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Malnutrition Associated with Oncohematological Diseases in Health Institutions in Ecuador

Desnutrición asociada a las enfermedades oncohematológicas en instituciones de salud de Ecuador

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ABSTRACT

Introduction: Malnutrition continues to be a common finding among hospitalized cancer patients in Ecuador. The objective of this study was to determine the magnitude of malnutrition associated with onco-hematological disease in a series of hospitals in the country. **Methodology:** A cross-sectional prevalence study (Ecuadorian Study of Malnutrition in Oncology) was conducted in five hospitals in the provinces of Guayas (3), Manabí (1), and Azuay (1). A total of 390 patients with a confirmed diagnosis of cancer (63.6 % women; 36.4 % men) with a mean age of 55.3 ± 16.5 years were included; 47.2% were ≥ 60 years old. The most common tumor locations were at the kidney and urinary tract, uterus, ovary, prostate, and testicle (18.7%); breast (16.1%); leukemia and lymphoma (15.1%); and large intestine/rectum and anus (15.1%). At the time of the survey, 42.8% pf the OHD patients were receiving chemotherapy. Each participant was interviewed, the Subjective Global Assessment was applied, and anthropometric measurements were taken. All patients classified in categories B (moderate malnutrition/at risk) or C (severe malnutrition) of the survey were considered malnourished. **Results:** The overall prevalence of malnutrition was 49.7% (n = 194); 14.4% (n = 56) corresponded to severe malnutrition (category C). There were no significant associations between nutritional status and age, educational attainment, tumor location, or cytoreductive treatment (p > 0.05). Malnutrition was more common in men than in women. **Conclusions:** Approximately one in two cancer patients hospitalized in Ecuador has some degree of malnutrition, and one in seven has severe malnutrition. These findings highlight the need to establish systematic nutritional screening and dietetic support programs in the country's oncology services.

Keywords: Cancer, malnutrition, nutritional assessment.

RESUMEN

Introducción: La desnutrición continúa siendo un hallazgo frecuente en los pacientes oncológicos hospitalizados en Ecuador. El objetivo de este estudio fue determinar la magnitud de la desnutrición asociada a la enfermedad oncohematológica en una serie de hospitales del país. **Metodología:** Se llevó a cabo un estudio transversal de prevalencia (Estudio Ecuatoriano de Desnutrición en Oncología) en cinco hospitales de las provincias de Guayas (3), Manabí (1) y Azuay (1). Se incluyeron 390 pacientes con diagnóstico confirmado de cáncer (63,6 % mujeres; 36,4 % hombres) con una edad media de 55,3 ± 16,5 años; el 47,2 % tenía ≥ 60 años. Las localizaciones tumorales más frecuentes fueron riñón y vías urinarias, útero, ovario, próstata y testículo (18,7 %); mama (16,1 %); leucemias y linfomas (15,1 %); e intestino grueso/recto y ano (15,1 %). Al momento de la encuesta, el 42,8 % recibía quimioterapia. A cada participante que fue entrevistado se le aplicó la Encuesta Subjetiva Global y se le realizaron mediciones antropométricas. Se consideró desnutrido todo paciente clasificado en las categorías B (desnutrición

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moderada/en riesgo) o C (desnutrición grave) de la encuesta. **Resultados:** La prevalencia global de desnutrición fue del 49,7 % (n = 194); el 14,4 % (n = 56) correspondió a desnutrición grave (categoría C). No se observaron asociaciones significativas entre el estado nutricional y la edad, el nivel educativo, la localización tumoral ni la administración de tratamiento citorreductor (p > 0,05). La desnutrición fue más frecuente en los hombres que en las mujeres. **Conclusiones:** Alrededor de uno de cada dos pacientes oncológicos hospitalizados en Ecuador presenta algún grado de desnutrición y uno de cada siete cursa con desnutrición grave. Estos hallazgos resaltan la necesidad de establecer programas sistemáticos de tamizaje nutricional y soporte dietoterapéutico en los servicios oncológicos del país.

