Case Report

Epidemiological Profile of Patients of Aged 65 Years and Over in a University Private Hospital

Emilio Conde-Flores[a]   Rita Dorantes-Heredia[b]   Daniel Motola-Kuba[c]
Hiram Josué Grimaldo-Roque[c]   Julio Eduardo Martínez-Sámano[c]
Jose Manuel Ruiz-Morales[c]

[a]Internal Medicine Research Unit, Médica Sur Hospital and Clinical Foundation, Mexico City, Mexico; [b]Anatomic Pathology Research Unit, Médica Sur Hospital and Clinical Foundation, Mexico City, Mexico; [c]Oncology Research Unit, Médica Sur Hospital and Clinical Foundation, Mexico City, Mexico

Abstract

Objectives: An increase in life expectancy is predicted for the general population and, by 2050, about one billion people will be older than 65 years. The Global Cancer Incidence, Mortality and Prevalence database estimates that 1.2 million people of this age will have cancer; this number represents 58% of new cases in the American population. This represents a challenge for diagnosis and treatment, given that some older people have multiple comorbidities and disabilities. ***Materials and Methods:*** This was a retrospective descriptive study of 204 patients aged 65 years and over. All had a solid tumor that was diagnosed in a private hospital from January 2015 to December 2017. ***Results:*** The median age was 72.2 years; the most frequent age group (48.5% of patients) was 65–75 years, and only a small percentage (4.4%) were aged >85 years. The most common type of cancer was lung cancer (22.5%), followed by colorectal and urinary cancer. Most patients received cancer treatment after the disease diagnosis. ***Conclusion:*** There are no epidemiological studies of the older oncology population in Mexico. We

KARGER

Jose Manuel Ruiz-Morales, MD
Hospital Médica Sur
Puente de Piedra 150
Col. Toriello Guerra, Tlalpan, Mexico City 14050 (Mexico)
E-Mail ruiz82@gmail.com

believe it is necessary to perform larger studies to understand this population and to undertake actions to facilitate greater attention to patient diagnosis, treatment, and alleviation.

Introduction

The number of adults aged 65 years and over is estimated to increase from 524 million in 2010 to 1.5 billion by 2050, and this increase is expected to occur in both developed and developing countries. An increase in global life expectancy – from 69.4 to 74.3 years by 2050 – is also envisioned [1]. Aging is associated with many comorbidities and disabilities, which is why treating the older population can be challenging, especially in regions that lack infrastructure or resources [2].

Presently, more than half of the world's older population live in Asia, and this region accounts for about 50% of global cancer incidence and mortality. Despite the prevalence of cancer in older adults, Asian patients with cancer are less likely to receive specific oncology treatment compared with those in the Western hemisphere [3]. Latin America is experiencing a demographic transition. The growth rate of the older population is one of the highest in the world. It is estimated that, by 2035, more than 100 million people will be aged 65 years and over.

According to the Global Cancer Incidence, Mortality and Prevalence (GLOBOCAN) database, 1.2 million cancer cases will be diagnosed in senior adults; this number represents 58% of new cancer cases in Latin America. At present, breast, prostate, and colorectal cancer are the most prevalent types of cancer [1]. Several studies have shown that, compared with younger populations, malignancy is more likely to be first diagnosed at an advanced stage in older people because early symptoms are ignored and screening and access to health care are limited [4, 5].

Cancer treatment in the older population must be preceded by a comprehensive geriatric assessment [2]. However, there is little information about the epidemiology of older patients and how this that may affect treatment efficacy, function, and prognosis. It is therefore important to understand the functional, nutritional, cognitive, and sociomedical factors (e.g., comorbidities, chemotherapy toxicity, and polypharmacy) that can provide older patients with cancer with a better life expectancy without reducing their quality of life [6]. To do so requires an assessment of the epidemiology of older patients with cancer aged ≥65 years. Thus, the purpose of the present study was to gather information about the risks and benefits of treatment and aspects of preventive nursing before and after treatment in older patients with cancer.

Cases Presentation

Previous protocol presentation and authorization by the bioethics committee, we performed an epidemiological study to describe older adults aged 65 years and over with some type of solid cancer who had been treated in a university tertiary private hospital. This was a

descriptive, retrospective study of patients treated from January 2015 to December 2017. We measured the following clinical endpoints: sex, age, cancer type, stage, treatment and lines of treatment, comorbidities, polypharmacy, and toxicity, adjustments to treatment, complications, survival, functional status, educational level, and marital status. We estimated the N-value from patients in the study with an error margin of 0.05 and a test robustness level of 95%, which gave a required number of 204 patients. As a result, the sampling was non-probabilistic. Patients aged ≥65 years with a solid-type cancer were included. We excluded patients with hematological cancer or incomplete information about their history. Statistical Analysis. For descriptive purposes, continuous and nominal endpoints were grouped as arithmetic means and medians, and standard deviations Categorical endpoints comprised percentages and corresponding 95% confidence intervals.

