

[ORIGINAL ARTICLE]

Geriatric Screening for Hospitalized Older Adults with Cancer: A Survey of the Japanese Association of Clinical Cancer Centers

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Abstract:

Objective Geriatric screening followed by a more detailed assessment and intervention is recommended for older adults with cancer. However, little is known regarding how the geriatric screening covered by Japanese health insurance is used for hospitalized older cancer patients. We surveyed all hospitals in Japanese Association of Clinical Cancer Centers (JACCC) to explore the current use of this approach.

Methods The JACCC member hospitals specialize in cancer care from prevention, through diagnosis and treatment, to palliative care. We mailed paper questionnaires to the presidents of the hospitals in December 2019 and collected them by February 2020. The survey requested general hospital information and asked whether (and how) such geriatric screening for hospitalized older adults with cancer was conducted.

Results Twenty-six of 32 hospitals completed the survey (81%). Fourteen hospitals are cancer centers, while the remaining 12 hospitals are general hospitals which care of both cancer and non-cancer patients. Eleven hospitals (42%) performed geriatric screening and the most common use of the results was for “early discharge planning” and for “applying for long-term care insurance.” Most clinicians rated the screening “somewhat” or “a little” helpful and found it most helpful for “meeting patient-post discharge needs”. The most frequently reported barrier to implementation was a “lack of leadership to improve the care of older adults.”

Conclusion Geriatric screening was used at less than half of the major cancer centers and hospitals in Japan. One feasible solution to this problem is to establish an interprofessional workgroup at each hospital with the shared goal of providing high-quality care for this population.

Key words: comprehensive geriatric assessment, geriatric screening, hospitalized older adults with cancer, Japanese Survey

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Introduction

Japan is one of the most aged societies in the world. As cancer is a disease closely associated with aging, people aged 65 years and older account for 70% of patients with newly diagnosed cancer in Japan (1). Older adults with cancer are hospitalized for many different reasons including

cancer-related symptoms, cancer treatment, side effects, and complications. Hospitalized older adults are also at high risk of developing a functional decline and other adverse outcomes during hospitalization (2).

In order to improve the outcomes of hospitalized older patients, a comprehensive geriatric assessment (CGA) has been used in general geriatric settings (3). CGA is a model of care that includes multidimensional health assessment to

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Table 1. Member Hospitals of the Japanese Association of Clinical Cancer Centers (JACCC).

NHO Hokkaido Cancer Center
Aomori Prefectural Central Hospital
NHO Hokkaido Cancer Center
Miyagi Cancer Center
Yamagata Prefectural Central Hospital
Ibaraki Prefectural Central Hospital, Ibaraki Cancer Center
Tochigi Cancer Center
Gunma Prefectural Cancer Center
Saitama Cancer Center
National Cancer Center Hospital East
Chiba Cancer Center
National Cancer Center Hospital
The Cancer Institute Hospital of JFCR
Tokyo Metropolitan Cancer and Infectious Diseases Center Komagome Hospital
Kanagawa Cancer Center
Niigata Cancer Center Hospital
Toyama Prefectural Central Hospital
Ishikawa Prefectural Central Hospital
Fukui Prefectural Hospital
Shizuoka Cancer Center Hospital
Aichi Cancer Center Hospital
NHO Nagoya Medical Center
Shiga General Hospital
NHO Osaka National Hospital
Osaka International Cancer Institute
Hyogo Cancer Center
NHO Kure Medical Center and Chugoku Cancer Center
Yamaguchi Grand Medical Center
NHO Shikoku Cancer Center
NHO Kyushu Cancer Center
Saga Prefectural Hospital Koseikan
Oita Prefectural Hospital

JFCR: Japanese Foundation for Cancer Research, NHO: National Hospital Organization

identify care needs and interprofessional care plans tailored to individual patients. It has been shown to improve a variety of relevant patient outcomes, including the functional status, and mortality.

Since screening older persons likely to benefit from CGA is the key to success, targeting appropriate individuals is recommended as the first step (4). For the implementation of this approach in daily practice, geriatric screening during admission has been reimbursed under the Japanese health care insurance system since 2008. The reimbursement point is 100, which is equivalent to 1,000 yen (100 Japanese yen = 0.92 US dollars as of December 2019). To claim for this point, a hospital needs to have at least one physician and/or dentist who has completed a 2-day course training for CGA and the geriatric screening needs to include at least the following domains: activities of daily living (ADLs), cognition and motivation.

Geriatric screening followed by more detailed assessment and intervention is recommended for older adults with cancer based on the international guidelines (5, 6). However, little is known regarding how such geriatric screening covered

by Japanese health insurance is used in the care of older adults with cancer admitted to the hospital. Therefore, we surveyed all hospitals in the Japanese Association of Clinical Cancer Centers (JACCC) (7) to explore the current use of the geriatric screening for this population.