Palabras clave: cáncer, desnutrición, evaluación nutricional.

1. Introduction

Oncohematological disease (OHD) profoundly affects the patient's nutritional status through various biological and suprabiological, endogenous, and exogenous mechanisms that often overlap and intersect [1,2]. The most immediate consequences of malnutrition secondary to OHD include energy-nutrient malnutrition (ENM), deterioration of functional capacity, loss of functional independence and autonomy, and the inability to independently maintain adequate nutritional status through oral food intake [2,3].

It should not be surprising that malnutrition is a prevalent characteristic among patients receiving treatment for OHD [4]. Santana Porbén (2023) has recently reported the current rates of malnutrition associated with OHD in different geographical latitudes [5]. In this regard, it is worth mentioning the ELAN Ecuador Study: the first multicenter, nationwide study was organized in 2014 and revealed malnutrition in more than 5,000 patients treated in hospitals and health centers in 22 out of the 24 provinces. Although malnutrition from all causes reached 37%, researchers noticed that this figure corresponded to 65% among those diagnosed with solid organ cancer, leukemia, and lymphoma [6].

Other studies conducted in Ecuador have revealed the magnitude of malnutrition associated with OHD. Moya and Gallegos (2022) conducted an observational study at the Ecuadorian Social Security Institute (IESS) Hospital in the city of Santo Domingo (Santo Domingo de los Tsáchilas Province) with 114 patients (Men: 51.0%; average age: 69.0 ± 13.6 years) undergoing cancer treatment (men: prostate: 21.1% vs. women: breast: 12.3%) at the institution. According to the SGA—tool used for nutritional screening—malnutrition was present in 34.2% of patients. Interestingly, overweight and obesity predominated in the study series [7]. In a second study, Bajaña et al. (2022) applied a modification of the NUTRIC score to estimate the nutritional status of 176 patients (Women: 64.2%; Average age: 57 ± 6 years) undergoing cancer treatment (Gynecological locations: 25%) upon admission to the intensive care unit (ICU) at SOLCA Guayaquil. The average NUTRIC score was 3.0 ± 0.9. 30.1% of patients received NUTRIC scores ≥ 5 upon admission to the hospital ICU, thus placing them at increased nutritional risk. The NUTRIC score was associated with worse clinical condition upon admission at the ICU, a longer stay there, and a higher in-hospital mortality rate [8].

The Latin American Study on Malnutrition in Oncology was completed in the 2019–2020 biennium as a multicenter, multinational effort by FELANPE aimed primarily at realistically and objectively exposing the frequency of malnutrition among patients undergoing OHD treatment in hospitals and cancer care centers in Latin American countries. Researchers' expectations were met, the DNO LATAM Study revealed a malnutrition rate of 59.1% in 1,842 patients treated at 52 health centers in 10 Latin American countries [9].

The Ecuadorian Group for the Study of Hospital Malnutrition (GEEDH by its Spanish acronym) was in charge of Ecuador's portion in the DNO Study. Therefore, this article presents the results of the DNO Ecuador Study and report on the nutritional status of cancer patients treated in the country's hospitals.

2. Methodology

2.1 Study design

Cross-sectional prevalence survey. The procedures completed during the survey included an interview with the patient, completion of the research forms, performance of the SVA, and collection of anthropometric measurements. The DNO Ecuador Study was conducted between October and November 2019.

2.2 Study location

Health centers and services specializing in the care of patients with OHD affiliated w ith t he Ecuadorian Ministry of Public Health (MSP by its Spanish acronym) and the Ecuadorian Social Security Institute (IESS by its Spanish acronym). The survey procedures were completed in clinical hospitalization wards, intensive care units, bone marrow transplant units, and hospital surgery services. The study was conducted in five hospitals in the provinces of Guayas (3), Manabí (1), and Azuay (1). These hospitals are leading cancer centers in the country.