Results

In total, 204 patients aged ≥65 years with a solid malignancy were recruited between January 2015 and December 2017. Their median age was 72.2 years; about half patients (99 patients; 48.5%) were aged 65–75 years, and a small percentage (9 patients; 4.4%) were aged >85 years. Most patients (111 patients; 54.4%) were women; 143 patients (70%) were married and 115 patients (56.6%) had completed high-school. The Charlson index was used to determine the percentage of patients with comorbidities; 144 patients (70.6%) had a score of 3–5 on this index. Comorbidities of cardiovascular origin (hypertension and ischemic heart disease) were most frequent, at 82 patients (40%), followed by diabetes mellitus (39 patients; 19%) and dysthyroidism (27 patients; 13%). Mood and thrombosis disorders were found in 12 patients (6%) and 16 patients (8%) of the patients, respectively. Polypharmacy was found in 64 patients (31.4%) of the patients. The most common type of cancer was lung cancer 46 patients (22.5%), followed by colorectal and urinary cancer (bladder, renal, and prostate) in 30 patients (14.7%) and 27 patients (13.1%) of the patients, respectively. A metastatic stage at diagnosis was found in 125 patients (61.3%). The patients' functional status was assessed; 63% had a score of 0–2 on the Eastern Cooperative Oncology Group scale, and of 61.5% had a score of 90–100 points on the Karnofsky scale. Only 4.9% of the patients had a Karnofsky score <50.

Most patients received cancer treatment after the disease diagnosis. The treatments used were chemotherapy in 80 patients (39.2%), biological therapies in 13 patients (6.4%), radiotherapy in one patient (0.5%), and all three modalities in 15 patients (7.4%). Half of the population underwent surgery. Sixty-five percent of the patients received one or two lines of chemotherapy; only 13% showed grade 3 toxicity, and 29.4% required treatment adjustments. The types of chemotherapy used were alkylating agents (39.3%) and vinca alkaloids and metabolites (25.7%). Bevacizumab was the most frequently used biological therapy (56%), followed by apoptosis inhibitors such as PD-1 (27.4%). Among the most frequent toxicities (grade 1–4) were fatigue in 32.4% of the patients and gastrointestinal toxicity in 34.4%. The overall survival was 70% at 1 year and 10% at 5 years.

Discussion

Most oncological conditions occur in patients aged >60 years, and there is a direct association between aging and cancer appearance [3]. The median age of the patients described here was 72.2 years; most were aged 65–70 years, and only a small percentage (4.4%) were aged >85 years. This distribution differs from that in the GLOBOCAN 2012 database, which lists the cancer incidence in the older population as 50% among long-lived adults (aged >75 years). Retrospective studies in American and European senior adults [2, 7, 8], have reported that 30–40% of the population with cancer was aged 70–75 years. Other epidemiological factors registered in our study were educational level, comorbidities, and marital status, probably because they can affect survival. Most of the population had a higher education degree and were married. These factors lead to a better survival rate because they indicate better access to medical information and treatment of disease [8].

Among the geriatric endpoints assessed, the prevalence rate of polypharmacy was 31.4 and 70.6% of patients had a score of 3–5 on the Charlson comorbidity index, a rate of comorbidity >3 was most prominent. This comorbidity may be reflected in reduced treatment efficacy, increased iatrogenesis and risk of adverse events, increased hospitalization and prolonged stay, deterioration in quality of life, and increased risk of disability, dependency, and death [9]. The most frequent comorbidities were cardiovascular conditions, diabetes, and dysthyroidism. The prevalence of polypharmacy in our study was smaller than the 50% reported in UK and Canadian studies [9]. This may reflect our unicentric study and that we have a geriatrics fellowship in our hospital that help us getting rid of polypharmacy. In our patients, the highest prevalence rates of tumors were in the lung, breast, and bowel (22, 14, and 12%, respectively). Gynecological tumors (endometrium, cervix) were less frequent, which is like the GLOBOCAN 2012 data (16%) [10]. In a European study, tumors appeared in the metastatic stage up to 60% of patients, followed by early stage tumors and locally advanced tumors [11]. By contrast, an American retrospective study published in 2004 reported that a high percentage of tumors (48.4%) appeared at an early stage. These differences may reflect differences in the timing of screening or access to early diagnosis [12].

