



Comprehensive geriatric assessment and decision-making in older men with incurable but manageable (chronic) cancer

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Abstract

Purpose In older cancer patients, treatment decision-making is often complex. A comprehensive geriatric assessment (CGA) is an established tool used in geriatric medicine to identify unmet need requiring intervention. This study aimed to assess whether using a CGA in older male cancer patients with incurable but manageable disease provides information that would alter a cancer clinician's intended management plan. Acceptability and feasibility were secondary aims.

Methods Elderly men with incurable but manageable malignancies (advanced prostate cancer and multiple myeloma) who had previously received at least one line of treatment were recruited from hospital outpatient clinics. A CGA was undertaken. Additional parameters measuring pain, fatigue and disease-specific concerns were also recorded, at the recommendation of patient involvement groups. Results were made available to clinicians. Patient and clinician acceptability and changes in subsequent management were recorded.

Results Forty-eight patients completed the study. The median ages were 70.8 years and 74 years for myeloma and prostate respectively. Most identified concerns are related to disease-specific concerns (93%), pain (91%), frailty (57%) and nutrition (52%). Results altered the clinician's oncological management plan in nine cases only. Patients found the format and content of CGA acceptable.

Conclusions Many unmet needs were identified in this population of elderly men with manageable but non curable cancer which led to supportive care referrals and interventions. The CGA, however, did not result in significant changes in clinical oncology treatment plans for the majority of patients. The application of the CGA and other assessments was viewed positively by participants and can feasibly be undertaken in the outpatient oncology setting.

Keywords Comprehensive geriatric assessment · Advanced prostate cancer · Multiple myeloma

Introduction

More than half of new cancer diagnoses in North America and Europe occur in patients aged over 65, a figure which is

projected to increase significantly as a result of the ageing population [1]. Older cancer patients often have complex clinical needs at the time of diagnosis. These may arise as a direct consequence of their malignancy, but can also reflect the presence of comorbidities, polypharmacy, impaired functional status, mobility loss or lack of social support.

Age remains one of the most significant influencing factors when cancer treatment decisions are made. Compared with younger patients, older cancer patients are more frequently under-investigated [2] and undertreated [3] and are less likely to be enrolled in clinical trials [4]. In combination, these factors have resulted in the failure to improve cancer survival in this population despite improvements in overall cancer survival [5, 6]. The health of older patients with chronic cancers (such as advanced prostate cancer and multiple myeloma) may be affected by a multitude of factors including ongoing

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cancer treatment, disease progression, comorbidities and the physiological changes associated with general ageing. These all increase the likelihood of patients becoming frail during an extensive period of cancer treatment.

There are significant differences in the diagnosis and management of cancer in male and female patients. Men are less likely to visit their family doctor [7], are more likely to ignore symptoms suggestive of cancer [8] and more frequently present with advanced disease, with consequent adverse effects on survival [9]. There is also a disparity in the research investment between male and female cancers in the UK. The annual research spends per patient with breast and ovarian cancer are £853 and £1092 respectively, compared with £417 for prostate cancer [10]. Access to clinical trials for all patients is vital in order to address the inequalities in cancer treatment and outcomes between male and female patients.

Comprehensive geriatric assessment (CGA) is a widely used tool in geriatric medicine. It is a multi-disciplinary and multi-dimensional process that includes assessment of various medical, psychological, social and functional domains in order to identify unmet clinical needs [11, 12]. Individualised treatment plans are developed for each patient based on CGA outcome. In non-oncology settings, interventions following CGA have reduced the institutionalisation of community-dwelling individuals and led to improved function and survival [13].

The International Society of Geriatric Oncology (SIOG) has produced guidelines for CGA in older cancer patients [14]. These suggest that all older cancer patients (aged over 70) should undergo a full CGA, including assessment of functional status, comorbidity, cognition, mental health status, fatigue, social status and support, nutrition and presence of geriatric syndromes. However, no specific recommendations are made regarding which screening tools or cut-offs for impairment should be used.

