

Advanced CKD In Nursing Home Residents With Sufficient Dietary Energy Intake Do Not Have Better GNRI Score

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Introduction

The prevalence of chronic kidney disease (CKD) in Taiwan is worldwide top, especially the elderly population. Besides, the percentage of elderly people in Taiwan is over 7% since 2000 and still increases in decade. A number of elderly people live in nursing home. Malnutrition is existed in the nursing home residents.

Geriatric Nutritional Risk Index (GNRI) is a simple malnutrition screening tool for elderly people and CKD patients. Inadequate dietary energy intake is a major cause of malnutrition. However, as we know, a little paper focus on the association between GNRI and energy intake.

Objective

To evaluate the hypothesis of nursing home residents with CKD have adequate dietary energy intake also have higher GNRI scores.

Methods

Twenty-four of advanced CKD patients were recruited from nursing home in north Taiwan. They did not get any dialysis treatment.

The information of age, and data of dietary intake, glomerular filtration rate (eGFR), anthropometric, and blood sample were collected. Dietary intake were evaluated by 24 hours dietary record. Energy and protein intake were calculated by the Database for Taiwan Area Food Nutritive Composition Factors.

The GNRI score was calculated by the following equation:

$$\text{GNRI} = 1.489 \times \text{serum albumin g/L} + 41.7 \times \text{actual body weight/ideal body weight}$$

All subjects were separated into higher or lower calories intake. Subjects in higher calories group (n=6) had equal or more calories intake than K/DOQI guideline suggestion, and others in lower calories group (n=18).

Results were presented as mean ± SD. Kruskal-Wallis test were use to comparison the scores of GNRI between 2 groups by SAS version 9.1. *P* <0.05 was considered statistically significant.

Results and Discussion

Subjects with sufficient energy intake did not have significantly higher scores of GNRI, but they only had significantly lower body weight (table 1). Besides, the total calorie intake was not significantly different between 2 groups.

However, the underweight subjects overestimate their dietary intake. Therefore, in this study, the sufficient energy intake group did not have higher GNRI score.

Conclusion

In this study, advanced CKD patients in nursing home with sufficient energy intake do not have better nutritional status, which be evaluated by GNRI.

Table 1. Clinical and nutritional variables for advanced CKD patients as classified by the calories intake^{1, 2}

		Higher calories group	Lower calories group	<i>P</i> value ³
Calories intake	(kcal/kg/day)	39.3 ± 3.5	26.3 ± 4.6	0.1080
Age	(years)	82.5 ± 5.9	78.6 ± 12.2	0.5701
BH	(cm)	155.7 ± 5.6	156.1 ± 9.1	0.9468
BW	(kg)	47.2 ± 5.2	59.1 ± 5.1	0.0007
Alb	(g/dL)	3.5 ± 0.3	3.7 ± 0.4	0.3085
BUN	(mg/dL)	22.8 ± 6.7	26.3 ± 10.5	0.5932
Cr	(mg/dL)	1.3 ± 0.3	1.4 ± 0.6	0.9732
WBC	(mg/dL)	6.8 ± 1.8	7.2 ± 2.0	0.7642
GNRI		89.1 ± 5.6	95.5 ± 6.8	0.0341

¹Results were presented as mean ± SD

²BW, body weight; BH, body height; Alb, serum albumin; BUN, blood urea nitrogen; Cr, creatinine; WBC, white blood cell; GNRI, geriatric nutritional risk index, [1.489*serum albumin(g/L)]+[41.7*(BW/IBW)]

³Kruskal-Wallis test were use to comparison the scores of GNRI between 2 groups, when *P* <0.05 was considered statistically significant.