Open Access

OBM Geriatrics

LIDSEN Publishing Inc.

Research Article

Integration between Geriatric Oncology and Palliative Care: A Single Center Experience for Hospitalized Older Patients with Cancer

Wanda Liguigli [1, *], Rita Cengarle [1], Anita Rimanti [1], Giovanna Catania [1], Laura Faglioni [1], Simone Voltolini [1], Carla Rabbi [1], Roberto Barbieri [1], Ilenia Zanardi Di Pietro [1], Beatrice Vivorio [1], Patrizia Morselli [1], Chiara Iridile [1], Laura Rigotti [2], Maurizio Cantore [1]

1. Oncology Unit, Ospedale Carlo Poma, Strada Lago Paiolo, 10, 46100 Mantova, Italy; E-Mails: wanda.liguigli@asst-mantova.it; rita.cengarle@asst-mantova.it; anita.rimanti@asst-mantova.it; giovanna.catania@asst-mantova.it; laura.faglioni@asst-mantova.it; simone.voltolini@asst-mantova.it; carla.rabbi@asst-mantova.it; roberto.barbieri@asst-mantova.it; ilenia.zanardi@asst-mantova.it; beatrice.vivorio@asst-mantova.it; patrizia.morselli@asst-mantova.it; chiara.iridile@asst-mantova.it; maurizio.cantore@asst-mantova.it
2. Palliative Care Unit, Ospedale Carlo Poma, Strada Lago Paiolo, 10, 46100 Mantova, Italy; E-Mail: laura.rigotti@asst-mantova.it

* **Correspondence:** Wanda Liguigli; E-Mail: wanda.liguigli@asst-mantova.it

Academic Editor: Debora Capelli

Special Issue: Comprehensive Assessment of Old Cancer Patients

OBM Geriatrics
2023, volume 7, issue 1
doi:10.21926/obm.geriatr.2301230

Received: October 26, 2022
Accepted: March 20, 2023
Published: March 27, 2023

Abstract

Comprehensive Geriatric Assessment (CGA) is utilized to plan social and health care of the elderly and to complete the diagnostic-therapeutic choice of oncologist also considering early integration with palliative care. Cancer patients (pts) hospitalized aged ≥70 years were screened by the G8 questionnaire to define if necessary CGA. CGA identified: fit, unfit and frail pts. We screened 95 pts by G8 and 93 (98%) were at risk. Pts at risk, evaluated by CGA resulted: 3 fit, 45 unfit and 45 frail. 3 fit pts received standard medical or surgical therapy. 41 unfit pts (91%) received personalized care and 4 pts got worse quickly and died. The median age was 76 and median score IADL/ADL (Instrumental/Activities Daily Living) was 5. Malnutrition was

present in 31% and MMSE (Mini-Mental State Examination) was normal in 62%. Among these 45 pts, 32 died with a median survival of 120 days: 14 at home, 13 in hospice and 5 during hospitalization. Among 45 frail pts, 3 received personalized care and 42 received the Best Supportive Care. The median age was 81 and the median score IADL/ADL was 2. Malnutrition was present in 55%, and MMSE was normal in 22%. Among these 45 pts 40 died with a median survival of 36 days: 12 at home, 24 in hospice, and 4 during hospitalization. Unfit pts have a better functional, cognitive and nutritional status than frail pts. Early integration between geriatric oncology and palliative care represents the possibility of create a personalized care pathway especially for frail pts.

Keywords
Hospitalized elderly cancer patients; comprehensive geriatric assessment; palliative care; unfit patients; frail patients

1. Introduction

Cancer is the leading cause of death in men and women between the ages of 60 and 79. More than 50% of all cancers are diagnosed in people over 70 [1]. Many oncologists are reluctant to treat elderly patients according to internationally recommended therapeutic modalities, because they are at high risk for surgical, chemotherapy and radiotherapy complications. Furthermore, the figure of the elderly patient tends to be excluded from clinical and pharmacological research programs since there are too many physiological and pharmacological variables that can negatively influence a possible clinical study [2, 3]. The elderly cancer patient is particularly exposed to the risk of the onset of adverse reactions, both for the multiple pharmacological treatments and for the reduced function of organs and systems.

