The role of the gerontologist in the assessment and implementation of multidisciplinary interventions among older adults with cancer: a pilot study

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Abstract

Introduction: Cancer is one of the leading causes of death among older adults in Latin America. In this study we evaluated the effect of the inclusion of gerontologists as part of an oncology clinic. **Methods:** Patients aged ≥ 65 with gastrointestinal cancer treated in a Mexican public hospital were included. Clinical and geriatric assessment data were collected, and geriatric syndromes were described. The implementation of geriatric interventions was recorded and analyzed using descriptive statistics. **Results:** Thirty patients were included. 87% had colorectal neoplasms and 13% gastric tumors, 40% presenting metastatic disease. 37% were dependent on basic activities of daily living and 80% on instrumental activities. Interventions most commonly implemented by the gerontologist were aimed at mitigating urinary incontinence (80%), promoting exercise (70%), promoting vaccination (60%) and providing nutritional counseling (60%). **Conclusions:** Integrating gerontologists in an oncology clinic is feasible, allows for the identification of geriatric syndromes, and leads to the implementation of interventions.

Key words: Gerontology. Developing countries. Cancer care unit. Geriatric assessment. Multidisciplinary communication.

El papel del gerontólogo en la valoración y en la implementación de intervenciones multidisciplinarias en el adulto mayor con cáncer: experiencia piloto

Resumen

Introducción: El cáncer es una de las principales causas de muerte en adultos mayores en Latinoamérica. En este estudio evaluamos el efecto de la inclusión de gerontólogos en una consulta de oncología. **Metodología:** Se incluyó a pacientes ≥ 65 años con cáncer gastrointestinal tratados en un hospital público mexicano. Se recolectaron datos clínicos y de la valoración geriátrica y se describieron los síndromes geriátricos identificados. Se registraron las intervenciones implementadas después de la valoración utilizando estadística descriptiva. **Resultados:** Se incluyeron 30 pacientes. El 87% tenía neoplasias colorrectales y el 13% neoplasias gástricas, con un 40% con enfermedad metastásica. El 37% eran dependientes en actividades básicas y el 80% en instrumentadas. Las intervenciones más comúnmente implementadas por gerontología fueron las encaminadas a mejorar continencia urinaria (80%), promover el ejercicio (70%), vacunación (60%) y consejería nutricional (60%). **Conclusiones:** Incluir gerontólogos en una consulta de oncología es factible, facilita la identificación de síndromes geriátricos y conduce a la implementación de intervenciones.

Palabras clave: Gerontología. Países en desarrollo. Unidad de Atención Oncológica. Valoración geriátrica. Comunicación multidisciplinaria.

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Introduction

Cancer is the second cause of mortality in Latin America and, by 2035, 60% of cancers will be diagnosed in older adults, which represents a challenge for health systems¹. Unfortunately, there is a shortage of geriatricians in the region and oncologists geriatric training is deficient, which results in inappropriate evaluation and management of older adults with cancer¹.

One possible solution to this problem, is to include gerontology graduates in cancer care teams. In Mexico, gerontology is a relatively young discipline that has been taught as a bachelor's degree since 2004². During their academic training, gerontologists acquire the skills to perform a comprehensive geriatric assessment (CGA), followed by non-pharmacological intervention plans that include preventive interventions, health promotion and fostering of self-care and autonomy.

In this pilot study, we investigated the feasibility of including a gerontology graduate in an oncology outpatient clinic of a Mexican public hospital, and we studied its effect on the detection of geriatric syndromes and implementation of interventions.

Material and methods

This study consecutively included ≥ 65 -year-old patients with gastrointestinal tumors from the geriatric oncology outpatient clinic of the Salvador Zubirán Institute of Medical Sciences and Nutrition (INCMNSZ – *Instituto de Ciencias Médicas y Nutrición Salvador Zubirán*). The study was approved by the INCMNSZ Ethics Committee and was considered exempt from informed consent because the data were retrospectively collected.

