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Integration of the geriatric palliative care in oncological care of elderly patient with cancer

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Abstract

Objectives. The objective of this article is to describe the profile of the population attended to by the palliative geriatrics clinic and to evaluate the symptomatic control derived from the care provided.

Methods. During 2017 a model based on a holistic approach was implemented, in this model the team geriatric palliative care plays a fundamental role by being part of the palliative care team and functioning as a liaison with the oncology team and other required services. We outlined the profile of 100 patients aged 70 and older seen between 2017 and 2019 at our geriatric palliative care clinic. Descriptive statistics were used. In addition, the symptoms and the care clinic model effect on the symptomatic control were analyzed, as well as the complexity of patients in palliative care with IDC-Pal.

Results. The patients median age was 83.5 years. Patients were classified by type of management: 47% within the supportive care group and 53% with palliative care only; 58% had metastatic disease and 84% presented at least 1 comorbidity. Frailty was observed in 78% and a Karnofsky scale of 60 or less was observed in 59% of the overall population.

Significance of results. Elderly cancer patients have a complex profile and may have multiple needs. Integrating geriatric palliative care can help to provide better and personalized care along with symptomatic control. Further studies are required to establish the ideal care model for these patients. Importantly, *a personalized treatment with a* geriatric palliative care *specialist is a key element.*

Introduction

Mexico is a middle-income country, with a population of almost 130 million, is the second-largest economy in Latin America (The World Bank 2023). The country is undergoing an intense process of change that involves multiple transitions in the economic, social, political, urban, epidemiological, and demographic spheres (Salinas-Rodríguez et al. 2019); (The World Bank 2023).

The total number of older adults, aged 60 years and older, will triplicate, from 6.3% in 2010 to almost 23% by 2050 (Angel et al. 2017). Aging has led to an increased incidence of cancer cases worldwide. In fact, it is expected that by 2035, aging will represent 58% of the global burden of cancer incidence (Pilleron et al. 2019) and it is estimated that by 2050 6.9 million new cancer cases will be diagnosed in the elderly of >80 years worldwide (20.5% of all cancer cases) (Centro de Investigación en Evaluación y Encuestas. Informe de Resultados de la Encuesta Nacional de Salud y Nutrición – 2022 n.d.; Yancik 2005).

Many factors, including social determinants of health, geriatric syndromes, organ function, transportation, ageism, access, and assessment, play a role in creating barriers to equitable care for older adults with cancer; in consequence, late cancer diagnosis, suboptimal treatment, poor symptom management, worsen survival, and quality of life (Brant 2018; Centro de Investigación en Evaluación y Encuestas. Informe de Resultados de la Encuesta Nacional de Salud y Nutrición – 2022 n.d.; Parajuli et al. 2020; Salinas-Rodríguez et al. 2019; Yancik 2005).

Older adults with cancer have complex needs, those related comorbid conditions, fragility, medication, that are specific of geriatric; and palliative care needs (cancer-related symptoms, psychological and spiritual problems (Brant 2018; Brighi et al. 2014)) for older adults with cancer, palliative care consultation alone may not fully address all their concurrent medical and psychosocial comorbidities, and geriatricians may not address patients palliative care needs (Brighi et al. 2014; Nipp et al. 2020).

The development of services for the older patient with cancer has been addressed at different levels, multiple organizations including the American Society of Clinical Oncology, (Mohile et al. 2018) the International Society of Geriatric Oncology, (Extermann et al. 2005; Klepin et al. 2014), and the National Comprehensive

Cancer Network (Denkinger et al. 2023; Dotan et al. 2021), all recommend the inclusion of geriatric principles into cancer care for older adults. There is no specific model, and adoption depends on local interest, funding, and available staff. Several models of care have been described. These models include a consultative geriatric assessment, a geriatrician in an oncology clinic, and primary management by a dual-trained geriatric oncologist (Berman et al. 2020; Brant 2018; Brighi et al. 2014; Festen et al. 2023; Gomez-Moreno et al. 2020; Hui and Bruera 2020; Seghers et al. 2023; Soo et al. 2023; Soto Perez De Celis et al. 2016; Verduzco-Aguirre et al. 2019; Voumard et al. 2018; Williams et al. 2023). In the Mexican public healthcare sector, for elderly cancer the first geriatric oncology clinic was created at the *Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán* in 2015, as a consultative model, where recommendations are given to the primary treating oncologist or hematologist (Gomez-Moreno et al. 2020; Soto Perez De Celis et al. 2016; Verduzco-Aguirre et al. 2019).

At the Instituto Nacional de Cancerología (INCan), an European Society for Medical Oncology (ESMO), Designated Centre of Integrated Oncology & Palliative Care, we developed a comprehensive transdisciplinary approach for the care of older adults with advanced cancer, which included integrative training to blend the disciplines of geriatrics and palliative care (Allende-Pérez et al. 2016; ESMO 2022).

The geriatric palliative care clinic (GPCC, Table 1) like the geriatric palliative care emphasizes the patient-centered assessment that included physical and psychological symptom concerns, comorbid conditions and polypharmacy, cognitive issues, availability of social supports, functional status assessment, fragility, cancer-related issues, and palliative care needs (Ocampo-Chaparro et al. 2021; Santivasi et al. 2020; SECPAL. Sociedad española de Cuidados paliativos 2014; Tinitana Soto et al. 2023; Voumard et al. 2018).