The Comprehensive Geriatric Assessment (CGA) was developed specifically, in the geriatric clinic, to plan social and health care, integrating information that can affect the health status of the elderly subject [4-6], the medical choice of the doctor oncologist [7] and the treatment path [8, 9].

Several studies have evaluated the specific use of CGA in geriatric oncology to determine which factors can predict morbidity and mortality of anticancer therapies [10-12]. Clinical studies designed ad hoc on this population are often based on a stratification linked to age and performance status which tends not to adequately discriminate the three categories of patients belonging to this population: fit, unfit and frail [13-15].

The vulnerable elderly are at high risk of deteriorating pathologies and are ideal candidates for preventive interventions.

In clinical practice, the use of abbreviated scales such as the G8 questionnaire ([16], Attachment 1) which allows the detection of functional limitations, dementia and the definition of a staging of aging to determine the risk of toxicity, assumes a preventive screening role before for a more in-depth assessment through the CGA.

Geriatric oncology is characterized by the integration of multidisciplinary skills (oncologist, geriatrician and/or referral internist, surgeon, radiotherapist, psychologist, nutritionist, physiatrist,

caregiver and/or social worker, general practitioner, nursing) that address the different types of patients (fit, unfit and frail) to their respective care paths.

Early palliative care is a well-established reality for the cancer patient as it makes it possible to improve the quality and "quantity" of life by managing the patient's physical, psychological and spiritual needs [17-19]. For elderly patients, especially those assessed as unfit and frail, this integration becomes essential to define a personalized diagnostic-therapeutic path and the most appropriate treatment setting [20-22].

2. Materials and Methods

From February 2019 to April 2020, patients admitted to the Oncology Ward of Carlo Poma Hospital of Mantova, Italy, with age ≥70 years and first diagnosis of cancer were screened using the G8 questionnaire.

Patients not at risk (score >14 of the G8 questionnaire) were sent to a standard diagnostic-therapeutic path, while patients at risk (score ≤14 of the G8 questionnaire) were evaluated with CGA.

The CGA was conducted through the administration of the following validated scales aimed at determinate:

- functional status (ADL, Activities of Daily Living scales, and IADL, Instrumental Activities of Daily Living scales);
- comorbidities (CIRS scale, Cumulative Illness Rating Scale);
- caregiver (CBI scale, Caregiver Burden Inventory);
- cognitive functions (MMSE scale, Mini-Mental State Examination);
- non-cognitive and/or depressive symptoms (GDS scale, Geriatric Depression Scale 5-items);
- nutritional status (MNA, Mini Nutritional Assessment).

We collected the number of drugs each patient took and prescribed for each comorbidity pre-existing cancer diagnosis.

We also evaluated the presence or absence of the following Geriatric Syndromes:

- Delirium;
- Falls;
- Fragility (muscle weakness, motor slowdown, fatigue, poor physical activity, unintentional weight loss);
- Dizziness;
- Urinary incontinence;
- Syncope.

At the end of the CGA, the patient was defined as Fit, Unfit or Frail and was sent to a "personalized" path. All the cases of Unfit and Frail patients were discussed in multidisciplinary meetings to define the most suitable diagnostic-therapeutic path and the most appropriate care setting.

The elderly patient was considered Fit if not at risk after G8 screening or if after CGA had a good functional status (independent according to the ADL/IADL score), an intact cognitive status (no dementia according to MMSE) and not affected by geriatric syndromes. The Fit patient was therefore a candidate for standard cancer treatments for younger cancer patients. The patient was considered Frail, after CGA, when they presented severe dependence on functional status or severe

dementia or comorbidities causing severe organ failure or multiple geriatric syndromes. For the Frail patient, not susceptible to active oncological treatments, the path of best supportive care was started with palliative care colleagues. The patient was considered Unfit, after CGA, when we found: a functional state of dependence and a cognitive state of mild-moderate dementia, one geriatric syndrome and no comorbidities determining organ failure incompatible with the administration of active oncological therapies. The study was conducted following the World Medical Association Declaration of Helsinki [23] and following the International Conference on Harmonization (ICH) for Good Clinical Practice (GCP). The study (92-2021) was approved by the Institutional Ethical Committee (Comitato Etico Val Padana).