2.3 Eligibility criteria

Patients of both sexes, aged 18 years or older, who were hospitalized or receiving outpatient care during the study observation window at participating health centers, and who voluntarily consented to participate after reading and signing the informed consent form, were included in the DNO Ecuador Study. Patients who did not complete the procedures prescribed in the design or whose data were not recovered were excluded from the DNO Ecuador Study. The following variables were collected from each patient: sex, age, primary tumor location, and type of treatment.

The sample size was calculated to be 390 patients for infinite populations. Patients were selected using the simple random method from among those who attended the health center for outpatient medical procedures or who were admitted on the day chosen for conducting the study activities.

Patient selection, collection of demographic and clinical data, and administration of the tools were carried out by locally appointed interviewers properly trained in the research procedures. A procedure manual was created to support interviewer teams training and thus guaranteeing the quality of the procedures. The interview with the patient, the completion of the research forms, and the gathering of anthropometric measurements were conducted at the participating oncology units.

2.4 Global Subjective Nutritional Status Survey

The nutritional status of patients was assessed using the GSS (See appendix) and has three categories: A) Well-nourished; B) Moderately malnourished/at risk of malnutrition; and C) Severely malnourished. This is based on weight loss, food intake, functional impairment, persistent gastrointestinal symptoms, metabolic stress, depletion of muscle mass and adipose tissue, and the presence of fluid distribution disorders such as edema and ascites.

As part of the patient's nutritional assessment, height (meters), body weight (kilograms), and Body Mass Index (BMI: kg/m^2) were obtained using internationally accepted procedures described in the DNO Ecuador Study procedures manual. Scales and height meters were checked and calibrated by the institution's technical staff before conducting the study. Serum albumin values (g/L) were also obtained.

2.5 Statistical analysis

Measures of central tendency (mean) and dispersion (standard deviation) were used, and data were presented in absolute frequencies and percentages. Given the size of the study series, it was not necessary to verify the normality of the variables of interest.

The frequency of malnutrition was estimated from the percentage of patients with SGA scores (B + C). It was distributed according to the demographic and clinical characteristics of the subject. The nature and strength of the associations between the frequency of malnutrition (as the main variable of the study), on the one hand, and the demographic and clinical characteristics of the patients surveyed (which acted as covariates), on the other, were evaluated using independence tests based on the chi-square distribution. A p-value <0.05 was considered statistically significant.

2.6 Ethical considerations

Patients participating in the DNO Ecuador Study were asked to sign an informed consent form. To this end, the patient was informed about the purposes of the research and the non-invasive nature of the procedures involved. The patient was guaranteed the right to refuse to participate in the study without compromising the healthcare to which they are entitled.

The patient's personal data was protected by replacing names and surnames and personal identification numbers with appropriate alphanumeric codes. The local study coordinator kept the codes in a secure location for traceability and possible amendments.

Relevant endorsements were obtained after review and approval by the institutional Bioethics, Teaching, and Research Committees. The pro tempore presidency (2019–2021) of the Latin American Federation of Nutritional Therapy, Clinical Nutrition, and Metabolism (FELANPE by its Spanish acronym), and the committees that make up the Governing Board also endorsed the DNO Ecuador Study.

3. Results

Table 1 shows the demographic characteristics of patients examined during the activities of the DNO Ecuador Study. Women outnumbered men. The average age was 55.3 ± 16.5 years. Approximately half of the patients were aged ≥ 60 years. Most patients attained primary and secondary education.