Palliative care model in the elderly with cancer

The number of older patients with cancer has increased in Mexico, our model started in 2016 with approximately 1500 first consultations in people aged 60 years and older. Later due to multiple needs involving the care of these patients the work continued but this time with people aged 70 and over, thus, after an extensive review of the literature describing healthcare models for older patients with cancer, a comprehensive clinical care model, including the 4 components of a holistic approach (physical, psychological, spiritual, and social) was established at our center. Geriatric palliative care specialist (GPCS) is an essential piece and plays a fundamental role within this integrated model by being part of the palliative care team and by functioning as a liaison, maintaining close and direct communication with the oncology team, and supporting the management of symptoms, comorbidities, geriatric syndromes, as well as performing comprehensive geriatric assessment and helping in decision-making (Figure 1).

The objective of this article is to describe the profile of the population attended to by the palliative geriatrics clinic and to evaluate the symptomatic control derived from the care provided.

Figure 1. Comprehensive care clinic model geriatric palliative.

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Methods

Patients and data

During 2017–2019, 423 patients aged ≥70 years were referred to the palliative care service.

The profile of these patients is described. Of them, 100 patients were selected with simple random sampling. With ages ≥70, both genders and any cancer diagnosis. Demographic and clinical characteristics, including geriatric syndromes, as well as the Karnofsky Performance Status and Edmonton Symptom Assessment System-Revised (ESAS-r) (Carvajal et al. 2013) from the initial and the subsequent (1 month) consultations, were obtained from the institutional electronic medical records.

For study analysis purposes, the sample was divided into 2 groups. Group A with patients 70 years of age or older without cancer treatment and group B with patients 70 years of age or older with active cancer treatment (support in supportive care). Both groups received support from the team geriatric palliative care for the symptomatic management (Figure 2).

To assess the complexity of the patients, the Diagnostic Instrument for the complexity of cases in Palliative Care (IDC-Pal instrument) was used, which considers elements related to functionality, symptom control, cognitive status of patients, socioeconomic level, family dynamics, communication and information presented between those involved in each case, ethical considerations, therapeutic intervention needs, and the relationship between the patient and the healthcare team (Roselló et al n.d.; Salvador Comino et al. 2017).

This study was approved by the Institutional Review Board (Ethics in Research and Research Committees [REF/INCAN/CI/0622/2019]).

Statistical analysis

Descriptive statistics included the median and interquartile ranges (IQRs) for numerical variables and frequencies and percentages for categorical variables. Comparisons were performed according to the type of variable, chi-square/Fisher's exact test and Wilcoxon rank test for categorical and numerical variables, respectively. A p-value <0.05 was considered statistically significant. All the analyses were performed using the Stata 12 software (StataCorp 2011 Stata Statistical Software: Release 12. College Station, TX: StataCorp LP).

Results

Referral to palliative care

During this period 423 patients aged ≥70 years were referred to the palliative care service. Patients had a median age of 83 years, females (60%), 45% married, 53.7% living in poverty; 72% had <6 years of formal education. The most common cancer type was hematological (18%), head and neck cancer (15%), gynecological cancer (12%), gastrointestinal (11%), urological cancer (9.0%), and breast cancer (9.0%)

In the subgroup of 100 patients, the median age of the patients included was 83.5 years; mostly females; and their educational background was mainly elementary school or none (76%). The main caregiver was the patient's son or daughter (73%), followed by the partner or spouse (14%); 82% had no formal employment. The median monthly income was 202.67USD (IQR: 108.49–369.58 USD). Table 2 shows the overall demographic and clinical characteristics of all the patients. Patients were grouped by type of management: 47% within the supportive care group and 53% with palliative care only. The 5 most frequent cancer diagnosis were lymphoma, prostate, lung, breast, and ovarian, which accounted for a total of 60%; 58% had metastatic disease, 84% presented at least 1 comorbidity, and from the latter, 7% had between 5 and 9 comorbidities.

Fifty-three percent of the patients had 2 or more comorbidities and 25% of the frail patients presented at least 5 comorbidities. A Karnofsky score of 60 or less was observed in 59% of the patients with palliative care only, representing a high percentage.

Regarding the geriatric assessments, 66% had unsteady gait, 32% suffered recurrent falls and, 21% were immobilized. Half of the patients showed dependence, either partially or totally, in daily life activities (DLAs), which was more frequent among those undergoing palliative care. Frailty occurred in 78% of the patients, being more frequent in the group with only palliative management. Polypharmacy was present in 87% (Table 3).

Figure 3 shows the ratings and comparisons of the intensity of the symptoms between the initial and subsequent appointment assessments among all the patients of this study ($p < 0.05$).

The median overall survival of the total population was 508 days (IQR: 223–1978 days). According to the type of management, the median survival in patients undergoing palliative and supportive care was 252 (IQR: 87–610 days) and 1059 days (IQR: 444-not reached), respectively. A statistical significance was observed ($p = 0.00001$).