3. Results

3.1 Patients Characteristics

From February 2019 to April 2020, we evaluated 95 patients: 57 (60%) male, and 38 (40%) female with a median age of 78 (range 70-94 years). Patients with 70-80 years were 62 (65%), with 81-85 years were 20 (21%) and with over 85 years were 13 (14%).

Twenty-four had lung cancers, 15 had gastrointestinal one, 12 had pancreatic one, 11 had genito-urinary, 7 had breast, 5 had biliary cancer and 21 others (hepatocarcinoma, prostate, head-neck, thyroid, pleural mesothelioma).

Metastatic patients were 85 (90%). The main sites of metastasis were: lymph nodes, liver, bone, peritoneum, brain, and lung.

Forty-four patients received active cancer therapy: 34 chemotherapy at personalized doses, four hormone therapy and 6 target therapy (TKI Inhibitors or Monoclonal Antibodies).

The active oncological therapies administered in the last month of life were 18 (41%): 15 chemotherapy in Unfit patients and 3 hormone therapy in Frail patients.

Two patients with early-stage cancer were undergoing surgery.

G8 screened all 95 patients: 2 (2%) were not at risk and 93 (98%) were at risk. Patients at risk, evaluated by CGA resulted: 3 fit, 45 unfit and 45 frail.

In unfit and frail subgroups main comorbidities were: cardiac (55%), renal (21%), pulmonary (16%), dementia and depression (13%). The median comorbidity index of CIRS (Cumulative Illness Rating Scale) was similar 0.8 in unfit and 1.3 in frail groups.

Through the CGA we have identified these main geriatric syndromes: fragility (90%), urinary incontinence (22%), falls (18%), delirium (11%), dizziness (10%), and syncope (1%).

Of all 95 patients, 17 (18%) went to the Emergency Room for acute events requiring hospitalization in 13 cases (fractures, sepsis, dyspnoea).

Considering the presence or absence of a caregiver, all patients were evaluated with palliative care colleagues for activation of home hospitalization and for hospitalization in Hospice. The caregiver was present for 80 (86%) patients. Home hospitalization has been activated for 54 (57%) patients, while 41 (43%) patients were transferred to Hospice for terminality or relief hospitalization.

3.2 Fit Patients

2 fit patients underwent surgery and 1 patient received standard active cancer therapy.

3.3 Unfit Patients

41 unfit patients (91%) received personalized active cancer therapy and 4 patients got worse quickly and died. The oncological therapies administered were: mono-chemotherapy in 16 patients, polychemotherapy in 18, target therapy (TKI Inhibitors or Monoclonal Antibodies) in 6 and one hormone therapy. Chemotherapy was administered at a reduced dose of 20-30%. 3 patients receiving chemotherapy were hospitalized for grade 3-4 toxicity, one for gastrointestinal and two for hematological toxicity. In 15 patients chemotherapy was administered in the last month of life. In 26 patients the mean duration of treatment was approximately 96 days.

The median age was 76 (range 70-85 years) and the median score IADL/ADL (Instrumental/Activities Daily Living) was 5 (mild-moderate dependence).

The median daily drugs taken was 6 and the median number of geriatric syndromes was 1.3.

Malnutrition was present in 14 (31%) patients and MMSE (Mini-Mental State Examination) was normal in 28 (62%) patients.

Among these 45 patients 32 (71%) died with a median survival of 120 days (patients alive had a median follow-up of 145 days) 14 (44%) at home, 13 (40%) in hospice and 5 (16%) during hospitalization.