Frailty is defined as a state of vulnerability to poor resolution of homeostasis following a stressor event. It develops as a consequence of cumulative decline across multiple physiological systems and increases the risk of adverse outcomes in the general elderly population [15]. There is no consensus as to how it should be assessed and defined in clinical studies of older cancer patients. The Rockwood clinical frailty score is one such tool available to identify frailty, which measures the severity of frailty after CGA is carried out [16]. A simple frailty score in myeloma incorporating age, comorbidities and a geriatric assessment of cognitive and physical function was found to correlate well with toxicity and mortality, but requires further validation [17]. In the geriatric medicine literature, the Fried phenotype model [18] and the cumulative deficit model [19] are widely used tools.

The primary aim of this study was to determine whether the use of CGA in older men with incurable but manageable (chronic) cancer was able to provide information on fitness for treatment that would alter a clinician's intended management plan. Secondary aims were to determine the prevalence of patient

needs; correlation of clinician-rated with patient self-related frailty; acceptability of the assessment process by patients and clinicians; and feasibility in routine clinical practice.

Methods

Study participants

Men over the age of 60 with a diagnosis of incurable cancer (advanced prostate cancer or multiple myeloma) who had previously received one or more lines of treatment, and who were being considered for further systemic treatment (including targeted therapies), were recruited to this study. Patients who had begun end of life care, who were not fluent in English or who were unable to provide written informed consent were excluded from participation.

Recruitment and ethical considerations

All participants were recruited between March and December 2014 from outpatient clinics at Sheffield Teaching Hospitals NHS Foundation Trust. Ethical approval was obtained from the National Research Ethics Service for Yorkshire and Humber. Written informed consent was obtained from all participants and also from the clinicians that assessed the patient and were responsible for clinical management decisions.

Comprehensive geriatric assessment and additional assessments

CGA and additional assessments comprised clinician-led and patient-reported validated tools examining various domains (Table 1). Where required, all relevant permissions to use tools were gained. Domains assessed by clinicians included cognition (mini-mental state examination), nutritional status (mini-nutritional assessment short form); frailty (clinician assessment and the Rockwood frailty score), functional status (instrumental activities of daily living), mobility (timed up and go test) and grip strength (using a Jamar dynamometer). Patient-reported domains included functional status (activities of daily living), mood (geriatric depression score), fatigue (functional assessment of chronic illness therapy) [20], social function (medical outcomes study) [21], pain (European Organisation for Research and Treatment of Cancer BM22 module) [22], overall well-being and disease-specific concerns (functional assessment of cancer therapy: general and myeloma or prostate) [20]. Some of the domains that were included are additional to those used in a 'standard' CGA. These were included on the recommendation of both patient focus groups held during the study design process, and on the advice of a local geriatrician, in order to ensure common patient concerns would be considered.

Table 1 CGA domains and additional assessment tools used, criteria for doctor alert and frequency of domain impairment