Complexity

Forty-six percent were classified as "highly complex" and "complex" in 32% of cases. Of the highly complex items, the most frequent was "clinical situations secondary to tumor progression that is difficult to manage." In the category of clinical situation, 4 items stand out with significant frequencies in "complex" patients in descending order: "severe cognitive disorder," "difficult clinical management due to repeated therapeutic noncompliance," "severe constitutional syndrome," and "existence of comorbidity that is difficult to control" (Figure 4 and Table 4).

Discussion

There are plenty of opportunities within the care of older cancer patients. Thus, it is reasonable to consider them a special subgroup that requires individualized interventions. Despite the extensive literature on the overall integration of palliative care, only few studies have described specific plans and their impact on the elderly patients with cancer (Berman et al. 2020) and the role of the GPCS. This study reports the results of an integrative care clinic model established since 2017, in which the GPCS was included as part of the transdisciplinary care of these patients and their families. Our model was designed to address the current patients' and the institutional unmet needs resulting from the increased population of older cancer patients requiring specialized geriatric care.

More importantly, taking into account that there are few geriatric oncologists in our country that meet the required needs, our model seeks to solve as many requirements as possible in order to potentially reduce disparities within the care of these patients. This being a pilot educational model to meet the country needs (Allende-Pérez et al. 2016; ESMO 2022). Accordingly, the main objective of the implemented care clinic model approach was to

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Figure 2. Palliative care model for older adults with cancer at the National Cancer Institute in Mexico.
*Geriatric palliative management includes among other fragility evaluations

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Table 1. Summary of relevant terminology in geriatric palliative care

Terminology	Definition
Geriatric palliative care clinic (GPCC)	Clinic engaged in providing geriatric care to elderly cancer patients. This clinic was set up by the National Cancer Institute, Mexico (Allende-Pérez et al. 2016, Allende-Perez et al. 2022).
Geriatric palliative care specialist (GPCS)	Geriatric palliative care specialist. Internal medicine physician with a subspecialty in geriatrics and 1-year training in palliative care (Runacres et al. 2021).
Geriatric palliative care	Health care focusing on and aimed at improving the quality of life of elderly patients facing serious and life-threatening illnesses near the end of life (Voumard et al. 2018).
Diagnostic instrument for complexity in palliative care (IDC-Pal)	"Tool for diagnosing complexity in patients with advanced and terminal phase illness, including any complexity-related situations or elements identifiable following assessment of the patient-family unit"(Roselló et al n.d.).
Supportive care	"In terms of cancer, supportive care is the prevention and management of the adverse effects of cancer and treatment thereof. This includes management of physical and psychological symptoms and side effects across the continuum of the cancer journey from diagnosis through treatment to post-treatment care. Supportive care aims to improve the quality of rehabilitation, secondary cancer prevention, survivorship, and end-of-life care" (MASCC 2023).
Geriatric syndrome	"Geriatric syndromes are multifactorial conditions that are prevalent in older adults. Geriatric syndromes are believed to develop when an individual experiences accumulated impairments in multiple systems that compromise their compensatory ability" (Magnuson et al. 2014).
Frailty	"Frailty is generally defined as an age-related clinical condition of increased vulnerability to acute endogenous or exogenous stressors" (Goede 2023).
Integral geriatric evaluation	Defined as a multidimensional, interdisciplinary diagnostic process focusing on determining an older person's medical, psychosocial, and functional capabilities (Kenig and Szabat 2020).

assist the oncology team in the decision-making process, detection of frail patients, symptoms control, and management of comorbidities and associated geriatric syndromes, in patients requiring both supportive and palliative care, by providing a more integrated perspective along with the oncology team.

This study describes the profile of patients seen in a period of 2 years by the geriatric clinic, accompanied by an analysis of the characteristics of a small group of elderly cancer patients seen at the recently established GPCC. Among them, we observed a profile of vulnerability and complexity from a clinical standpoint. A large proportion were women, with none or very basic educational attainment, low socioeconomic status, multiple comorbidities, polypharmacy, with cognitive alterations and repetitive therapeutic noncompliance, which was consistent with data reported

Table 2. Demographic and clinical characteristics of elderly cancer patients of the geriatric palliative care clinic model

	Global	Type of management		
Characteristic	*n* (%)	Group B *n* (%)	Group A *n* (%)	*p*-value
Total	100	47 (47.0)	53 (53.0)	
Age				0.027*
Median (IQR)	83.5 (80–88)	83 (77–88)	85 (82–89)	
Gender				0.266
Female	58 (58.0)	30 (51.7)	28 (48.3)	
Male	42 (42.0)	17 (40.5)	25 (59.5)	
Body mass index (BMI)				0.449
Median (IQR)[a]	24.3 (21.5–26.9)	24.8 (22.5–27.3)	23.5 (21–26.8)	
State of residence				0.932
Mexico City	43 (43.0)	20 (46.5)	23 (53.5)	
Other states	57 (57.0)	27 (47.4)	30 (52.6)	
Educational attainment				0.264
≤6 years	76 (76.0)	39 (51.3)	37 (48.7)	
7–12 years	13 (13.0)	5 (38.5)	8 (61.5)	
>12 years	11 (11.0)	3 (27.3)	8 (72.7)	
Marital status				0.046*
Married	49 (49.0)	28 (57.1)	21 (42.9)	
Other	51 (51)	19(37.2)	32 (62.7)	
Employment status				0.097
Employed	18 (18.0)	9 (50.0)	9 (50.0)	
Retired	5 (5.0)	0 (0.0)	5 (100)	
Unemployed	77 (77.0)	38 (49.3)	39 (50.6)	
Cancer diagnosis				0.277
Lymphoma	23 (23.0)	14 (60.9)	9 (39.1)	
Prostate	13 (13.0)	9 (69.2)	4 (30.8)	
Lung	11 (11.0)	5 (45.4)	6 (54.5)	
Breast	9 (9.0)	6 (66.7)	3 (33.3))	
Ovarian	4 (4.0)	1 (25.0)	3 (75.0)	
Other	40 (40.0)	25 (75.0)	15 (25.0)	
Number of comorbidities				0.200
0	16 (16.0)	10 (62.5)	6 (37.5)	
1	28 (28.0)	10 (35.7)	18 (64.3)	
2	25 (25.0)	13 (52.0)	12 (48.0)	
≥3	28 (28.0)	14 (50.0)	14 (50.0)	
Not available	3 (3.0)	0(0.0)	3 (100)	