3.4 Frail Patients

Among 45 frail patients, 3 received hormone therapy and 42 received the Best Supportive Care. For 23 frail patients we did not perform biopsies for histological diagnosis because the patients were not candidates for active oncological treatments. The median age was 81 (range 70-94 years) and the median score IADL/ADL was 2 (severe dependence). The median daily drugs taken was 7 and the median number of geriatric syndromes was 2. Malnutrition was present in 25 (55%) patients, and MMSE was normal in 10 (22%) patients but it was impossible to evaluate 13 ones for a poor general medical condition.

Among these 45 patients 40 died with a median survival of 36 days: 12 at home, 24 in hospice, and 4 during hospitalization (Table 1 and Table 2).

Table 1 Characteristics of Unfit and Frail patients.

Patients	Median age	Median score IADL/ADL	Median daily drugs taken	Median number of Geriatric Syndromes	Malnutrition	Normal MMSE (>24)
41 Unfit	76	5	6	1.3	14 (31%)	28 (62%)
45 Frail	81	2	7	2	25 (55%)	10 (22%)

Table 2 Median Survival and place of death.

Patients	Dead	Median Survival (days)	Dead at Home	Dead in Hospice	Dead in Hospital
41 Unfit	32 (71%)	120	14 (44%)	13 (40%)	5 (16%)
45 Frail	40 (89%)	36	12 (30%)	24 (60%)	4 (10%)

4. Discussion

We screened, by G8 questionnaire, patients admitted to Oncology Ward because hospitalization in elderly cancer patients is a sentinel event that allows doctors to carry out a more in-depth geriatric evaluation [23] and, if it occurs precisely at the time of diagnosis, it can favor a personalized path and a protected discharge.

Through CGA, defining unfit patients from frail onesallows you to avoid diagnostic persistence and personalize treatments.

For 23 frail patients we did not perform biopsies for histological diagnosis because the patients were not candidates for active oncological treatments. This decision was shared with the patient and especially with family members, explaining that for the frail elderly cancer patient, the persistence of diagnosis should be avoided if not useful to improve the quality of life.

For 41 unfit patients we customized the treatment by adjusting the drug doses. Chemotherapy was administered at a reduced dose of 20-30%.

The data in the literature show that elderly cancer patients more frequently may have the following problems: increased risk of therapy toxicity, risk of hospitalization, total dependence on the caregiver, reduced motivation for treatment, and difficulty in reaching the treatment center [24]. However, tolerability to active cancer treatments improves for elderly patients by integrating early supportive care. Simultaneous palliative care can first intercept some side effects by defining the best management strategy with oncologists [25, 26].

In our experience the palliative care team treats any symptoms related to specific treatments or the disease, sharing those deriving directly from chemotherapy with the referring oncologist, based on the type of symptom. This is also not to affect the results of treatment with unsuitable support drugs, for example, such as the use of high-dose steroids during immunotherapy. The palliative doctors communicate directly with the company mobile phone with the reference oncologist available in case of urgency. Otherwise ordinary or minor communications take place via company email.

In any case, all patients in simultaneous care with problems inherent to the treatments are discussed by the oncologists and palliatives every week in the plenary, reporting each decision in their respective medical records. Patients who undergo radiotherapy treatments or require prolonged hospitalization and cannot stay at home can be transferred to the Hospice. During this hospitalization, oncologists also visit them in a natural continuity of care. In addition, through social workers, rehabilitation treatments are also defined in specialized rehabilitation facilities if necessary.

We observed that unfit patients have a better functional, cognitive and nutritional status than frail patients. Functional and cognitive impairments such as malnutrition are variables that in numerous studies are associated with a worse prognosis [23, 27].

Through the Mini-Nutritional Assessment we identified: 39 malnourished patients and 35 patients at risk of malnutrition. 14 Unfit malnourished patients, evaluated by the Hospital's Nutritional Service colleagues, started a Total Parenteral Nutrition. It is also necessary to implement adequate preventive nutritional support strategies for at risk patients. We are organizing a path, with a dedicated nutritionist, that allows us to monitor the nutritional status of patients during oncological treatments.

The quality of end of life intended as optimal control of symptoms, avoiding the administration of chemotherapy in the last month and avoiding death in the hospital can only be guaranteed with the integration of palliative care services [28, 29].