Domain	Tool	SIOG guideline [17]	Scoring and description	Assessment completion	Trigger for doctor alert	Frequency of doctor alert		
						Myeloma, n = 24	Prostate, n = 24	Total (% all)
Cognition	MMSE	√	Maximum score = 30 ≥ 24 = normal cognitive function	Researcher-led	≤ 23	0	0	0
Nutrition	MNA-SF	√	Maximum score = 14 8–11 = at risk of malnutrition ≤ 7 = malnutrition	Researcher-led	≤ 11	12	11	23 (52)
Frailty	Clinician-rating, the patient self-rated Rockwood clinical frailty scale [16]	√	Fit/well—no age limiting modification of treatment plan Vulnerable—process with caution, minor vigilance required Frail moderate to severe—treatment modification required or palliative treatment only Scale of 1–9 for of activity level (1 = most able, 9 = least able). 4 = vulnerable, not dependent but symptoms limit activities	Clinician-led Researcher-led	n/a ≥ 4	12	13	25 (57)
Functional status	IADL, ADL	√ √	0 = dependent, 1 = independent maximum score = 5 (male version) 10 activities rated out of 10, 10 = independent, 1 = completely dependent. Maximum score 100.	Participant-led Researcher-led	Total score, individual items of concern	4 0	3 0	7 (16) 0 (0)
Mobility	TUG, falls questionnaire	√	Stand from chair, walk 3 m, turn, walk back and sit 20–30 s = impairment ≥ 14 s = at risk of falls Self-reported number of falls and injuries sustained in the past year	Researcher-led Participant-led	≥ 14 s Any fall	6 5	10 9	16 (36) 14 (32)
Grip strength	The Jamar dynamometer		The mean of 3 readings taken for each hand. Table of established normative grip strength ranges for adults	Researcher-led	< 2 SD below mean for age	4	1	5 (11)
Mood	GDS	√	Maximum score = 15 ≤ 4 no risk for depression ≥ 5 increased risk of depression	Participant-led	≥ 5	7	9	16 (36)
Fatigue	FACIT-F		Maximum score = 52	Participant-led	≤ 30	7	12	19 (43)
Social function	MOS		Average score (range 1–5) for 19 items. 3 = medium support ≤ 2 = low support	Participant-led	Average score ≤ 2	2	1	3 (7)
Pain	EORTC BM22			Participant-led		20	20	

Table 1 (continued)

Domain	Tool	SIOG guideline [17]	Scoring and description	Assessment completion	Trigger for doctor alert	Frequency of doctor alert		
						Myeloma, n = 24	Prostate, n = 24	Total (% all)
			22 questions, each rated as; 'not at all', 'a little', 'quite a bit' or 'very much'		Any re-sponse 'quite a bit' or 'very much'			40 (91)
Overall well-being/disease-specific concerns	FACT-G and FACT-M or FACT-P		37 questions: physical, social, emotional and functional well-being 14 additional questions FACT-M 12 additional questions FACT-P	Participant-led	Any re-sponse 'quite a bit' or 'very much'	19	22	41 (93)

MMSE mini-mental state examination, *MNA-SF* mini-nutritional assessment short form, *FACIT* functional assessment of chronic illness therapy, *FACT* functional assessment of cancer therapy, *EORTC* European organisation for research and treatment of cancer, *PSI* pounds per square inch, *TUG* timed up and go test, *GDS* geriatric depression score, *MOS*: Medical outcomes study

Doctor alerts

A pre-determined cut-off was specified for each of the tools that were used to assess a domain, and these cut-offs were used to define impairment. When this occurred, a 'doctor alert' was triggered, resulting in this information being given to the clinician. Details are provided in Table 1.

Clinician assessment and intervention status

Clinicians recorded their subjective assessment of each patient before the results of CGA were available to them. They were asked to classify each patient as 'fit', 'vulnerable' or 'frail' and to specify their ECOG performance status as per SIOG guidelines [14]. Clinicians were then provided with the results of the CGA, patient self-rated frailty status (using the Rockwood Frailty Score [16]) along with any doctor alerts. Clinicians documented whether this additional information would alter their management plan or assessment of frailty status. Any further investigations and referrals that were required were carried out in accordance with standard clinical practice.

Patient acceptability

Following completion of CGA, participants were asked to complete a questionnaire to evaluate the entire process. This included questions regarding the length of time taken to complete all assessments, whether the tools that had been used were easy to understand, difficult or upsetting and whether they had any other health concerns that had not been picked up by the

process. Additional questions explored whether the assessments affected the subsequent consultation with the clinician.