Table 1. Demographic characteristics of patients

Characteristics	Findings [%]
Sex	
· Male	142 [36.4]
· Female	248 [63.6]
Age, years (median, s.d.)	**55,3 ± 16.5**
· < 60	206 [52.8]
· ≥ 60	184 [47.2]
Educational attainment	
· Primary school	110 [28.2]
· Secondary school	127 [32.6]
· Vocational training	42 [10.8]
· Technical education	64 [16.4]
· Undergraduate	47 [12.1]

s.d.: standard deviation

Source: Records from the DNO Ecuador Study

Series size: 390

Table 2 shows the distribution of patients examined during the Ecuador DNO Study according to the participating health center. A total of 390 patients were surveyed in 5 hospitals. Hospitals of the SOLCA network contributed 84.3% of the study series.

Table 2. Distribution of patients by health center

Institution	Province	Finding [%]
"Dr. Abel Gilbert Pontón" Hospital	Guayas	28 [7.2]
"Teodoro Maldonado Carbo" Hospital	Guayas	33 [8.5]
SOLCA Guayaquil	Guayas	260 [66.7]
SOLCA Portoviejo	Manabí	19 [4.9]
SOLCA Cuenca	Azuay	50 [12.8]
All hospitals		390 [100.0]

Source: Records from the DNO Ecuador Study

Series size: 390

Table 3 shows the clinical characteristics of the patients studied. Neoplasms of the kidneys and urinary tract, uterus and ovaries, prostate and testicles (17.8%); breast (16.1%); large intestine, rectum, and anus (15.1%); and leukemias and lymphomas (15.1%) were the most common. One-third of the patients had completed a cytoreductive surgery program as their first line of antineoplastic treatment. Chemotherapy (alone or in combination with radiotherapy) was the most common cytoreductive treatment option. It should be noted that one-fifth of the patients were receiving symptomatic treatment.

Table 3. Clinical characteristics of patients

Characteristics	Findings [%]
Tumor location	
· Breast	63 [16.1]
· Large intestine/Rectum and anus	59 [15.1]
· Head and neck	20 [5.1]
· Leukemia/Lymphoma	59 [15.1]
· Lungs and airways	8 [2.1]
· Esophagus/Stomach/Small intestine	44 [11.3]
· Liver and bile ducts/Pancreas	17 [4.3]
· Kidneys and urinary tract/Uterus/Ovaries/Prostate/Testicles	73 [18.7]
· Other locations	47 [12.1]
Cytoreductive treatment	
· Cytoreductive surgery	118 [30.3]
· Chemotherapy	167 [42.8]
· Chemotherapy + Radiotherapy	18 [4.6]
· Radiotherapy	6 [1.5]
· Hormone therapy	7 [1.8]
· Symptomatic treatment	74 [19.0]

Source: Records from the DNO Ecuador Study
Series size: 390

After applying for the SGA, the following results were obtained: Score A) Well nourished, 50.3%; Score B) Moderately malnourished/at risk of malnutrition, 35.4%; and Score C) Severely malnourished, 14.4%. Thus, malnutrition, estimated from the sum of the SGA scores (B + C), affected 49.8% of the study series.

Finally, Table 4 shows the associations between the nutritional status of patients with OHD, on the one hand, and demographic and clinical characteristics, on the other. Malnutrition was independent of the characteristics of the patient with OHD. A significant influence of sex was found: the prevalence of malnutrition was higher in men (61.3%) than in women (43.1%), with an absolute difference of 18.2% ($p < 0.05$; chi-square test of independence).

Table 4. Distribution of malnutrition by sex, age, educational attainment, location, and treatment.