The active oncological therapies administered in the last month of life were 15 chemotherapy in Unfit patients and 3 hormone therapy in Frail patients. However, 13 patients were followed up simultaneously by the oncologist and the palliative care specialist.

The data in the literature show that up to 50% of patients receive chemotherapy in the last month of life. Generally, the factors influencing this choice are young age, type of tumor, chemosensitivity and a short history of metastatic cancer [30].

We suppose that in the elderly patient it may be useful to repeat the CGA after the first month of chemotherapy and also cyclically to redefine the vulnerability and the status between Unfit and Frail. Reviewing the patient in this way would probably avoid active and useless treatments in the last month of life. Aging remains heterogeneous for each patient and can be altered especially during active oncological treatments.

5. Conclusions

Our data shows that oncologists still too often perceive active cancer treatments as fundamental for patient care until the end, also for this, interaction with palliative colleagues in the path of care of cancer patients becomes indispensable.

With the early integration of palliative care only 9 (12%) patients died in the hospital and 26 (36%) at home. Despite the caregiver's presence , most frail patients (60%) died in Hospice because they were hospitalized in serious general clinical conditions. With the general aging of the population and the consequent increase in cancer diagnoses it will become increasingly important to create personalized diagnostic-therapeutic pathways for the elderly cancer patient and to verify the continuity of patient care through the early integration of palliative care. CGA and palliative care must be the solid basis to avoid the risks of over and undertreatment, first of all safeguarding the quality of life of unfit and frail patients.

Acknowledgments

The authors thank the nurses of the Oncology Ward and Palliative Care Unit of Carlo Poma Hospital of Mantova, Italy, involved in the care of patients.

Author Contributions

Each author contributed equally to the drafting of the work.

Funding

The authors received no financial support for the research, authorship, and/or publication of this submission.

Competing Interests

None of the authors has conflict of interest with this submission.

Additional Materials

The following additional materials are uploaded at the page of this paper.

1. Attachment 1

References

1. Siegel R, Naishadham D, Jemal A. Cancer statistics, 2013. CA Cancer J Clin. 2013; 63: 11-30.
2. Hutchins LF, Unger JM, Crowley JJ, Coltman Jr CA, Albain KS. Underrepresentation of patients 65 years of age or older in cancer-treatment trials. N Engl J Med. 1999; 341: 2061-2067.
3. Basche M, Barón AE, Eckhardt SG, Balducci L, Persky M, Levin A, et al. Barriers to enrollment of elderly adults in early-phase cancer clinical trials. J Oncol Pract. 2008; 4: 162-168.
4. Balducci L, Extermann M. Management of cancer in the older person: A practical approach. Oncologist. 2000; 5: 224-237.
5. Lichtman SM, Boparai MK. Anticancer drug therapy in the older cancer patient: Pharmacology and polypharmacy. Curr Treat Options Oncol. 2008; 9: 191-203.
6. Puts MT, Hardt J, Monette J, Girre V, Springall E, Alibhai SM. Use of geriatric assessment for older adults in the oncology setting: A systematic review. J Natl Cancer Inst. 2012; 104: 1134-1164.
7. Chaïbi P, Magné N, Breton S, Chebib A, Watson S, Duron JJ, et al. Influence of geriatric consultation with comprehensive geriatric assessment on final therapeutic decision in elderly cancer patients. Crit Rev Oncol Hematol. 2011; 79: 302-307.
8. Balducci L, Colloca G, Cesari M, Gambassi G. Assessment and treatment of elderly patients with cancer. Surg Oncol. 2010; 19: 117-123.
9. Wildiers H, Heeren P, Puts M, Topinkova E, Janssen-Heijnen ML, Extermann M, et al. International society of geriatric oncology consensus on geriatric assessment in older patients with cancer. J Clin Oncol. 2014; 32: 2595-2603.
10. Hurria A, Togawa K, Mohile SG, Owusu C, Klepin HD, Gross CP, et al. Predicting chemotherapy toxicity in older adults with cancer: A prospective multicenter study. J Clin Oncol. 2011; 29: 3457-3465.
11. Extermann M, Boler I, Reich RR, Lyman GH, Brown RH, DeFelice J, et al. Predicting the risk of chemotherapy toxicity in older patients: The Chemotherapy Risk Assessment Scale for High-Age Patients (CRASH) score. Cancer. 2012; 118: 3377-3386.
12. Soubeyran P, Fonck M, Blanc-Bisson C, Blanc JF, Ceccaldi J, Mertens C, et al. Predictors of early death risk in older patients treated with first-line chemotherapy for cancer. J Clin Oncol. 2012; 30: 1829-1834.
13. Extermann M, Hurria A. Comprehensive geriatric assessment for older patients with cancer. J Clin Oncol. 2007; 25: 1824-1831.
14. Pal SK, Katheria V, Hurria A. Evaluating the older patient with cancer: Understanding frailty and the geriatric assessment. CA. 2010; 60: 120-132.
15. Rodin MB, Mohile SG. A practical approach to geriatric assessment in oncology. J Clin Oncol. 2007; 25: 1936-1944.
16. Soubeyran P, Bellera CA, Gregoire F, Blanc J, Ceccaldi J, Blanc-Bisson C, et al. Validation of a screening test for elderly patients in oncology. J Clin Oncol. 2008; 26: 20568.