Results

Of 69 eligible patients that were approached to enter the study, 52 (75%) agreed to participate and provided written informed consent (Fig. 1). Four patients withdrew from the study prior to data analysis, one at patient request and three at the request of the principal investigator due to failure to return questionnaires. Twenty-four patients with advanced prostate cancer and 24 patients with multiple myeloma were included in the final analysis. The demographics of participants are presented in Table 2.

Multiple myeloma group

The median time from diagnosis to study entry for patients with multiple myeloma was 2.64 years (range 0.38 to 10.5 years) with a median age of 70.8 years (range 61.8 to 85.8 years). All patients had received chemotherapy, including novel agents, and 50% had undergone one or two autologous stem cell transplant procedures. Almost all patients (96%) had received pulsed high-dose corticosteroid treatment in combination with chemotherapy.

Prostate cancer group

In the group of patients with prostate cancer, the median time from diagnosis to study entry was 6.67 years (range 1.02 to 13.06 years), with a median age of 74 years (range 63.0 to 93.6 years). Patients in this group had received a variety of

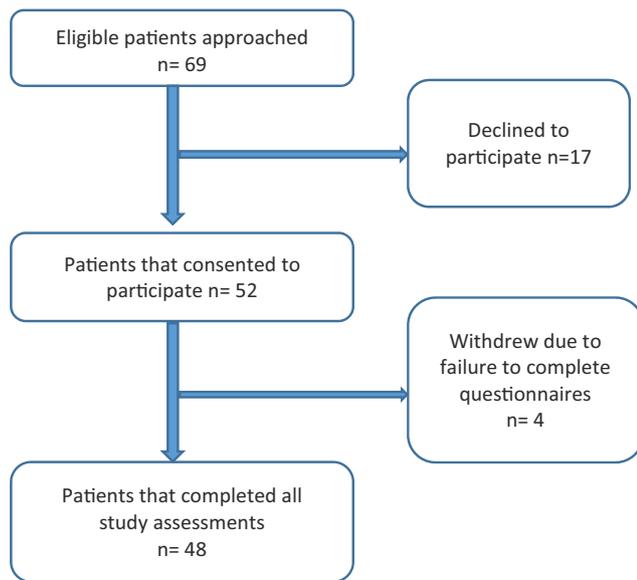


Fig. 1 CONSORT diagram of patient recruitment

treatments prior to study entry. Eight patients (33%) had undergone previous surgery and 19 patients (79%) had been treated with radiotherapy (radical radiotherapy in 5 cases). All patients had received androgen deprivation treatment (ADT), 20 patients (83%) corticosteroids and 3 patients (12%) chemotherapy and two patients (4%) had been given other systemic treatments. Three patients had been treated for malignant spinal cord compression.

Frequency of ‘doctor alerts’

CGA and other assessments identified deficits in a wide range of domains. The greatest number of ‘doctor alerts’ was triggered by

the assessment of overall well-being and disease-specific concerns (93%) (identified by the functional assessment of cancer therapy tools) pain (91%), frailty (57%) and nutrition (52%) (Table 1). Alerts were also triggered in over a third of all participants for significantly impaired mobility, low mood and problematic fatigue. A relatively low proportion of alerts was generated by tools used to assess grip strength (11%), functional status (instrumental activities of daily living (IADL), 16%) and social function (7%). No participants were found to have impaired cognition, and no alerts were triggered from the assessment of function using ADLs.

(i) Scores from assessment tools

Overall scores for each domain assessed by CGA for the prostate cancer and myeloma group are shown in Table 3. The scores did not differ significantly between groups.

(ii) Assessment of frailty status

The results of frailty assessment are shown in Table 4. In general, there was a lack of correlation between the clinician assessment and the Rockwood frailty rating, with agreement for less than half the myeloma patients (10/24) and just over half for the prostate patients (13/24). Clinicians reported that the results of CGA would have changed their opinion regarding the frailty status of a patient in only four cases (8%, one patient with myeloma and three with prostate cancer).