Characteristics	Findings [%]	
	Malnourished	Well nourished
Frequency	194 [49.7]	196 [50.3]
Sex		
· Male	87 [61.3]	55 [38.7]
· Female	107 [43.1]	141 [56.9]
Age		
· < 60 years	95 [46.1]	111 [53.9]
· ≥ 60 years	99 [53.8]	85 [46.2]
Level of Education		
· Primary school	49 [44.5]	61 [55.5]
· Secondary school	67 [52.8]	60 [47.2]
· Vocational training	34 [53.1]	30 [46.9]
· Technical education	20 [47.6]	22 [52.4]
· Undergraduate	24 [51.1]	23 [48.9]
Tumor location		
· Breast	13 [20.6]	50 [79.4]
· Large intestine/Rectum and anus	38 [64.4]	21 [35.6]
· Head and neck	11 [55.0]	9 [45.0]
· Leukemia/Lymphoma	28 [47.5]	31 [52.5]
· Lungs and airways	4 [50.0]	4 [50.0]
· Esophagus/Stomach/Small intestine	39 [88.6]	5 [11.4]
· Liver and bile ducts/Pancreas	12 [70.6]	5 [29.4]
· Kidneys and urinary tract/Uterus/Ovaries/Prostate/Testicles	35 [47.9]	38 [52.1]
· Other locations	14 [29.8]	33 [70.2]
Cytoreductive treatment		
· Cytoreductive surgery	44 [37.3]	74 [62.7]
· Chemotherapy	88 [52.7]	167 [47.3]
· Chemotherapy + Radiotherapy	10 [55.6]	18 [44.4]
· Radiotherapy	5 [83.3]	6 [16.7]
· Hormone therapy	2 [28.6]	7 [71.4]
· Symptomatic treatment	45 [60.8]	74 [39.2]

Source: Records from the DNO Ecuador Study

Series size: 390

4. Discussion

This paper presents the results of the Ecuador DNO Study, the first research project specifically designed to assess the nutritional status of cancer patients treated in Ecuadorian hospitals. Study findings reveal that approximately half of patients with oncohematological diseases (OHD) are malnourished. This result was predictable considering the negative impact that neoplasms have on the patient's ability to maintain adequate nutritional status through conventional oral intake.

Prior to the DNO Ecuador Study, the ELAN Ecuador Study [6] was the most solid and best-documented source of information on the prevalence of cancer-related malnutrition in the national hospital setting. The results obtained from the present DNO Ecuador Study show a significant reduction in the prevalence

of patients affected by malnutrition compared to previous studies, a finding that deserves particular attention and analysis. Likewise, the prevalence of malnutrition observed in patients with OHD through the DNO Ecuador Study was lower than that reported in the DNO LATAM Study, [9] which reported a prevalence of 59.6%. This difference suggests regional variations in patterns of cancer malnutrition that require further research for a comprehensive understanding.

The variations observed in the prevalence of cancer-related malnutrition require further research to elucidate the underlying factors responsible for these changes, only preliminary hypotheses are possible in the current context. Changes in the prevalence of malnutrition could be attributed to multiple interrelated factors, including seasonal variations in the demographic, clinical, and health characteristics of the study population; a higher representation of young patients could contribute to a lower prevalence of malnutrition due to their better nutritional reserves and capacity for recovery. In addition, the increase in the proportion of neoplasms with less nutritional impact, particularly those in early stages or with specific locations that have less influence on nutritional status, together with the implementation of early detection strategies and the refinement of diagnostic methods, could partly explain these findings. Earlier diagnosis of neoplastic disease, before obvious nutritional alterations become apparent, could result in an apparent reduction in the prevalence of malnutrition in the series studied. This suggests that improved screening systems and greater awareness of the importance of timely diagnosis are changing the nutritional profile of patients at the time of cancer diagnosis [10-11].

The variation observed in the prevalence of cancer malnutrition could also be attributed to the increase in the proportion of overweight or obese patients diagnosed with OHD [12]. Last but not least, the lower rate of cancer-related malnutrition reported in the conclusions of the Ecuador DNO Study could be the first consequence of an increased presence and involvement of nutritionists in the Ecuadorian health system [13].

It is a matter of concern that 50% of cancer patients treated in Ecuadorian hospitals are malnourished. This poor nutritional status adversely affects the response to cytoreductive treatments and increases the risk of complications, including mortality. Therefore, the development and management of nutritional intervention programs that offer comprehensive support to patients and their families during all stages of treatment, including rehabilitation and reintegration into their social environment, is fully justified [14].