Sociodemographic and clinical data on the disease were collected. The patients underwent a CGA carried out by a gerontologist, which included the following components:

- Katz index. It assesses the ability to perform the basic activities of daily living (BADL) in a dependent or independent form³.
- Lawton and Brody index. It evaluates the functional capacity by means of 8 items that correspond to instrumental activities of daily living (IADL)⁴.
- Nagi Index and Rosow-Breslau Scale. This instruments assess disability and mobility, respectively^{5,6}.
- Charlson comorbidity index. It predicts 10-year survival in patients with multiple comorbidities⁷.
- Number of drugs used (information obtained from the electronic medical record and by direct questioning).

- Short physical performance battery (SPPB). It evaluates gait and balance using three tests: balance, timed 4-meter walk, and chair sit-to-stand five times. The number of falls within the previous year was also recorded⁸.
- Nutritional status. Weight loss within the previous 3 months and presence of swallowing difficulty were recorded. Body mass index (BMI) was calculated.
- Emotional state. Two questions were asked about the presence of sadness and anhedonia (PHQ-2 questionnaire)⁹, and patients were also questioned about the feeling of anxiety.
- The Mini-Cog test was used for cognitive screening, whereby the patient was asked to learn and repeat 3 words (table, key and book), in addition to drawing a clock. Additionally, the patient and his/her relatives were questioned about cognitive capacity alterations¹⁰.
- The number of hours of sleep and the presence of sleep disorders were recorded.
- To evaluate the social area, the number of children the patient had was recorded, as well as whether the he/she had a caregiver and the perception of his/her family situation, social support and his/her economic status.

Information was obtained on the interventions performed after geriatric syndromes were identified. Interventions were recommended in a standardized way according to CGA findings, and were classified as follows: a) geriatric interventions, which were carried out by the gerontology department; b) consultations, which were those interventions referred by the gerontology department to other departments, and c) multidisciplinary interventions, defined as interventions shared between the gerontology department and other specialists. Descriptive statistics were used for the analysis of clinical characteristics and geriatric assessment, including frequencies, percentages, means, medians and standard deviations. All analyses were carried out using the STATA® statistical package, version 15.1.

Results

Between September 2018 and February 2019, 30 patients were included (Table 1), with a median age of 77.5 years (range: 65-93). Sixteen patients (53%) were males, and twenty (67%) were residents of Mexico City, with a transfer-to-INCMNSZ time of 122.3 min (range: 7-669). Forty-three percent (n = 13) were married or cohabitating, and 47% (n = 14) had secondary school or lower level of education. Colon and rectal neoplasms where the type of malignancy of 87% of patients (n = 26),

Table 1. Patient characteristics

Patient characteristics (n = 30)		
Clinical and sociodemographic characteristics		
Characteristic	n	%
Median age, years (range)	77.53 (65-93)	
Gender		
Males	16	53.3
Females	14	46.7
Level of education		
Secondary education or lower	14	46.6
High school education or higher	16	53.3
Marital status		
Single/widowed/divorced	17	56.7
Married/cohabitating	13	43.3
Diagnosis		
Gastric cancer	4	13.3
Colon and rectal cancer	26	86.6
Clinical stage		
Localized	18	60.0
Metastatic	12	40.0
Previous Vaccination		
Influenza	15	50.0
Pneumococcus	12	40.0
Tetanus-diphtheria	3	10.0
Smoking	5	16.6
Alcoholism	5	16.6
Geriatric evaluation		
Basic activities of daily living		
Independent	19	63%
Dependent	11	37%
Instrumental activities of daily living		
Independent	6	20%
Dependent	24	80%
Nagi index, median (range)	4 (2-5)	
Rosow-Breslau scale, median (range)	2 (0-3)	
Number of comorbidities, mean (SD)	8.33 (2.61)	
Number of drugs, mean (SD)	3.5 (1.9)	
Nutritional assessment		
Weight loss,	27	90.0
BMI, mean (SD)	22.7 (4.3)	
Dysphagia	3	10.0
Gait and balance evaluation		
Abnormal SPPB (0-9)	20	66.6
One or more falls within previous year	10	33.3
Sensory assessment		
Hearing deficit	19	63.3
Visual deficit	28	93.3
Psychological assessment		
Sadness	13	43.3
Anhedonia	8	26.6
Anxiety	11	36.6

(Continues...)

