

RISK OF MALNUTRITION ASSOCIATED WITH GASTROINTESTINAL SIGNS AND SYMPTOMS AND THE LOCATION OF THE DISEASE: RESULTS OF BRAZILIAN RESEARCH ON NUTRITION ONCOLOGY

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BACKGROUND

Malnutrition in cancer is an independent factor associated with negative clinical outcomes. The objective of the study was to evaluate the prevalence and independent risk factors for malnutrition in hospitalized cancer patients using the Patient-Generated Subjective Global Assessment (PG-SGA).

METHODS

The study evaluated 4783 cancer patients, aged ≥ 20 years, in a hospital-based, multicenter, cross-sectional study during the first 24 hours after admission. PG-SGA classified the patients into well-nourished (A), risk of malnutrition or moderately undernourished (B), and severely undernourished (C), and provided a score to define specific nutritional interventions. Ordinal polytomic regression was used with a proportional odds model, and multivariate analysis was composed of the odds ratio (OR) estimated by ordinal polytomic logistic regression.

RESULTS

Table 1. Multivariate analysis of independent factors for malnutrition in hospitalized cancer patients, comparing well-nourished with moderately and severely undernourished patients

Variable	OR	95% CI
<i>Gender</i>		
Male	1.43*	1.23–1.67
<i>Age</i>		
≥ 65 years	1.83*	1.59–2.11
<i>Region</i>		
South-East	1.19	0.97–1.45
South	0.65*	0.51–0.83
North-East	0.86	0.70–1.07
North	5.02*	3.37–7.47
Central-West		Reference
<i>Tumor Site</i>		
Head and neck	3.70*	2.66–5.15
Upper abdomen	4.51*	3.31–6.1
Lower abdomen	2.09*	1.61–2.72
Chest	4.59*	3.18–6.63
Gynecological	2.15*	1.65–2.80
Other	1.47*	1.15–1.89
Lymphoma	2.53*	1.69–3.78
Leukemia	2.17*	1.44–3.26
Breast		Reference
<i>Signs and symptoms</i>		
None		Reference
1–3	4.49*	4.0–6.0
>3	8.34*	5.8–12
Anorexia	1.93*	1.64–2.28
Nausea	1.28*	1.06–1.54
Vomiting	1.84*	1.48–2.29
Diarrhea	1.33*	1.01–1.76
Difficulty swallowing	2.75*	2.22–3.41
Fullness	1.40*	1.16–1.69

* $p < 0.05$; 95% CI = confidence interval; OR = odds ratio; adjusted for gender, age

Of the patients in the sample, 45.3% presented with malnutrition and 11.8% with severe malnutrition. Moreover, 45.26% of the patients presented a need for nutritional intervention. The variables that presented the highest ORs for malnutrition were: dysphagia (OR 2.75, 95% confidence interval [CI] 2.22–3.41, $p < 0.001$), anorexia (OR 1.93, 95% CI 1.64–2.28, $p < 0.001$), vomiting (OR 1.84, 95% CI 1.48–2.29, $p < 0.001$), presence of more than 3 symptoms of nutritional impact (OR 8.34, 95% CI 5.8–12, $p < 0.001$), tumor sites in the chest (OR 4.59, 95% CI 3.18–6.63, $p < 0.001$), upper abdomen (OR 3.70, 95% CI 2.66–5.15, $p < 0.001$), and head and neck (OR 3.70, 95% CI 2.66–5.15, $p < 0.001$), and hospitalization in the northern region of Brazil (OR 5.02, 95% CI 3.37–7.47, $p < 0.001$). The score for Box D on the PG-SGA had a higher association with malnutrition (OR 7.31, 95% CI 6.55–8.16, $p < 0.001$).

Table 2. Total and box scores of PG-SGA, according to nutritional classification of hospitalized cancer patients, comparing well-nourished with moderately and severely undernourished patients

Variables	A (n = 2618) Median (IQ)	B (n = 1601) Median (IQ)	C (n = 564) Median (IQ)	OR (95% CI)
Score				
Total ¹	3 (1–6)	14 (9–19)	20 (16–25)	1.30 (1.28–1.59)*
Box A ¹	1 (0–4)	11 (6–15)	16 (12–20)	1.29 (1.51–1.91)*
Weight (Box 1) ¹	0 (0–1)	1 (0–4)	3 (1–4)	1.72 (1.66–1.78)*
Ingestion (Box 2) ¹	0 (0–0)	2 (0–3)	3 (2–4)	2.31 (2.21–2.41)*
Symptoms (Box 3) ¹	0 (0–2)	5 (2–8)	7 (4–10)	1.38 (1.36–1.41)*
Mobility (Box 4) ¹	0 (0–1)	2 (1–3)	3 (2–4)	2.41 (2.30–2.53)*
Box B ²	%	%	%	
<65 years	76.4	64.3	63.5	Reference
≥ 65 years	23.6	35.7	36.5	1.73 (1.54–1.95)*
Box C ¹	0 (0–0)	0 (0–0)	0 (0–2)	1.44 (1.37–1.52)*
Box D ¹	0 (0–0)	1 (0–2)	3 (2–3)	7.31 (6.55–8.16)*

¹ Median and interquartile range (Q1–Q3); ² percentage (%); * $p < 0.05$

CONCLUSIONS

Malnutrition is highly prevalent in cancer patients in Brazil, and is associated with symptoms of nutritional impact, tumor site, and hospitalization in the northern region of Brazil and age over 65 years. Gastrointestinal signs and symptoms, such as anorexia and dysphagia, and upper abdominal tract (OR: 5.53, IC: 4.09–7.5; $p < 0.001$) and head and neck tumors (OR: 4.54, IC: 3.29–6.26; $p < 0.001$) presented the highest risk for malnutrition in oncology patients at the time of hospital admission. The score for Box D of the PG-SGA showed a greater association with malnutrition.