(*Continued*)

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Table 2. (*Continued.*)

Characteristic	Global *n* (%)	Type of management Group B *n* (%)	Group A *n* (%)	*p*-value
Karnofsky score				0.015*
≤30	1 (1.0)	0 (0.0)	1 (100)	
40–60	58 (58.0)	23 (39.7)	35 (60.3)	
>60	32 (32.0)	22 (68.7)	10 (31.2)	
Not available	9 (9.0)	2 (22.2)	7 (77.8)	

[a]IQR = interquartile range.
*statistically significant.

Table 3. Geriatric syndromes in older cancer patients of the geriatric palliative care clinic model

Characteristic	Global *n* (%)	Type of management Supportive care *n* (%)	*p*-value	Palliative care *n* (%)
Total	100	47 (47.0)	53 (53.0)	
Daily life activities (DLAs)[a]				0.172
Dependence in all DLAs	13(13.0)	4 (30.8)	9 (69.2)	
Dependence in ≥1 DLAs	47 (47.0)	20 (42.5)	27 (57.4)	
Independence in all DLAs	40 (40.0)	23 (57.5)	17 (42.5)	
Frailty				0.024*
No	22 (22.0)	15 (68.2)	7 (31.8)	
Yes	78 (78.0)	32 (41.0)	46 (59.0)	
Polypharmacym (more than 3 medicines)	87 (87.0)	39 (39.0)	48 (48.0)	0.788

[a]DLAs = daily life activities.
*statistically significant.

in previous studies (Pal and Manning 2014). The most frequent cancer diagnoses (lymphoma, prostate, lung, breast, and ovarian) referred to palliative care were those already reported to be the most common among the Mexican population (Gomez-Moreno et al. 2020). Conversely, most patients had advanced cancer and many required assistance in at least 1 DLA. Performance status was relatively low, especially among those patients undergoing palliative care, a potential explanation refers to the dates when the model was established, as many of those patients were exclusively followed-up by the oncology team and only a minority had already been referred to palliative care from the beginning, which can limit care in these patients. That is why the importance of earlier diagnoses and referrals, preferably made immediately after the first institutional admission and evaluation of the patient with a comprehensive geriatric model that contemplates early referral, emphasizing care for fragile patients.

Elderly patients represent a significant proportion of the cancer patients and about 80% of the annual cancer-related deaths. Frailty is of particular interest in cancer (Goede 2023; Pal and Manning 2014) as it has been associated with adverse health outcomes in this context (Ethun et al. 2017; Ho et al. 2021; Mima and Baba 2023). In our study, 78% of the patients were frail, this could be explained by the fact that the highest frequency of frail patients is found in the palliative care group, which was characterized by late referral and greater functional dependence. Similar results were reported in a systematic review; the prevalence of overall frailty in cancer patients was 42% (range: 6%–86%) (Handforth et al. 2015).

In our study, we identified that frail patients had a higher number of comorbidities, more falls, and a low Karnofsky score. As we also observed statistical significance when comparing these results with those from the subgroup of patients without frailty, findings that may be relevant due to their association with adverse outcomes. Therefore, early detection and measurement of frailty by the oncology team is important to start working in conjunction with the palliative care service, which in turn would facilitate the involvement of patients and their families in the decision-making process about management and prognosis plans.

The reference of frail patients should be complemented with a comprehensive geriatric assessment in these patients, since in addition to helping us detect frailty, it can help determine the life expectancy of these patients, as well as estimate the functional status reserve and tolerance to chemotherapy, as well as contributing to symptomatic treatment and geriatric syndromes, which is very important for management and decision-making in older adult patients with cancer.

Hence, symptom control is one of the main principles and goals of palliative care and so, of our model. It has been shown in certain groups of patients that palliative care interventions successfully controlled symptoms and improved the quality of life (Allende-Pérez et al. 2021; Gaertner et al. 2017; Holmenlund et al. 2017; Temel et al. 2010). In our study, results were statistically significant ($p < 0.05$) after the intervention of the GPCS. Improvements were observed within the patients' symptoms and overall well-being. These results can be associated with the intervention of the GPCS, since we believe that its preparation both in theoretical knowledge of geriatrics, as well as its expertise in palliative care and symptom management can contribute to an intervention with a greater impact on symptom control. Although only 2 measurements were performed (during the initial and 1-month appointments), we acknowledge that follow-up will be important for future research. Furthermore, another key element will include the medium and long-term follow-up in the control of symptoms, as well as measuring the quality of life before and after interventions, in addition, the inclusion of a reference group that would allow direct comparisons would be relevant when applicable.