(iii) Impact of a CGA and additional assessments on clinical management

Table 2 Patient demographics

	Multiple myeloma (<i>n</i> = 24)	Prostate cancer (<i>n</i> = 24)
Age (median, range)	70.8 (61.8 to 85.8)	74.0 (63.0 to 93.6)
BMI (median, range)	25.8 (18.1 to 30.7)	26.3 (21.2 to 37.5)
Ethnicity		
White British	92%	100%
Asian	8%	–
Years since initial diagnosis (median, range)	2.64 (0.38 to 10.50)	6.67 (1.02 to 13.06)
Previous treatments		
Chemotherapy	3	3
Chemotherapy + stem cell transplant (SCT)	24	–
Second SCT + bortezomib/lenalinomide	9	–
Long-term steroids	23	20
Radiotherapy	–	19
Prostate surgery	–	8
Androgen deprivation therapy	–	24

Table 3 Overall scores from assessment tools

Tool used (scale)	Total score (mean, SD)	
	Multiple myeloma	Prostate cancer
MMSE (0–30)	28.0 (2.2)	28.3 (1.7)
MNA-SF (0–14)	11.6 (2.5)	11.4 (1.6)
FACIT- fatigue score (0–52)	33.7 (10.6)	30.5 (12.7)
FACT-G (0–108)	79.2 (14.5)	76.7 (15.5)
FACT-M (0–56)	37.5 (10)	–
FACT-P (0–48)	–	30.1 (8.0)
EORTC BM22 pain (22–88)	42.7 (12.1)	43.9 (11.0)
	Total score (median, range)	
Average grip strength (PSI)		
Right	68.3 (42–117)	66.7 (35–117)
Left	57.5 (35–113)	60 (27–98)
TUG (secs)	12.0 (7.0–30.0)	12.0 (7.0–30.0)
GDS (0–15)	2.0 (0–7)	4.0 (0–11)
MOS (0–5)	4.6 (1.2–5.0)	3.8 (1.7–5.0)

MMSE mini-mental state examination, *MNS-SF* mini-nutritional assessment short form, *IADL* instrumental activities of daily living, *ADL* activities of daily living. High values indicate good cognition: 13–23 mild cognitive decline, 0–17 severe cognitive decline. *MNA-SF* mini-nutritional assessment short form. High values indicate good nutritional status; values ≤ 11 at risk of malnutrition. *FACIT* functional assessment of chronic illness therapy. Lower values indicate greater fatigue, < 30 indicative of fatigue. *FACT* functional assessment of cancer therapy (*G* general, *M* myeloma, *P* prostate). Higher values indicate poorer quality of life; *EORTC BM22 pain* European organisation for research and treatment of cancer pain scale. Higher values indicate more pain and poorer quality of life. *TUG* timed up and go test, measures basic functional mobility. Higher values indicate poorer mobility. *GDS* geriatric depression score, > 5 suggestive of depression, ≥ 10 almost always indicative of depression. *MOS* medical outcomes study social support. Higher values indicate greater support

CGA and additional assessments provided additional information that would have altered the clinician's management plan in nine cases (20%), four patients with myeloma and five with prostate cancer. Modifications of clinical management included supportive care interventions and did not include alterations to oncology treatments. Examples of proposed alterations in management plan are shown in Fig. 2.

Patient evaluation and acceptability

An evaluation was completed by 44 participants (92%). Forty-one of these were able to complete all study questionnaires without assistance. The average time taken to complete both participant-led and clinician-led assessments was 42 min. All but two patients agreed the length of time taken to complete assessments was satisfactory.

No participants found the content of the assessment to be upsetting. Thirty-nine patients (89%) agreed that the assessments provided useful information for their clinician, and 27 (61%)

reported that they found it easier to talk to the clinician once they had completed the assessment process. Twenty-five patients (57%) agreed that they had a better understanding of their own health status as a result of completing the assessments.