Given that advanced age is a risk factor for nutritional deterioration in cancer patients, the DNO Ecuador Study was extended to analyze the determinants of this condition in the OHD cohort [15]. It has been estimated that educational attainment, as an indicator of an individual's socioeconomic status, is associated with an increased risk of malnutrition [16-18].

For years, it has been documented that, depending on the location of the cancer, there is a greater or lesser risk of nutritional deterioration; for instance, diseases of the digestive system present a higher risk of malnutrition [19]. In addition to malnutrition induced by tumor activity, there are nutritional disorders derived from cytoreductive therapies [20].

This study did not find a clear effect of the proposed determinants of nutritional status on the frequency of cancer-associated malnutrition. However, it was noteworthy that men accounted for the largest number of malnourished patients. It was not the objective of the study to explore the causes of the behavior found for one or another determinant. Sex (in the biological sense of the term) is not perceived to influence the behavior of diseases and comorbidities (except those linked to the subject's chromosome makeup), and epidemiological studies are inconsistent on this point [21]. It is more likely that patients' gender influences the behaviors and lifestyles they exhibit and determines the behavior of malnutrition associated with OHD [22-24]. The potential influence of gender on the nutritional status of cancer patients seems to be modulated by the structure and quality of their family, social, and community support networks [25]. Consequently, it is postulated that patients with robust social support have a greater capacity to cope with the adverse effects of neoplastic disease and its cytoreductive treatments.

5. Conclusions

The DNO Ecuador Study has revealed that malnutrition is highly prevalent among patients seen and treated by OHD in the country's hospitals. Tumor locations had an equivalent negative impact on the nutritional status of patients. Interestingly, malnutrition was concentrated among men, thus suggesting that gender-related behaviors and lifestyles have an impact on the nutritional status of OHD patients.

6. Abbreviations

GEEDH (by its Spanish acronym): Ecuadorian Group for the Study of Hospital Malnutrition

OHD: Oncohematological disease

SGA: Subjective Global Assessment

BMI: Body Mass Index

IESS (by its Spanish acronym): Ecuadorian Social Security Institute

MSP (by its Spanish acronym): Ministry of Public Health

ICU: Intensive Care Unit

7. Administrative information

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7.2 Author's Contributions

Dolores Rodríguez Veintimilla designed the DNO Ecuador Study, drafted the work protocol, supervised the execution of the study, the collection of primary data, and the statistical-mathematical analysis of the results, and drafted the final research report.

Mery Guerrero Tapia participated in drafting the work protocol, supervised the training of local interviewers, conducting the study, and collecting primary data, and participated in drafting the final research report. We deeply regret to inform you that the author passed away before the publication of this article.

Marisol Maldonado, Sandra Herrera, and **Alexandra Centeno** wrote the tools included in the Procedures Manual, participated in the training of local interviewers, supervised the execution of the study and the collection of primary data, and helped writing the final research report.

The authors participated in the writing process of this text and approved the final version.

7.3 Funding

No funding was requested to finance this research.

7.4 Availability of data and materials

Those interested can contact the lead author to obtain copies of the procedures used in the study for study and replication purposes.

8. Declarations

8.1 Conflict of interest

The authors declare no conflicts of interest.

8.2 Limitations of the study

The DNO Ecuador Study is a prospective, ongoing epidemiological investigation designed to characterize with increasing precision the magnitude and impact of malnutrition on the clinical course of OHD and response to cytoreductive therapy. The methodology of this study includes the progressive incorporation of new centers, patients, and provinces to improve the representativeness of findings. This report is an initial analysis with data from five hospitals in three provinces of the country.

8.3 Future extensions

This research, as an extension of the DNO Ecuador Study, analyzes the current nutritional support provided to hospitalized cancer patients. A subsequent report will present data on the clinical recognition of malnutrition and the nutritional therapeutic strategies employed in the health centers included in the sample.