We have previously reported that the median survival for palliative cancer patients in our clinic was 3.1 months (Allende-Perez et al. 2022). On the contrary, in the current group of elderly patients, survival was better and coincided with studies that applied early palliative care interventions (Zanghelini et al. 2018).

It is noteworthy that with our model, the referral time to palliative care was reduced (results not shown), therefore, improving the overall screening of potential candidates who could benefit from a GPCC approach is important. In accordance with existing literature (Allende-Pérez et al. 2021), we observed that elderly cancer patients present a highly complex status, and the implemented model can help to enhance and optimize care for these patients. The impact of our model in the medium and long term has yet to

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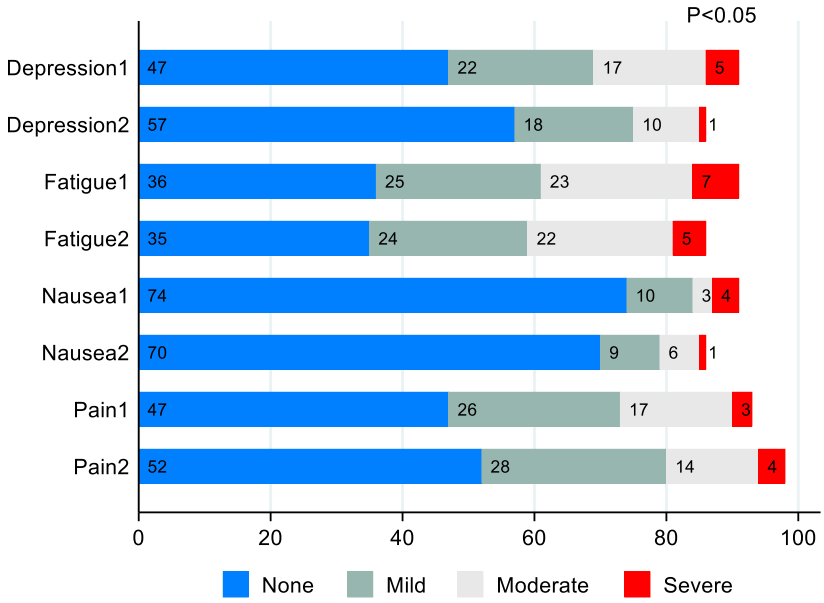

Figure 3. Changes in symptom intensity according to the initial and subsequent consultation measurements (only symptoms with statistically significant differences between both measurements were plotted).

