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Cartas científicas

Nutritional status and length of hospital stay for surgical patients

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The nutritional status of hospitalized patients reflects directly on their clinical course, given that there are greater rates of hospital-acquired diseases and deaths and greater risk of clinical complications among malnourished patients, increasing the length of stay and reducing quality of life[1,2,3]. The objective of this study was to describe the nutritional status of the surgical inpatient in the preoperative period and compare the length of hospital stay between the indicators evaluated. The study began after it was approved by the hospital's administration and Research Ethics Committee from Pontifical Catholic University of Campinas, São Paulo, Brazil.

Diagnosis and personal information of the patients were obtained from their medical records. In addition to personal data, the protocol included anthropometric, laboratory, energy intake and length of hospital stay (LHS) data. The Mann-Whitney test was used to compare the continuous or ordinal measures between 2 groups and the Kruskal-Wallis test was used for 3 or more groups. Spearman's correlation coefficient was used to verify the linear association between two measures.

In the nutritional status of the population classified by type of disease, was possible to see a greater prevalence of obesity among patients with gynecological diseases and a greater prevalence of underweight or malnutrition among those with malignant neoplasms. There was a significant difference between them ($p = 0.0048$). LHS was greater for males ($p < 0.0001$); those aged 60 years or more ($p = 0.0008$); those with neoplasms ($p < 0.0001$); those who lost weight during their stay ($p < 0.0001$) and those who were underweight ($p = 0.0034$). When the length of hospital stay and nutritional status according to the subjective global assessment (SGA) for adults and mini nutritional assessment (MNA) for the elderly were analyzed, those who had been classified as malnourished also remained in the hospital for longer periods. There was a statistically significant difference between the groups (10.1 ± 8.7 days, $p = 0.0005$). A positive correlation was found for age ($r = 0.263$, $p < 0.0001$) and a negative correlation was found for calf circumference ($r = -0.182$, $p = 0.0010$); arm cir-

Table I
Comparison of the length of hospital stay in relation to gender, age, disease, recent weight change and weight variation during hospital stay, BMI, SGA (for adults) and MNA (for the elderly)

	Length of hospital stay in days			
Variables	*N*	*X ± SD*	*Median*	*P*
Gender				
Female	184	4.6 ± 5.0	3.0	
Male	166	7.0 ± 6.6	5.0	< 0.0001*
Age				
< 60 years	230	5.1 ± 5.4	3.0	
≥ 60 years	120	6.9 ± 6.7	4.0	0.0008*
Disease				
DTD	110	5.6 ± 5.4	4.0	
Gynecological diseases	81	3.0 ± 3.1	2.0	
Vascular diseases	42	8.2 ± 8.7	5.0	
Neoplasms	44	9.4 ± 7.2	7.5	
Trauma	37	4.9 ± 3.1	5.0	
Other	36	5.6 ± 5.7	4.0	< 0.0001**
Recent weight change				
Yes	189	5.9 ± 6.1	4.0	
No	157	5.4 ± 5.7	4.0	0.2710*
Weight variation during stay				
Unchanged	169	3.9 ± 2.6	3.0	
Weight gain	32	7.5 ± 6.6	5.0	
Weight loss	69	10.1 ± 8.8	8.0	< 0.0001**
BMI				
Overweight	130	5.0 ± 4.5	4.0	
Normal weight	130	5.6 ± 6.8	3.0	
Underweight	43	7.6 ± 5.6	6.0	0.0034**
Nutritional status(SGA/MNA)				
Malnourished	32	10.1 ± 8.7	7.0	
At risk of malnourishment	24	7.5 ± 6.5	5.0	
Well nourished	136	5.7 ± 5.8	4.0	0.0005**

*Mann-Whitney test; **Kruskal-Wallis test. DTD: digestive tract diseases.

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cumference (r = -0.138, p = 0.0114); triceps skinfold thickness (r = -0.228, p < 0.0001); subscapular skinfold thickness (r = -0.169, p = 0.0058); arm fat area (r = -0.213, p < 0.0001); lymphocyte count (r = -0.234, p = 0.0058) and hemoglobin (r = -0.286, p < 0.0001).

Malnutrition was diagnosed in 14.1% of them according to their body mass indices. When analyzed separately, malnutrition was found in only 2.97% of the adult patients (aged 59 or less years) and in 36.6% of the elderly patients (aged 60 or more years). SGA and MNA found a malnutrition rate of 0.84% among the adults and 10.96% among the elderly, respectively. The different nutritional diagnoses obtained by the different indicators assessed in this study is something to bear in mind, but all of them showed that the elderly were at greater nutritional risk. Even though normal weight or overweight was more prevalent, disturbing indices of malnutrition were found among the patients and, as shown by table I, LHS is always greater among those at some nutritional risk. Yet, the prevalence of malnutrition found by this study was lower than that found by other studies or studies done in other regions[4]. There are many factors that can explain these differences, such as the variety of diseases and assessment instruments. If we exclude from this analysis patients with gynecological diseases, the malnutrition rates would likely be higher, since overweight or obesity rates were high in this population.

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