17. Temel JS, Greer JA, Muzikansky A, Gallagher ER, Admane S, Jackson VA, et al. Early palliative care for patients with metastatic non-small-cell lung cancer. N Engl J Med. 2010; 363: 733-742.
18. Zagonel V, Torta R, Franciosi V, Brunello A, Biasco G, Cattaneo D, et al. Early integration of palliative care in oncology practice: Results of the Italian Association of Medical Oncology (AIOM) survey. J Cancer. 2016; 7: 1968-1978.
19. Hui D, Bruera E. Models of integration of oncology and palliative care. Ann Palliat Med. 2015; 4: 89-98.
20. Baronner A, MacKenzie A. Using geriatric assessment strategies to lead end-of-life care discussions. Curr Oncol Rep. 2017; 19: 75.
21. Assi T, El Rassy E, Ibrahim T, Moussa T, Tohme A, El Karak F, et al. The role of palliative care in the last month of life in elderly cancer patients. Support Care Cancer. 2017; 25: 599-605.
22. Koll T, Pergolotti M, Holmes HM, Pieters HC, van Londen GJ, Marcum ZA, et al. Supportive care in older adults with cancer: Across the continuum. Curr Oncol Rep. 2016; 18: 51.
23. WMA – The world Medical Association. WMA declaration of Helsinki – Ethical principles for medical research involving human subjects [Internet]. Available from: https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/.
24. Jonna S, Chiang L, Liu J, Carroll MB, Flood K, Wildes TM. Geriatric assessment factors are associated with mortality after hospitalization in older adults with cancer. Support Care Cancer. 2016; 24: 4807-4813.
25. Balducci L. Geriatric oncology, spirituality, and palliative care. J Pain Symptom Manage. 2019; 57: 171-175.
26. Naeim A, Aapro M, Subbarao R, Balducci L. Supportive care considerations for older adults with cancer. J Clin Oncol. 2014; 32: 2627-2634.
27. Balducci L, Dolan D, Hoffe SE. Palliative care in older patients with cancer. Cancer Control. 2015; 22: 480-488.
28. Zhang X, Pang L, Sharma SV, Li R, Nyitray AG, Edwards BJ. Malnutrition and overall survival in older patients with cancer. Clin Nutr. 2021; 40: 966-977.
29. Nipp RD, Temel JS. Multimorbidity and aggressiveness of care at the end-of-life among older adults with cancer. J Geriatr Oncol. 2017; 8: 82-83.
30. Henson LA, Gomes B, Koffman J, Daveson BA, Higginson IJ, Gao W, et al. Factors associated with aggressive end of life cancer care. Support Care Cancer. 2016; 24: 1079-1089.
31. Braga S. Why do our patients get chemotherapy until the end of life? Ann Oncol. 2011; 22: 2345-2348.