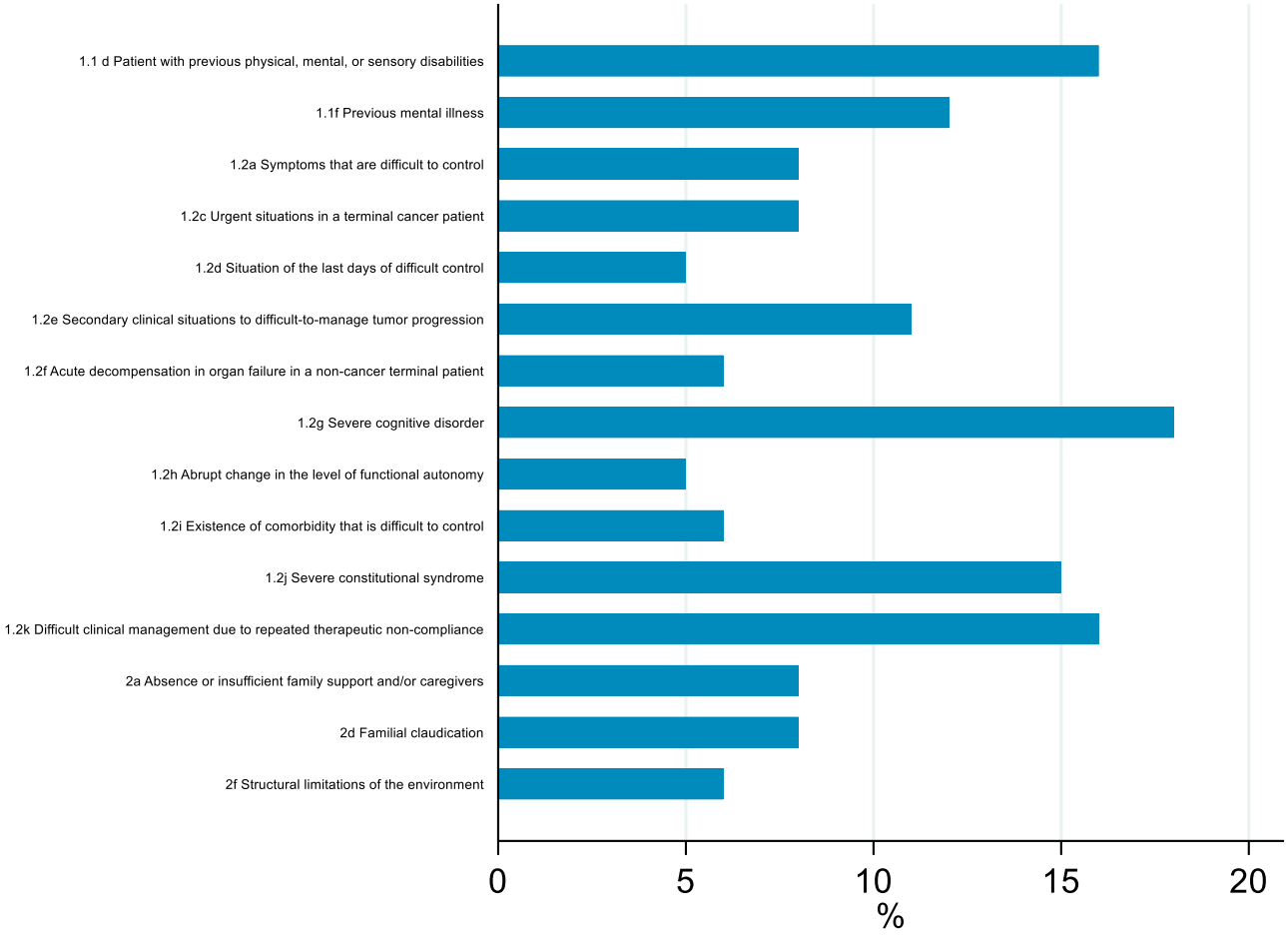

Figure 4. Complexity in palliative care (frequency 5% or higher).

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Table 4. Diagnostic instrument of complexity in palliative care

IDC-Pal	Frequency	Percent
Highly complex	46	46
Complex	32	32
Not complex	22	22
Total	100	100

be assessed; hence, the retrospective nature of this study needs to be considered when interpreting our findings.

Conclusions

Geriatric palliative care plays an important role in cancer treatment. Elderly cancer patients are very frail and complex profile present multiple needs; thus, these patients require personalized care and a comprehensive treatment. A healthcare care model in which the elderly is the center of attention, which avoids old age, which prioritizes frailty screening, decreases the fractioning of care, impact on symptomatic control, facilitates early referrals and is based on a holistic and integrated approach could fulfill the gap of the unmet needs of these patients and their families.

An individualized treatment with a GPCS is a key element to assist the overall team treating elderly patients with cancer. However, more studies are required to establish an ideal healthcare model for these patients as palliative care is essential in this context.

Author contributions. Josafat Napoleon Sanchez-Davila: conception and design, manuscript writing, data collection, approval of final article; Emma L. Verástegui: design, manuscript writing, approval of final article; Adriana Peña-Nieves: data collection, analysis and interpretation of data, approval of final article; Silvia Allende-Perez: data collection, conception, approval of final article.

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Competing interests. The authors declare none.

References

Allende-Perez SR, Peña-Nieves A, Gómez MÁH, *et al.* (2022) Profile, treatment, and survival of palliative cancer patients in a middle income country's cancer center. *The American Journal of Hospice & Palliative Care* **39**(4), 456–460. doi:10.1177/10499091211034772

Allende-Pérez SR, Sánchez-Dávila JN, Peña-Nieves A, *et al.* (2021) Clinical experience with opioids in palliative care of older patients with cancer in Mexico: A retrospective study. *Journal of Geriatric Oncology* **12**(1), 168–170. doi:10.1016/j.jgo.2020.08.002

Allende-Pérez S, Verástegui-Avilés E, Mohar-Betancourt A, *et al.* (2016) Integrated oncology and palliative care: Five years experience at the National Cancer Institute of Mexico. *Salud Pública de México* **58**(2), 317–324. doi:10.21149/spm.v58i2.7803

Angel JL, Vega W and López-Ortega M (2017) Aging in Mexico: Population trends and emerging issues. *The Gerontologist* **57**(2), 153–162. doi:10.1093/geront/gnw136

Berman R, Davies A, Cooksley T, *et al.* (2020) Supportive care: An indispensable component of modern oncology. *Clinical Oncology* **32**(11), 781–788. doi:10.1016/j.clon.2020.07.020

Brant J (2018) Assessment and management of cancer pain in older adults: Strategies for success. *Asia-Pacific Journal of Oncology Nursing* **5**(3), 248. doi:10.4103/apjon.apjon_11_18

Brighi N, Balducci L and Biasco G (2014) Cancer in the elderly: Is it time for palliative care in geriatric oncology? *Journal of Geriatric Oncology* **5**(2), 197–203. doi:10.1016/j.jgo.2014.01.007

Carvajal A, Hribernik N, Duarte E, *et al.* (2013) The Spanish version of the Edmonton Symptom Assessment System-Revised (ESAS-r): First psychometric analysis involving patients with advanced cancer. *Journal of Pain and Symptom Management* **45**(1), 129–136. doi:10.1016/j.jpainsymman.2012.01.014

Denkinger M, Knol W, Cherubini A, *et al.* (2023) Inclusion of functional measures and frailty in the development and evaluation of medicines for older adults. *The Lancet Healthy Longevity* **4**(12), e724–e729. doi:10.1016/S2666-7568(23)00208-8

Dotan E, Walter LC, Browner IS, *et al.* (2021) NCCN Guidelines® Insights: Older adult oncology, version 1.2021: Featured updates to the NCCN guidelines. *Journal of the National Comprehensive Cancer Network* **19**(9), 1006–1019. doi:10.6004/jnccn.2021.0043

ESMO (2022) European Society for Medical Oncology. Instituto Nacional de Cancerologia. https://www.esmo.org/for-patients/esmo-designated-centres-of-integrated-oncology-palliative-care/esmo-accredited-designated-centres/instituto-nacional-de-cancerologia (accessed 10 January 2024).