Table 1. Patient characteristics (Continued)

Patient characteristics (n = 30)		
Clinical and sociodemographic characteristics		
Characteristic	n	%
Cognitive assessment		
Subjective memory complaint	13	43.3
Abnormal Mini-Cog (< 3 points)	13	43.3
Sleep evaluation		
Hours of sleep, mean (SD)	6.4 (2.0)	
Sleep disorder	21	70.0
Social support		
Number of children, mean (SD)	3.2 (2.5)	80.0
Has primary caregiver	24	80.0
Good family support	24	25.0
Good perception on economic status	7	

BMI, body mass index; SD: standard deviation; SPPB: short physical performance battery.

while 13% (n = 4) had gastric cancer; 40% had clinical stage IV disease (n = 12). As for the treatment received, 57% (n = 17) were receiving chemotherapy (35% monotherapy and 65% polychemotherapy), while 43% were under surveillance or receiving some other treatment (such as radiotherapy). At the time of data collection, 90% of the population was alive and 10% had died of cancer.

Geriatric assessment results are shown in table 1. Median BADL was 6 (range: 1-6), and 63% of patients (n = 19) were fully independent. On the other hand, median IADL was 6 (range: 1-8) and only 20% of the patients (n = 6) were entirely independent for these activities. Comorbidities mean was 8.33 points (standard deviation [SD]: ± 2.61) and mean number of drugs used was 3.5 (SD: ± 1.9), with all patients taking at least one drug. As for weight, 90% had lost ≥ 3 kg within the previous 6 months (malnutrition risk), with a mean BMI of 22.7 (SD: ± 4.3); 67% had an abnormal SPPB, and 33% reported having had ≥ 1 previous fall. One third of the patients (37%, n = 11) reported anxiety; 44% (n = 13), sadness; and 27% (n = 8), anhedonia within the previous 15 days; 44% had an abnormal Mini-Cog result. Regarding social support, the perception of family support was good in 86% (n = 24), while the perception of support from acquaintances, friends and the community was similar (89%, n = 25).

The percentage of implemented recommendations is shown in table 2. The most common interventions implemented by the gerontology department were Kegel exercises (80%), skin care (43%) and functionality

Table 2. Recommended interventions implementation percentage

Recommended interventions implementation percentage			
Geriatric interventions			
Intervention	Recommended	Implemented	%
Sleep hygiene	16	6	37
Kegel exercises	5	4	80
Cognitive stimulation	10	3	30
Occupational therapy	9	2	22
Government support information	5	5	100
Skin care	7	3	43
Fluid intake education	1	0	0
Functionality promotion	6	2	33
Oral mucosa hydration	2	1	50
Caregiver overload prevention	1	0	0
Non-pharmacological measures for constipation	1	0	0
References to other departments			
Intervention	Recommended	Implemented	%
Ophthalmology	4	0	0
Audiology	7	0	0
Dentistry	3	2	67
Vaccination	17	10	59
Multidisciplinary interventions			
Intervention	Recommended	Implemented	%
Nutritional counseling and nutrition	5	3	60
Exercise plan	10	7	70
Use of geriatric assistant	2	2	100

promotion (33%). As for referrals to other departments, applying vaccines was possible in 60% of cases, while no patient was seen by the ophthalmology or audiology departments. Finally, implementation of joint multidisciplinary interventions was carried out in a high percentage of patients, with 60% receiving nutritional counseling and 70% an exercise plan.

Discussion

Our results show that the integration of gerontologists into a geriatric oncology outpatient clinic is feasible, facilitates the identification of geriatric syndromes and leads to the implementation of targeted interventions.

One of the greatest challenges in oncology is the provision of quality care to the growing population of older adults with cancer. However, the lack of evidence about the risks and benefits of cancer treatments in older adults can lead to overtreatment or undertreatment¹¹. In this context, a CGA carried out by personnel trained in geriatrics provides a complete overview of nutritional, emotional, cognitive and social aspects, which are correlated with the state of vulnerability and with the adverse effects associated with the treatment, and is essential for decision-making^{12,13}. Unfortunately, most oncologists lack the training or the time to carry out a CGA¹.

Our study demonstrates that the presence of gerontologists can help to carry out an abbreviated CGA.

