

## Prevalence of cachexia related to cancer in patients at a primary level: a palliative approach

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### Abstract

**Justification:** Cancer cachexia is a multifactorial syndrome, characterized by loss of muscle mass (with or without loss of fat tissue) even before weight loss becomes apparent, which is associated to a functional impairment and which is not possible to revert completely alone with nutritional support. Timely identification would help increase the quality of life of these patients. To determine the prevalence of cancer cachexia at the EBAIS of San Isidro in the Health Area of Atenas, Alajuela, Costa Rica, in patients diagnosed with cancer in the period between 2010 to 2013 with the purpose of identifying and characterizing this problem to propose prevention and control measures as part of a comprehensive and palliative care.

**Methods:** An observational, descriptive cross-sectional study was conducted in patients who were diagnosed with neoplastic disease and in palliative conditions. All patients with oncological disease diagnoses according to CIE10 codes were selected during the study period. Measures of frequency, central tendency and dispersion were calculated. EpiInfo 3.5.5 was used.

**Results:** The highest percentage of cancer patients was observed in the age group of 65 years and more, 48%. The patients diagnosed with cancer were mostly females, 65.2%. Of the patients analyzed, 52% were included in the palliative care of the Health Area of Atenas. It was possible to determine the prevalence of cachexia (using a diagnostic criterion weight loss of more than 5% in the year after diagnosis of oncology cancer disease) of 21.7%, being more frequent in cancers of the digestive tube (8.7%), followed by lung cancer 4.3%.

**Discussion:** Cancer cachexia was documented in 21.7% of the cancer patients evaluated at a primary care level. More than half of the persons evaluated were included in the palliative care program, this is beyond what is documented for countries like Spain.

**Keywords:** Cachexia oncological, palliative care, prevalence, Costa Rica. (Source: DeCS, BIREME).

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Weight loss and malnutrition are common in cancer patients, both of which are the source of complications during the course of the disease. The maximum expression of malnutrition is tumor cachexia, a complex syndrome in which, along with a state of malnutrition, it includes weight loss, decreased muscle

mass, anorexia and early satiety, weakness, anemia and edemas.<sup>1</sup>

Currently, other authors also point out that cachexia is “a complex metabolic syndrome associated with anorexia, inflammation, insulin resistance and increased muscle protein degradation and lipolysis”.<sup>1</sup>

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The main clinical characteristic of cachexia associated with neoplastic disease is involuntary weight loss, which exceeds 5% in a short period of 3 to 6 months.<sup>2</sup> Even other authors consider as a major criterion for the diagnosis of cachexia, a weight loss greater than or equal to 5% in the period of one year.<sup>3</sup> This scenario is frequent among patients with malignant tumors and their result, malnutrition, leads to a series of complications in the form of immune system disorders and related to active cancer treatment, with these patients having a worse prognosis.<sup>4</sup>

The prevalence of cachexia in cancer patients is a common problem, since it is estimated that it ranges from 15% to 40% at the time of diagnosis and can increase up to 80% in cases of advanced disease.<sup>5</sup> The most frequent types of tumors that are associated with this are those of gastrointestinal origin.<sup>6</sup>

The maximum expression of malnutrition in cancer is tumor cachexia, which will be directly or indirectly responsible for death in one-third of cancer patients,<sup>7</sup> in fact, the degree of cachexia is inversely correlated with the survival time of the patient, and always implies an unfavorable prognosis. Of the patients with cancer, from 16 to 73% present the symptoms of cachexia.<sup>11</sup>

It is important to determine the prevalence of oncological cachexia in primary care and in palliative conditions to diagnose it, since weight changes are often overlooked, and these changes must also be studied in depth to make earlier diagnosis of cachexia in a neoplastic disease.

Once the cachexia is established, the most relevant aspect in its management will be the taking of preventive measures, and providing biopsychosocial and spiritual support,<sup>4</sup> guided by a palliative care team, in the most opportune way possible, for the patient with terminal illness and his family, and thus guarantee a better quality

of life. As there is no possibility of cure, palliation is the most viable alternative in this context.<sup>12</sup>

Due to all of the above and due to the absence of a timely diagnosis of malnutrition in these patients, it was essential to carry out the investigation to determine the prevalence of cachexia in primary health care, since it is the doctor at this level who has always the first contact with the patient and must recognize that he has to send patients with neoplastic diseases in early stages to an interdisciplinary team in palliative care.