Ethun CG, Bilen MA, Jani AB, *et al.* (2017) Frailty and cancer: Implications for oncology surgery, medical oncology, and radiation oncology: Frailty and cancer. *CA: A Cancer Journal for Clinicians* **67**(5), 362–377. doi:10.3322/caac.21406

Extermann M, Aapro M, Bernabei R, *et al.* (2005) Use of comprehensive geriatric assessment in older cancer patients. *Critical Reviews in Oncology/Hematology* **55**(3), 241–252. doi:10.1016/j.critrevonc.2005.06.003

Festen S, De Graeff P and Rostoft S (2023) The role of the geriatrician in the care of older patients with breast cancer: A review. *Annals of Breast Surgery* **7**, 29–29. doi:10.21037/abs-21-119

Gaertner J, Siemens W, Meerpohl JJ, *et al.* (2017) Effect of specialist palliative care services on quality of life in adults with advanced incurable illness in hospital, hospice, or community settings: Systematic review and meta-analysis. *BMJ*357, j2925. doi:10.1136/bmj.j2925

Goede V (2023) Frailty and cancer: Current perspectives on assessment and monitoring. *Clinical Interventions in Aging* **18**, 505–521. doi:10.2147/CIA.S365494

Gomez-Moreno C, Verduzco-Aguirre H and Soto-perez-de-celis E (2020) Geriatric oncology in Mexico. *Ecancermedicalscience* **14**, 1102. doi:10.3332/ecancer.2020.1102

Handforth C, Clegg A, Young C, *et al.* (2015) The prevalence and outcomes of frailty in older cancer patients: A systematic review. *Annals of Oncology* **26**(6), 1091–1101. doi:10.1093/annonc/mdu540

Holmenlund K, Sjøgren P and Nordly M (2017) Specialized palliative care in advanced cancer: What is the efficacy? A systematic review. *Palliative and Supportive Care* **15**(6), 724–740. doi:10.1017/S1478951517000402

Ho Y-W, Tang W-R, Chen S-Y, *et al.* (2021) Association of frailty and chemotherapy-related adverse outcomes in geriatric patients with cancer: A pilot observational study in Taiwan. *Aging* **13**(21), 24192–24204. doi:10.18632/aging.203673

Hui D and Bruera E (2020) Models of palliative care delivery for patients with cancer. *Journal of Clinical Oncology* **38**(9), 852–865. doi:10.1200/JCO.18.02123

Kenig J and Szabat K (2020) Oncogeriatrics (part 7.). Geriatric assessment for older patients with cancer. *Nowotwory. Journal of Oncology* **70**(4), 153–157. doi:10.5603/NJO.2020.0031

Klepin HD, Rao AV and Pardee TS (2014) Acute myeloid leukemia and myelodysplastic syndromes in older adults. *Journal of Clinical Oncology* **32**(24), 2541–2552. doi:10.1200/JCO.2014.55.1564

Magnuson A, Dale W and Mohile S (2014) Models of care in geriatric oncology. *Current Geriatrics Reports* **3**(3), 182–189. doi:10.1007/s13670-014-0095-4

MASCC (2023) Multinational association of supportive care. https://www.mascc.org/mascc-strategic-plan (accessed 18 January 2022).

Mima K and Baba H (2023) Outcomes of patients with frailty and metastatic cancer admitted to the intensive care unit. *The Lancet Healthy Longevity* **4**(12), e655–e656. doi:10.1016/S2666-7568(23)00240-4

Mohile SG, Dale W, Somerfield MR, ***et al.*** (2018) Practical assessment and management of vulnerabilities in older patients receiving chemotherapy: ASCO guideline for geriatric oncology. *Journal of Clinical Oncology* **36**(22), 2326–2347. doi:10.1200/JCO.2018.78.8687

Nipp RD, Temel B, Fuh C-X, ***et al.*** (2020) Pilot randomized trial of a transdisciplinary geriatric and palliative care intervention for older adults with cancer. *Journal of the National Comprehensive Cancer Network* **18**(5), 591–598. doi:10.6004/jnccn.2019.7386

Ocampo-Chaparro JM, Reyes-Ortiz C and Etayo-Ruiz E (2021) Valoración geriátrica integral en cuidados paliativos: Revisión bibliográfica. *Medicina Paliativa* 28(3), 185–197. doi:10.20986/medpal.2021.1163/2020

Pal LM and Manning L (2014) Palliative care for frail older people. *Clinical Medicine* **14**(3), 292–295. doi:10.7861/clinmedicine.14-3-292

Parajuli J, Tark A, Jao Y-L, ***et al.*** (2020) Barriers to palliative and hospice care utilization in older adults with cancer: A systematic review. *Journal of Geriatric Oncology* **11**(1), 8–16. doi:10.1016/j.jgo.2019.09.017

Pilleron S, Sarfati D, Janssen-Heijnen M, ***et al.*** (2019) Global cancer incidence in older adults, 2012 and 2035: A population-based study: Global cancer incidence in older adults. *International Journal of Cancer* **144**(1), 49–58. doi:10.1002/ijc.31664

Roselló M, Fernández-López A, Sanz-Amores R, ***et al.*** (n.d.) IDC-Pal (Instrumento Diagnóstico de la complejidad en Cuidados Paliativos). https://www.redpal.es/wp-content/uploads/2018/12/IDC-Pal-2014-Complejidad.pdf (accessed 14 March 2022).

