

Predictors for achieving protein and energy requirements in undernourished hospital patients

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Rationale

Providing sufficient dietary protein and energy is considered crucial in the treatment of undernutrition. Still, the majority of undernourished hospital patients has a suboptimal protein and energy intake. The aim of this study was to investigate predictors for achieving protein and energy requirements on the fourth day of admission in undernourished hospitalized patients.

Methods

All adult undernourished patients (SNAQ ≥ 3) admitted to the Franciscus Hospital in 2008 were retrospectively included. Data were collected on medical and nutrition related factors and on protein and energy intake on the fourth day of admission. Intake requirements were defined as ≥ 1.2 g protein per kg body weight (weight adjusted when BMI > 27) and $\geq 100\%$ of the energy requirement based on calculated resting energy expenditure according to Harris & Benedict + 30%. Logistic regression analyses were performed to investigate predictors for achieving the requirements.

Results

A total of 830 patients (mean age: 69 ± 14 year, 50% male) were included in the study. Protein and energy intake had been recorded for 610 patients, of whom 25.6% had sufficient protein and energy intake (Fig. 1).

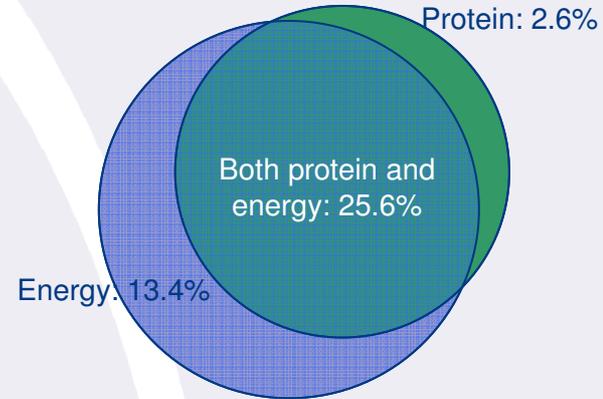


Figure 1. Percentage of patients achieving the protein and/or energy requirements

Complete case analyses (n=575) showed that negative predictors for achieving the protein and energy requirements were nausea, cancer, acute infections and a higher BMI. Positive predictors were chronic lung disease and receiving tube feeding (Table 1).

Conclusions

Only one in four undernourished hospital patients meets the predefined protein and energy requirements on the fourth day of admission. Based on these findings, we advise to (1) target patients with cancer and acute infections, (2) pay special attention to the fact that undernutrition can also be prevalent in patients with a higher BMI or a younger age, (3) use tube feeding when low intake is expected and (4) treat nausea.

Table 1. Positive (+) and negative (-) predictors for achieving protein and energy requirements

	+/-	OR	95%CI
Nausea	-	0.18	0.06 – 0.53
Cancer	-	0.57	0.35 – 0.92
Acute infection	-	0.63	0.37 – 1.09
BMI (kg/m ²)	-	0.84	0.80 – 0.89
Age (year)	+	1.01	1.00 – 1.03
Chronic lung disease	+	3.76	2.33 – 6.07
Tube feeding	+	3.89	1.56 – 9.73