## Methods

A cross-sectional observational study was performed in patients diagnosed with neoplastic disease and in palliative conditions, belonging to the EBAIS of San Isidro, from the Health Area of Atenas, Alajuela, Costa Rica, between 2010 and 2013.

All patients with oncologic disease diagnoses were selected according to ICD10 codes during the study period. As a source of data, the clinical records of the EBAIS, of these patients diagnosed with neoplastic disease in the health area under study, were used during the period 2010-2013.

Quantitative variables such as age, weight and length of all one-year consultations were collected in prior and subsequent consultations at the time of diagnosis. In addition, qualitative variables such as: gender, cancer type, religion, occupation, EBAIS ascribed, nationality, type of treatment, condition of the patient, treatment within the CCSS, inclusion in the Atenas palliative care program, personal pathological antecedents, Socioeconomic level, deaths per year and year of diagnosis.

The records of those patients due to immobilization syndrome or other causes of incarceration were excluded, as well as those who do not have a record in the EBAIS for reasons of private medical care, or foreigners who are not members of the CCSS health system, and which, therefore, were not weighed or measured.

**Table 1. Distribution of people diagnosed with cancer, according to age group in years, in the EBAIS of San Isidro of Atenas, during the 2010-2013 period**

Age group	Frequency (n)	Percentage (%)	Prevalence
0 to 19 years old	-	-	
20 to 39 years old	5	22	0,64
40 to 64 years old	7	30	0,83
65 and older	11	48	4,01
Total	23	100	0,72

Source: our own information collected for the research \* Population according to population pyramid of the EBAIS of San Isidro.

**Table 2. Distribution of people diagnosed with cancer, according to the EBAIS sector, during the 2010-2013 period**

Sector	Frequency (n)	Percentage (%)
Naranjo Heights	15	65
San Isidro	8	35
Total	23	100

Source: our own information collected for the research \* Population according to population pyramid of the EBAIS of San Isidro.

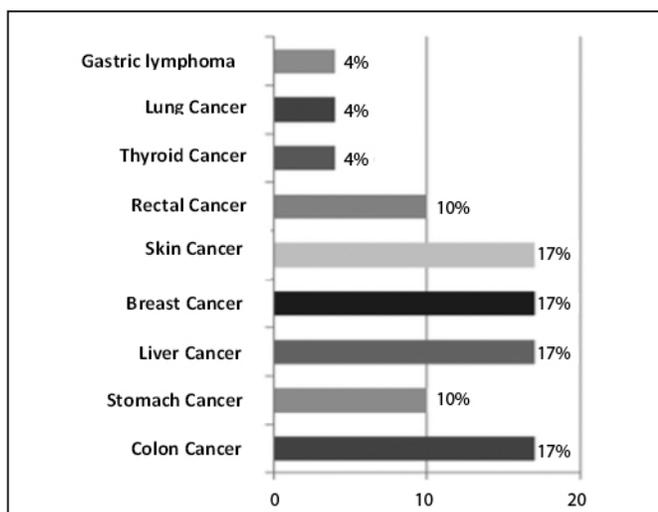


**Figure 1. Distribution of people according to occupation in the EBAS of San Isidro de Atenas, during the period 2010-2013.** Source: our own information collected for research.

Cachexia was defined as any person within the study time who lost weight of at least 5% of the weight during the 12 months prior to diagnosis, or 12 months after diagnosis, or when body mass index (BMI) is less than 20 kg / m<sup>2</sup>.<sup>1</sup> Cachexia is classified as mild, moderate or severe according to a weight loss of 5%, 10% or 15%, respectively.<sup>15</sup>

Frequency measures were calculated: absolute and relative, such as prevalence for qualitative variables and measures of central tendency, such as mean, and dispersion measures, such as the standard deviation for quantitative variables.

The percentage of weight loss was calculated one year prior to diagnosis, and the post-diagnostic weight loss, using the following formula and interpretation of weight loss percentage: percentage weight loss = habitual weight - current weight x100 / habitual weight.