Discussion

This study has confirmed that CGA, alongside additional cancer and disease-specific assessments (an enhanced CGA), has the ability to identify unmet need in this patient group. Assessment of pain, fatigue, overall well-being and disease-specific concerns, although not recommended in the traditional CGA, provided additional important clinical information in the majority of patients and resulted in non-oncological recommendations or interventions. On the basis of our observations, this does not imply that the enhanced CGA is without importance, more that its use is more likely to influence supportive care management than oncological treatment management per se.

Assessment of mobility, mood and fatigue was also reliably able to detect important clinical problems that may have a significant effect on ability to tolerate treatment and quality of life. Assessment of grip strength, functional status (using ADL and IADL), social function and cognition was the least likely to highlight concerns and is less likely to add meaningful information in this particular patient group.

We found that pain is an important issue in older men with both prostate cancer and myeloma, with 91% of patients in this study reporting sufficient pain to trigger a 'doctor alert'. This is not surprising, given the incidence of bone lesions and other skeletal-related events (such as pathological fracture) in both of these malignancies. The EORTC BM22 tool used in our study was specifically developed and validated for the assessment of pain secondary to bone metastases [23]. A systematic review of geriatric assessment in the oncology setting found that only three out of a total of 73 studies assessed pain [24]. Given the high prevalence of pain identified in our study, together with the fact that several cases of change in clinician management plan were attributed to analgesia requirements, it would seem appropriate to recommend that future studies of CGA in this population include a tool to assess pain.

Fatigue is common in cancer patients after treatment, is often under-recognised by clinicians, under-reported by patients and has significant impact on quality of life. Forty-three percent of patients in our study had significant fatigue, although identification of this did not directly influence the clinician management plan. This may be due to a perceived lack of referral or management options, or the fact that fatigue may arise as a result of both physical and psychological factors.

Frailty is associated with adverse outcomes in the general elderly population and may also have an impact on tolerance to treatment and survival in older cancer patients [25]. It is

Table 4 Identification of frailty

(a) By cancer group	Clinician-rated frailty (using the SIOG recommended frailty status)	
Patient self-rated frailty (using the Rockwood-rated frailty score)	Fit	Vulnerable or frail
Myeloma group		
Fit	5	7
Vulnerable or frail	6	6
Prostate group		
Fit	7	4
Vulnerable or frail	–	13
(b) By age	70 and under	Over 70
Patient self-rated frailty (using the Rockwood-rated frailty score)		
Fit	10	13
Vulnerable	11	14
Clinician-rated frailty		
Patient self-rated frailty (using the Rockwood-rated frailty score)	Fit	Vulnerable or frail
All		
Fit	12	11
Vulnerable	6	19
70 and under		
Fit	7	3
Vulnerable or frail	5	6
Over 70		
Fit	5	8
Vulnerable or frail	1	13

estimated that approximately 43% of older cancer patients are vulnerable (pre-frail), with 42% being frail [25]. In our study, patients self-rated their own frailty status using the Rockwood clinical frailty score and this identified just over half (25/48) of patients in our study as vulnerable (pre-frail) or frail. There was poor agreement between the Rockwood score and the clinicians' subjective assessment of frailty, with clinicians identifying a greater proportion of patients as being either pre-frail or frail. Clinicians only changed their opinion of frailty status in four cases (8%) when CGA results became available.

Interestingly, there was no difference in the prevalence of frailty using the traditional age of 70 years as a cut-off. The numbers are small; however, these novel findings may imply that frailty may occur prematurely in younger cancer patients with chronic or advanced disease who have endured ongoing or multiple lines of treatment.

- The EORTC BM22 questionnaire identified higher pain levels than the patient reported to the clinician during the clinic visit. The patient was subsequently prescribed additional analgesia
- The MNA identified a patient at risk of malnutrition. The clinician offered dietary supplementation and considered referral to a dietician.
- The GDS score suggested underlying low mood and require greater psychological support required. Clinician considered referral for counselling.