Of the 204 patients in our study, 62.2% were treated systemically and 67% showed toxicity. Toxicities were mostly grades 1 and 2 (53.4%), and with appropriate tolerance (Table 1). Dose adjustment was required in 29.4% of the population. Most of the patients had an adequate functional status at the time of diagnosis, which may reflect the fact that most had major medical health insurance coverage and were seeing a team of doctors who kept proper control of their comorbidities. Mortality at 1 year was 12.3% because of non-oncological causes, mainly infectious processes unrelated to neutropenia. Survival at 5 years after the cancer diagnosis was 10%.

Conclusion

The demographic characteristics of people aged ≥65 years with cancer treated in our university's private hospital are similar to those of the European population. No epidemiological studies of the older oncology population have been published in Mexico. Greater effort is needed to understand this population and to undertake actions to facilitate greater attention

to patient diagnosis, treatment, and alleviation, while also considering patient quality of life and functionality.

Statement of Ethics

The authors have no ethical conflicts to disclose.

Disclosure Statement

The authors have nothing to disclose.

References

1 Soto-Perez-de-Celis E, de Glas NA, Hsu T, Kanesvaran R, Steer C, Navarrete-Reyes AP, et al. Global geriatric oncology: achievements and challenges. J Geriatr Oncol. 2017 Sep;8(5):374–86.
2 Pedersen JK, Engholm G, Skytthe A, Christensen K; Academy of Geriatric Cancer Research (AgeCare). Cancer and aging: epidemiology and methodological challenges. Acta Oncol. 2016;55(sup1 Suppl 1):7–12.
3 Kilari D, Mohile SG. Management of cancer in the older adult. Clin Geriatr Med. 2012 Feb;28(1):33–49.
4 Shahrokni A, Wu AJ, Carter J, Lichtman SM. Long-term Toxicity of Cancer Treatment in Older Patients. Clin Geriatr Med. 2016 Feb;32(1):63–80.
5 Hamaker ME, Prins M, van Huis LH. Update in geriatrics: what geriatric oncology can learn from general geriatric research. J Geriatr Oncol. 2018 Jul;9(4):393–7.
6 Le Caer H, Borget I, Corre R, Locher C, Raynaud C, Decroisette C, et al. Prognostic role of a comprehensive geriatric assessment on the management of elderly patients with advanced non-small cell lung cancer (NSCLC): a pooled analysis of two prospective phase II trials by the GFPC Group. J Thorac Dis. 2017 Oct;9(10):3747–54.
7 Galvin A, Delva F, Helmer C, Rainfray M, Bellera C, Rondeau V, et al. Sociodemographic, socioeconomic, and clinical determinants of survival in patients with cancer: A systematic review of the literature focused on the elderly. J Geriatr Oncol. 2018 Jan;9(1):6–14.
8 Girre V, Falcou MC, Gisselbrecht M, Gridel G, Mosseri V, Bouleuc C, et al. Does a geriatric oncology consultation modify the cancer treatment plan for elderly patients? J Gerontol A Biol Sci Med Sci. 2008 Jul;63(7):724–30.
9 Lee SJ, Lindquist K, Segal MR, Covinsky KE. Development and validation of a prognostic index for 4-year mortality in older adults. JAMA. 2006 Feb;295(7):801–8.
10 Ferlay J, Soerjomataram I, Dikshit R, Eser S, Mathers C, Rebelo M, et al. Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. Int J Cancer. 2015 Mar;136(5):E359–86.
11 Basso U, Tonti S, Bassi C, Brunello A, Pasetto LM, Scaglione D, et al. Management of Frail and Not-Frail elderly cancer patients in a hospital-based geriatric oncology program. Crit Rev Oncol Hematol. 2008 May;66(2):163–70.
12 Daste A, Domblides C, Gross-Goupil M, Chakiba C, Quivy A, Cochin V, et al. Immune checkpoint inhibitors and elderly people: A review. Eur J Cancer. 2017 Sep;82(82):155–66.

Conde-Flores et al.: Epidemiological Profile of Patients of Aged 65 Years and Over in a University Private Hospital

Table 1. Population characteristics and results

Age	Number	Percentage
60–70	99	48.5
70–85	96	47.1
>85	9	4.4
Comorbidities	Number	Percentage
1–2	52	25.5
3–5	144	70.6
>5	8	3.9
Malignant tumor type	Number	Percentage
Breast	26	12.7
Ovarian	14	6.9
Endometrium	3	1.5
Lung	46	22.5
Upper gastrointestinal tract	14	6.9
Colorectal	30	14.7
Pancreas	18	8.8
Urinary system	27	13.2
Upper respiratory system	3	1.5
Other	23	11.3
Stage at diagnosis	Number	Percentage
Early	47	23.0
Advanced	32	15.7
Metastatic	125	61.3
Toxicities	Number	Percentage
None	67	32.8
Grade 1–2	109	53.4
Grade 3	28	13.7