**Figure 2. Distribution of the types of cancers in the EBAS of San Isidro, Atenas, during the period 2010-2013.** Source: our own information collected for research.

Mild weight loss was considered: <5% (mild cachexia); Moderate weight loss: 5-10% interpreted as moderate cachexia, and severe weight loss:> 10%, interpreted as severe cachexia.

The Epi info 3.5.4 program was used for the elaboration of a matrix that allowed consolidating the information and analyzing the data. This research was presented and approved by the Local Bioethics Committee (CLOBI) of the Health Area of Atenas.

## Results

23 medical records that met the inclusion criteria for the study were analyzed. The mean age of all persons studied was 59.8 years ± 18 years. The most frequent age group was 65 years and older, with 48%; No cases were diagnosed between the ages of 0 and 19 (Table 1). 65.2% (n = 15) were female. All the people analyzed were of Costa Rican nationality.

In the EBAS of San Isidro, the total prevalence of people diagnosed with cancer was 0.72%, the prevalence being higher in the group of 65 and over, with 4% (Table 1). As for the occupation of the people, 65% were housewives; non-professionals and workers or company dependents, were the least frequent, with 4% each, respectively (Figure 1).

The classification of cancers diagnosed in these individuals during the study period showed that the most frequent types were: colon, liver, and skin, with 17% each (Figure 2).

Regarding the inclusion of these people in the palliative care program of the Atenas Health Area, it was evidenced that 52% of the people analyzed are included in this program. In terms of the treatment received, the most frequently used was surgery, in 65% of cases, followed by palliative care in 43% (Table 3).

Table 3. Distribution of the types of treatment used in the patients analyzed in the Atenas Health Area, during the 2010-2013 period		
Type of treatment	Frequency (n)	Percentage (%)
Palliative	10	43
Chemotherapy	2	9
Surgical	15	65
Other	1	4
Radiotherapy	2	9

Source: our own information collected for research.

With regard to the condition of the disease, 63% of the patients who presented palliative condition were included in the palliative care program. Of the patients who had an oncologic condition resolved by medical treatment, none were included in a palliative care program. In addition, it was found that 71% of the patients who died were included in the palliative care program (Table 4).

The weight classification of these patients, according to their BMI, showed that 48% had a BMI higher than what was established as normal weight. 4% had BMI that was consistent with malnutrition (Figure 3).

After analyzing weight loss during the year following cancer diagnosis, a prevalence of cachexia (using as a diagnostic criterion the weight loss of more than 5% in the year following diagnosis of oncological disease) was determined in this area 21.7%, with this condition being more frequent in cancers of the digestive tract (8.7%) followed by lung 4.3% (Table 5). The weight gain during the year following their disease in the patients under study was 34.4%.

## Discussion

Few investigations refer to the prevalence or incidence of cachexia in neoplastic disease. There is no significant evaluation of the weight loss prior to the diagnosis of cancer, nor the weight after diagnosis of oncological disease, for many reasons, being in our country one of them, the absence of medical training in palliative care.

Although there are few studies related to the subject, the prevalence of oncological cachexia in the population studied was within what the international bibliography mentions;<sup>5-11</sup> however, it is necessary to mention that if this was based on body mass index, only 4.34% (n = 1) of the patients would be malnourished.

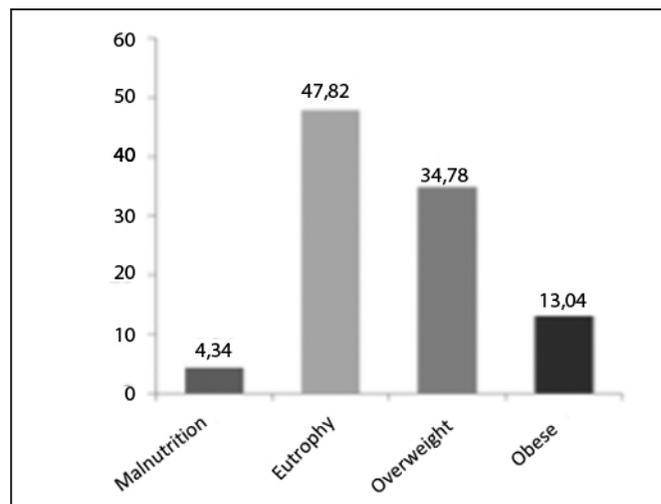
		Yes		No		Total	
		n	%	n	%	N	%
Condition of the disease	Palliative	5	63	3	38	8	35
	Resolved	0	0	8	100	8	35
	Deceased	5	71	2	29	7	30