Fig. 2 Examples of alterations to clinical management plan based upon CGA results

Relatively few studies have investigated the impact of CGA on clinician treatment decisions. Our study found that in nine patients (20%), the results of CGA would have altered the clinician's intended management plan. Other studies have reported that CGA altered the oncological treatment strategy in around one quarter of patients [26]; in one study, this occurred in nearly half of all participants [27]. However, this study only included patients where the therapeutic decision was thought to be complex. Our combined assessments resulted in non-oncological interventions being offered to patients. This is demonstrated in our study with triggers for overall well-being and disease-specific concerns (93%), pain (91%), frailty (57%) and nutrition (52%) but with only 20% potentially altering the clinician's intended management plan. On the basis of our observations, detailed assessment is more likely to influence supportive care management than oncological treatment management per se. Between 26 and 100% of patients in eight recent studies were offered non-oncological interventions based upon CGA [26], which most often included nutritional support, review of prescribed medications and referral for psychological support. It may be that greater awareness and adoption of CGA and related assessments into oncology and haematology practice through professional guidelines and training will influence the acceptance of these assessments in routine practice [28–30].

The main strengths of our study are that the enhanced CGA process was tailored to include domains recommended by

official guidelines and also by patients [29]. As a consequence, we have identified two domains (pain and fatigue) that are infrequently used in CGA yet seem to be particularly important to consider in this patient population.

Our study also confirms both the feasibility and acceptability of using CGA in older male patients with advanced cancer who had been extensively pre-treated. Our findings support the results of a study of 266 male patients with a variety of tumour types, where it was found to be feasible to conduct CGA in an outpatient setting using a patient-reported format [31]. The majority of our patients reported that the time taken to complete assessments and the content of the enhanced CGA were acceptable. Previous studies in older cancer patients that have relied upon patient-reported CGA measures have found that more than 75% of patients were able to complete assessments independently and that participants were generally satisfied with the length and content of questionnaires [31–34].

Our study was limited by relatively small numbers of patients and the fact that only a few clinicians participated in patient assessment. However, we have found it to be both feasible and useful to conduct the enhanced CGA in an outpatient oncology setting in the UK. The changing demographic of patients presenting to oncology departments will require a shift in clinical practice in order to deliver the best possible care. Both the UK Department of Health report ‘Cancer services coming of age’ and the Macmillan Expert Reference Group for the older person with cancer have made a series of recommendations for the management of older cancer patients [35, 36]. The European Organization for Research and Treatment of Cancer Elderly Task Force have also published a position paper which outlines key issues and priorities for further research [37]. However, all such recommendations rely upon oncologists actively seeking to improve their knowledge of geriatric assessment and provision of the means to develop and expand dedicated geriatric oncology services.

There is a significant variation in the provision of geriatric oncology services in the UK, with a recent survey of UK health professionals reporting that only 14% have regular geriatrician input in oncology clinics, with one quarter having urgent access to social and psychological support [38]. In addition, the majority of current services have either temporary or charity funding. A dedicated task force was established by SIOG to determine the level and organisation of clinical activity in Europe and North America. Of 58 responses, 21 centres had a geriatric oncology programme [39]. Most involved geriatrician input into oncology departments, and the majority included regular MDT discussion. However, this was carried out over a decade ago, and there is no published summary of currently available services.

Future studies involving CGA in prostate, myeloma and other cancer patient populations are warranted to inform models of care for future service delivery. Potential benefits include minimisation of treatment-related toxicity and mortality and maximisation of health-related quality of life as well as

enhancing cost effectiveness of modern cancer agents in an increasingly complex elderly patient population. CGA and related assessments are now being incorporated within some prospective clinical trials of chemotherapy, alongside health economic assessments [17]. Ultimately, implementation of an enhanced CGA into routine clinical practice requires adoption of professional guidelines and recommendations [29, 30, 40] and systematic clinician training [28].

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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