This allows the assessment to be carried out in a shorter time and to obtain information that is not usually obtained in an oncology patient evaluation visit, with geriatric syndromes that can be treated being identified (including risk of falls, malnutrition, sensory deficit, cognitive problems and sleep disorders)¹⁴. Another relevant finding is the low proportion of patients with a complete vaccination schedule, with good adherence only to influenza vaccination, probably due to the existence of promotional campaigns.

As for implemented interventions, those that were carried out directly by the gerontology department in direct collaboration with other specialists covered the physical, nutritional, emotional, cognitive and social areas, and had a high implementation rate. On the other hand, interventions that required referrals were less often implemented, which suggests that better methods are required to achieve a multidisciplinary integration that puts together gerontology with other specialties.

The main limitations of this study are that the impact of interventions on patient quality of life was not assessed and the limited sample size. One of our future plans is to generate a structured intervention plan to be implemented in a coordinated manner between the gerontology department and a multidisciplinary team, as well as its implementation on a larger scale.

In conclusion, the inclusion of a gerontology graduate in a geriatric oncology outpatient clinic can facilitate the performance of a CGA and lead to the implementation of multidisciplinary interventions, thus optimizing resources and reducing the burden of care of the rest of the medical staff.

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Conflict of interests

The authors declare that they have no conflicts of interest.

Ethical disclosures

Protection of human and animal subjects The authors declare that the procedures followed adhered to the ethical standards of the responsible human experimentation committee and were in accordance with the World Medical Association and the Declaration of Helsinki.

Confidentiality of data The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent Given the retrospective nature of the study, no informed consent was obtained from the patients and/or subjects referred to in the article. All data were de-identified in accordance with good research practice.

References

1. Soto-Pérez-de-Celis E, Córdoba R, Gironés R, Karnakis T, Paredero I, Chavarri-Guerra Y, et al. Cancer and aging in Ibero-America. *Clin Transl Oncol*. 2018;20:1117-26.
2. Mora JI. La gerontología [Internet]. Instituto Mexicano de Psicooncología [fecha de consulta: 8 de julio de 2019]. Disponible en: <https://gerontologia7.files.wordpress.com/2016/03/ensayo-la-gerontologc3ada.pdf>
3. Katz S. Assessing self-maintenance: activities of daily living, mobility, and instrumental activities of daily living. *J Am Geriatr Soc*. 1983;31:721-7.
4. Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. *Gerontologist*. 1969;9:179-86.
5. Rosow J, Breslau N. A Guttman health scale for the aged. *J Gerontol*. 1966;21:556-9.
6. Nagi SZ. An epidemiology of disability among adults in the United States. *Milbank Mem Fund Q Health Soc*. 1976;54:439-67.
7. Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chronic Dis*. 1987;40:373-83.
8. Treacy D, Hassett L. The Short Physical Performance Battery. *J Physiother*. 2018;64:61.
9. Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: validity of a two-item depression screener. *Med Care*. 2003;41:1284-92.
10. Borson S, Scanlan JM, Chen P, Ganguli M. The Mini-Cog as a screen for dementia: validation in a population-based sample. *J Am Geriatr Soc*. 2003;51:1451-4.
11. Hurria A, Levit LA, Dale W, Mohile SG, Muss HB, Fehrenbacher L, et al. Improving the evidence base for treating older adults with cancer: American Society of Clinical Oncology Statement. *J Clin Oncol*. 2015;33:3826-33.
12. Soto-Pérez-de-Celis E, Li D, Yuan Y, Lau YM, Hurria A. Functional versus chronological age: geriatric assessments to guide decision making in older patients with cancer. *Lancet Oncol*. 2018;19:e305-e316.
13. Mohile SG, Dale W, Somerfield MR, Schonberg MA, Boyd CM, Burhenn PS, et al. Practical assessment and management of vulnerabilities in older patients receiving chemotherapy: ASCO Guideline for Geriatric Oncology. *J Clin Oncol*. 2018;36:2326-47.
14. Jolly TA, Deal AM, Nyrop KA, Williams GR, Pergolotti M, Wood WA, et al. Geriatric assessment-identified deficits in older cancer patients with normal performance status. *Oncologist*. 2015;20:379-85.