Source: our own information collected for research

As mentioned in the few studies done on the subject, cancers of the digestive tract and lung are the most associated with cancer cachexia. In none of the persons investigated was there a specification of symptomatology or other markers that may accompany the diagnosis and be taken as minor criteria for the diagnosis of cachexia, such as decreased muscle strength, fatigue, anorexia or other biochemical criteria, such as hemoglobin <12 g /dl, increased inflammatory markers (CRP, IL-6), hypoalbuminemia <3.2 g /dl, 1 which would also be important in the comprehensive approach of these individuals.

Knowing the process of demographic aging is fundamental in the country, as the older adults of tomorrow, were already born. The most numerous generations of Latin American countries, born between 1960 and 1980, entered the group of 65 years and more, from 2020.<sup>47</sup> In the national bibliography and hospitalization, it is the group of people over 65 years old who has the highest incidence rates of some cancers. In this analysis, the age group of 65 and over was also the most frequent.

More than half of the people surveyed were in the palliative care program, which goes beyond what was mentioned and presented at the VIII Congress of the Spanish Society of Medical Oncology (SSMO), where only 30% of the 95,000 patients who died from cancer in Spain during the year 2000, received palliative care.<sup>48</sup> This is of great significance for the Costa Rican society, although in spite of being an underdeveloped country, the coverage of palliative care services is being improved,



**Figure 3. Distribution of weight according to BMI in patients with oncological diagnosis in the area of Health of Atenas during the 2010-2013 period.** Source: our own information collected for research.

and many patients with this disease benefit from an improvement in their quality of life, in a more integral form.

This makes us think of the need to value the inclusion of professionals with training or knowledge in nutrition among the palliative care teams, so that inter, multi and transdisciplinary work can be achieved in order to improve the quality of life of these people, and ensure that their families can participate more actively and safely in their care.

Early nutritional intervention is recommended. To do this, it is essential to follow up the nutritional status from the diagnosis and continue until the end of the treatment, elaborating an instrument that allows to include some parameters for the diagnosis of cachexia, including albumin, hemoglobin, hematocrit, muscle strength, frequently evaluated in the oncological patient or with palliative conditions, for an earlier intervention in their nutritional scope. A basic nutritional examination is also suggested, including anthropometric parameters, including weight, height, percentage of weight loss and skin folds.

Additionally, it is necessary to recommend, after the results of this research, to strengthen the training and sensitization of health professionals so that the nutritional history includes aspects related to treatment, intensity of vomiting and nausea, alterations of taste, presence or not of esophagitis, diarrhea, depression, alterations of the sleep / wake cycle and the order of the meals, among other aspects to be evaluated.

The syndrome of cachexia and anorexia causes a deterioration of the quality of life and the concepts of self-image and self-esteem in these patients. For this reason, the evaluation of the emotional aspects is very relevant to establish the support strategy and treatment of the patients, and the psychological support should be part of the approach in the palliative care programs.

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**Table 5. Evolution of weight of cancer patients, in the year after diagnosis, in the area of Health of Atenas, during the 2010-2013 period**

Type of cancer	Mild weight loss < 5% n (%)	Moderate weight loss 5-10% n (%)	Severe weight loss >10% n (%)	Weight gain n (%)
Colon Cancer	2 (8,9)			2 (8,69)
Rectal Cancer	5	1 (4,34)	1 (4,34)	
Breast Cancer	2 (8,9)	1 (4,34)		1 (4,34)
Stomach	1 (4,34)			1 (4,34)
Thyroid	1 (4,34)			
Lung Cancer			1 (4,34)	
Skin Cancer	1 (4,34)			3 (13,04)
Lymphoma	1 (4,34)			
Liver	2 (8,9)	1 (4,34)		1 (4,34)
Total	10 (43,4)	3 (13,02)	2 (8,68)	8 (34,72)

Source: our own information collected for the research.

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