Runacres F, Poon P, King S, ***et al.*** (2021) Examining the role of specialist palliative care in geriatric care to inform collaborations: A survey on the knowledge, practice and attitudes of geriatricians in providing palliative care. *Age and Ageing* **50**(5), 1792–1801. doi:10.1093/ageing/afab058

Salinas-Rodríguez A, Manrique-Espinoza B, Heredia-Pi I, ***et al.*** (2019) Healthcare costs of frailty: Implications for long-term care. *Journal of the American Medical Directors Association* **20**(1), 102–103.e2. doi:10.1016/j.jamda.2018.09.019

Salvador Comino MR, Garrido Torres N, Perea Cejudo I, ***et al.*** (2017) El valor del Instrumento Diagnóstico de la Complejidad en Cuidados Paliativos para identificar la complejidad en pacientes tributarios de cuidados paliativos. *Medicina Paliativa* **24**(4), 196–203. doi:10.1016/j.medipa.2016.01.003

Santivasi WL, Partain DK and Whitford KJ (2020) The role of geriatric palliative care in hospitalized older adults. *Hospital Practice* **48**(sup1), 37–47. doi:10.1080/21548331.2019.1703707

SECPAL. Sociedad española de Cuidados paliativos (2014) Cuidados paliativos en el anciano. https://www.secpal.com/CUIDADOS-PALIATIVOS-EN-EL-ANCIANO%20 (accessed 1 May 2023).

Seghers PAL, Alibhai SMH, Battisti NML, ***et al.*** (2023) Geriatric assessment for older people with cancer: Policy recommendations. *Global Health Research and Policy* **8**(1), 37. doi:10.1186/s41256-023-00323-0

Shamah-Levy T, Romero-Martínez M, Barrientos-Gutiérrez T, ***et al.*** (2022) Encuesta Nacional de Salud y Nutrición 2021 sobre Covid-19. Resultados nacionales. https://ensanut.insp.mx/encuestas/ensanut2018/informes.php (accessed 22 May 2023).

Soo WK, Yin V, Crowe J, ***et al.*** (2023) Integrated care for older people with cancer: A primary care focus. *The Lancet Healthy Longevity* **4**(6), e243–e245. doi:10.1016/S2666-7568(23)00058-2

Soto Perez De Celis E, Navarrete Reyes AP, Vazquez Valdez O, ***et al.*** (2016) Development and implementation of a multidisciplinary geriatric oncology (GO) clinic in Mexico. *Journal of Clinical Oncology* **34**(15_suppl), e21519–e21519. doi:10.1200/JCO.2016.34.15_suppl.e21519

Temel JS, Greer JA, Muzikansky A, ***et al.*** (2010) Early palliative care for patients with metastatic non–small-cell lung cancer. *New England Journal of Medicine* **363**(8), 733–742. doi:10.1056/NEJMoa1000678

Tinitana Soto CA, Herrera Sarango SC, Cárdenas Estrella SJ, ***et al.*** (2023) Cuidados paliativos en el paciente geriátrico. *RECIMUNDO* **7**(3), 4–11. doi:10.26820/recimundo/7.(3).sep.2023.4-11

Verduzco-Aguirre HC, Navarrete-Reyes AP, Chavarri-Guerra Y, ***et al.*** (2019) The effect of a geriatric oncology clinic on treatment decisions in Mexican older adults with cancer. *Journal of the American Geriatrics Society* **67**(5), 992–997. doi:10.1111/jgs.15753

Voumard R, Rubli Truchard E, Benaroyo L, ***et al.*** (2018) Geriatric palliative care: A view of its concept, challenges and strategies. *BMC Geriatrics* **18**(1), 220. doi:10.1186/s12877-018-0914-0

Williams GR, Hopkins JO, Klepin HD, ***et al.*** (2023) Practical assessment and management of vulnerabilities in older patients receiving systemic cancer therapy: ASCO guideline questions and answers. *JCO Oncology Practice* **19**(9), 718–723. doi:10.1200/OP.23.00263

The World Bank (2023) The World Bank in Mexico. https://www.worldbank.org/en/country/mexico/overview (accessed 6 April 2023).

Yancik R (2005) Population aging and cancer: A cross-national concern. *The Cancer Journal* **11**(6), 437–441. doi:10.1097/00130404-200511000-00002

Zanghelini F, Zimmermann IR, Souza de Andrade CA, ***et al.*** (2018) Early palliative care for improving quality of life and survival in patients with advanced cancer: A systematic review and meta-analysis. *Journal of Palliative Care & Medicine* **8**(5), 1–9. doi:10.4172/2165-7386.1000343