behaviors of well- and poorly-nourished HD patients. However, further research should be performed on HD patients to design customized nutritional education, consultations, and dietary management.

table1.7-day dietary research between the two groups stratified by the nutritional status

Table. 7-day dietary research between the two groups stratified by the nutritional status

	Nutritional status			P-value
	Total N=111(100%)	Well-nourished group N=81(72.9%)	Poorly-nourished group N=30(27.0%)	
Energy, Kcal/kg/day	23.44±7.12	23.43±7.19	23.47±7.03	0.979
Major nutrient components				
Carbohydrates, g/day	214.54±62.54	217.09±63.24	207.65±61.13	0.483
Lipids, g/day	36.43±14.07	36.75±14.42	35.54±13.24	0.688
Proteins, g/kg/day	0.92±0.36	0.92±0.37	0.90±0.35	0.797
Fluid and Mineral components				
Total fiber, g/day	14.55±5.90	14.89±6.28	13.65±4.70	0.326
Water, mL/day	589.06±217.75	602.08±219.28	553.89±213.19	0.303
Calcium, mg/day	349.33±140.35	355.41±139.50	332.91±143.70	0.456
Phosphate, mg/day	760.61±250.64	777.48±255.56	715.07±234.88	0.246
Sodium, mg/day	3285.86±1275.45	3371.71±1296.86	3054.06±1206.12	0.246
Potassium, mg/day	1856.91±632.30	1889.42±651.39	1769.16±578.86	0.376
Magnesium, mg/day	54.69±23.75	55.00±23.07	53.86±25.88	0.824
Iron, mg/day	11.48±4.16	11.75±4.41	10.74±3.33	0.258

Data are expressed as mean (with standard deviation)

table2. Comparison of the food behavior according to the nutritional status evaluated by SGA

Table. Comparison of the food behavior according to the nutritional status evaluated by SGA

Dietary habits or behaviors*	Nutritional status		P-value
	Well-nourished group N=81(72.9%)	Poorly-nourished group N=30(27.0%)	
How many times in a week?			
No. of eating three meals/day	1.35±0.80	1.23±0.75	0.463
No. of eating various nutrients	1.21±0.66	0.96±0.62	0.078
No. of eating fruits/day	1.02±0.79	1.06±0.70	0.800
No. of drinking milk/day	0.37±0.56	0.41±0.64	0.751
No. of behavior to reduce potassium	1.04±0.83	1.15±0.81	0.571
No. of salted or processed foods	1.80±0.45	1.61±0.58	0.111
No. of eating more than two protein-rich meals/day	1.19±0.74	0.93±0.75	0.110
No. of eating sweet food	0.85±0.69	0.80±0.63	0.721
No. of fried food	0.51±0.71	0.85±0.70	0.029
No. of remembering how much of water per day	1.34±0.73	1.33±0.64	0.968
No. of eating out	0.66±0.75	1.05±0.83	0.023

*Several questions in Supplementary table 2 were surveyed two times at the initiation of the study and the end of the study. Moreover, we presented the average of the two points in the Table 3.