

Protein and leucine intake of malnourished older patients during hospitalization

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Rationale

The recommended protein intake for geriatric hospitalized patients is 1.2-1.5 g/kg/day and at least 25-30 g/meal. Furthermore, recent guidelines state that a minimum of 2.5-2.8 g leucine per meal is required for optimal muscle protein synthesis. The objective of this study was to examine the current daily protein intake, and protein and leucine intake per meal of malnourished, older patients during hospitalization.

Methods

Nutritional intake of 25 older, malnourished patients (table 1) was measured on 3 consecutive hospital days by observing food intake and weighing food leftovers. Leucine intake was estimated based on 8% leucine in vegetable-protein and 10% in animal-protein.

Table 1. Patient characteristics

Characteristics	
Male	32%
Age (mean ± SD) (years)	80.2 ± 10.9
BMI (mean ± SD) (kg/m ²)	24.2 ± 4.4
MNA score	
At risk of malnutrition (17-23.5)	60%
Malnourished (17)	40%
Medical diagnosis	
Acute infections	32%
Malignant neoplasm	12%
Pulmonary diseases/pneumonia	12%
Other	44%
Diet	
Normal diet	72%
Energy and protein-enriched diet	28%

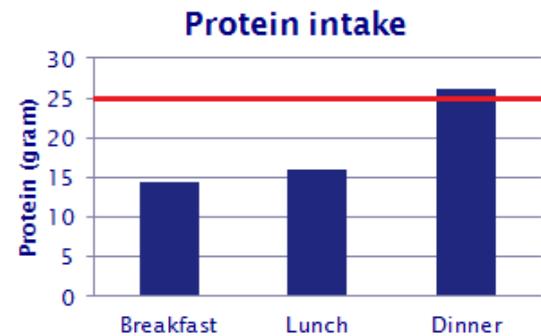


Figure 1. Protein intake in gram per meal

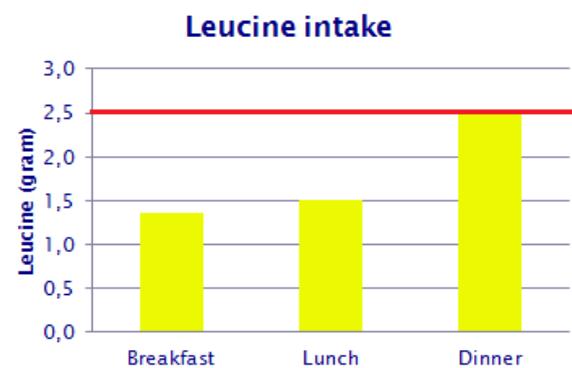


Figure 2. Leucine intake in gram per meal

Results

Mean protein intake was 0.9 ± 0.2 g/kg/day; 88% of the patients did not meet the minimum daily protein recommendation of 1.2 g/kg/day. Mean protein intake was 14.5 g during breakfast, 16.1g during lunch and 26.2 g during dinner (figure 1). One of the 25 patients achieved an intake of 25 gram protein during breakfast, one patient during lunch. Fourteen patients met the required protein intake during dinner. Mean leucine intake was 1.36 g during breakfast, 1.51 g during lunch and 2.54 during dinner. Furthermore, 56% of patients had one meal per day containing minimally 2.5 g leucine, only one patient (4%) managed two times. None of the patients achieved the recommendation of 2.5 g leucine three times a day.

Conclusion

Both protein and leucine intake of malnourished elderly during hospitalization are far below recommendations. To achieve an adequate intake in order to stimulate muscle protein synthesis and preserve muscle mass, extra attention should be given to protein intake, especially during breakfast and lunch.