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APPENDICES

FEDERACIÓN LATINO AMERICANA DE TERAPIA
FELANPE
NUTRICIONAL, NUTRICION CLINICA Y METABOLISMO

DÍA DE LA NUTRICIÓN EN ONCOLOGÍA
ENCUESTA SUBJETIVA GLOBAL DEL ESTADO NUTRICIONAL
DATOS GENERALES DEL PACIENTE

Hora de inicio

Nombre(s) y Apellidos:			HC:
Edad:	Sexo:	Sala:	Cama:
Fecha:	Talla _____ cm	Peso Actual _____ Kg	

1. Peso

PESO HABITUAL _____ Kg (Coloque 00.00 si desconoce el peso habitual)	Perdió Peso en los últimos 6 meses ☐ Sí ☐ No ☐ Desconoce	Cantidad Perdida _____ Kg
% Pérdida en relación al Peso Habitual _____ %	En las últimas dos semanas: ☐Continúa Perdiendo ☐Estable ☐Aumento ☐Desconoce	

2. Ingesta alimenticia respecto de la habitual

Ingesta Alimenticia respecto de la Habitual ☐ Sin Alteraciones ☐ Hubo alteraciones	
En caso de alteraciones de la ingesta alimenticia:	
Hace cuanto tiempo _____ Días	Para qué tipo de dieta ☐ Dieta habitual, pero en menor cantidad ☐ Dieta líquida ☐ Líquidos parenterales hipocalóricos ☐ Ayuno

3. Síntomas gastrointestinales presentes hace más de 15 días

Síntomas gastrointestinales presentes hace más de 15 días		☐ Sí	☐ No		
Vómitos	☐ Sí	☐ No	Náuseas	☐ Sí	☐ No
Diarreas	☐ Sí	☐ No	Falta de apetito	☐ Sí	☐ No
Disfagia	☐ Sí	☐ No	Dolor abdominal	☐ Sí	☐ No

4. Capacidad funcional

Capacidad Funcional	☐ Conservada	☐ Disminuida
En caso de disminución de la capacidad funcional:		
Hace cuanto tiempo _____ Días	Para qué tipo de actividad ☐ Limitación de la capacidad laboral ☐ Recibe Tratamiento Ambulatorio ☐ Encamado	

5. Diagnóstico principal y su relación con las necesidades nutricionales

Diagnósticos principales	Demandas metabólicas ☐ Habitual ☐ Estrés Bajo ☐ Estrés Moderado ☐ Estrés Elevado

FEDERACIÓN LATINO AMERICANA DE TERAPIA
FELANPE
NUTRICIONAL, NUTRICION CLINICA Y METABOLISMO

DÍA DE LA NUTRICIÓN EN ONCOLOGÍA
ENCUESTA SUBJETIVA GLOBAL DEL ESTADO NUTRICIONAL
EXAMEN FÍSICO

Pérdida de Grasa subcutánea en Triceps y Tórax

☐ Sin Pérdida ☐ Pérdida Leve ☐ Pérdida Moderada ☐ Pérdida Importante

Pérdida de Masa Muscular en Cuadriceps, Deltoides y Temporales

☐ Sin Pérdida ☐ Pérdida Leve ☐ Pérdida Moderada ☐ Pérdida Importante

Edemas en los Tobillos

☐ Ausente ☐ Leve ☐ Moderada ☐ Importante

Edemas en el Sacro

☐ Ausente ☐ Leve ☐ Moderada ☐ Importante

Ascitis

☐ Ausente ☐ Leve ☐ Moderada ☐ Importante

EVALUACION SUBJETIVA GLOBAL

☐ A	Bien nutrido
☐ B	Moderadamente desnutrido/en riesgo de estarlo
☐ C	Gravemente desnutrido