Materials and Methods

We conducted a survey of all hospitals in the JACCC, which comprises 32 hospitals located throughout Japan (Table 1). These JACCC member hospitals specialize in cancer care from prevention, through diagnosis and treatment, to palliative care. These hospitals are recognized for their patient care, research, and educational expertise. We mailed paper questionnaires to presidents of the hospitals in December 2019 and collected them by February 2020.

The questionnaire was comprised of two parts. The first part investigated hospital characteristics (region; number of beds; number of all inpatients, new cancer patients, new patients admitted for cancer and the proportion of adults aged 65-74, 75-84, ≥85 years; existence of a geriatrics division

Table 2. Characteristics of the Participating Hospitals (n=26).

Region (total No. of hospitals in each region)	Number responded	Response rate
Hokkaido/Tohoku (n=5)	5	100%
Kanto (n=10)	7	70%
Chubu (n=7)	6	86%
Kinki (n=4)	4	100%
Chugoku/ Shikoku (n=3)	2	67%
Kyushu/ Okinawa (n=3)	2	67%
Total (n=32)	26	81%
	Median	Range
Number of beds	504	291-809
Number of new cancer patients per year	2,312	947-10,443
Number of hospitalized patients with cancer per year	4,678	916-17,383
% 65-74 years of hospitalized patients with cancer	35.5	27.1-40.7
% 75-84 years of hospitalized patients with cancer	23.8	13.9-28.8
% ≥85 years of hospitalized patients with cancer	4.4	1.5-11.7

and geriatric oncology service; number of geriatricians). We asked the first part to be completed by a hospital administrative staff member.

The second part started with the following two questions: 1) whether they conducted the geriatric screening for hospitalized older adults with cancer and claimed the medical fee point and 2) whether they had a team that supported clinicians for the care of older adults. For hospitals conducting the geriatric screening, we asked who were screened, who performed the screening, what screening tools were used [CGA7 (8), Kihon-Checlist (9), Geriatric 8 (G8) (10), VES-13 (11) and other], and what additional assessment tools were used in patients with positive screening results [basic and instrumental ADLs: Katz index (12), Barthel index (13), Lawton scale (14), the Tokyo Metropolitan Institute of Gerontology Index of Competence (15) and other; cognition: Mini-COG (16), the Revised Hasegawa Dementia Scale (HDS-R) (17), Mini-Mental Status Examination (MMSE) (18) and other; motivation: vitality index (19), Geriatric Depression Scale (GDS) (20), Patient Health Questionnaire-9 (PHQ-9) (21) and other]. Next, we asked how the geriatric screening results were utilized in care (referral to physical therapy, deprescribing medications, advanced care planning, early discharge planning, use of long-term care insurance, use of visiting nurse service, discussing the findings at conference before discharge, and other). Finally, we asked what the perceived benefits were (meeting patient-post discharge needs, shortening hospital stays, reducing hospital readmissions, detecting unidentified problems, improving ADLs, decreasing delirium, decreasing falls, decreasing polypharmacy, fostering multidisciplinary care, and other), and also evaluated how helpful the geriatric screening was, using a 4-point Likert scale ranging from very helpful, somewhat helpful, a little helpful and not helpful. For hospitals not conducting the geriatric screening covered by the health insurance, we asked whether they performed such geriatric screening without claiming reimbursement, whether they knew about the geriatric screening,

whether there were any physicians and/or dentists who completed the CGA training, and whether they were planning to implement the screening covered by the health insurance. We investigated the barriers to the implementation of such geriatric screening (lack of knowledge in screening methods and how to utilize the results in patient care, lack of shared necessity among clinicians, lack of leadership to improve the care of older adults, shortage of human resources, too few medical fee points, too time consuming, lack of usefulness, and other). We asked the presidents to designate a physician who was best suited to complete the second part of the questionnaire. Two follow-up reminders were sent to all institutions. Descriptive statistics were used to summarize the baseline characteristics of the sample. As an exploratory analysis, we evaluated the bivariable associations between the conduct of the geriatric screening and the hospital characteristics. We used Fisher's exact test or the Wilcoxon Rank-sum test depending on categorical or continuous variables.

Results

The survey was completed by 26 of 32 hospitals (81.3%). Fourteen hospitals are cancer centers, while the remaining 12 hospitals are general hospitals which care of both cancer and non-cancer patients. There were two board-certified geriatricians (NHO Nagoya Medical Center and NHO Kyushu Cancer Center). One hospital had a geriatrics division (Shiga General Hospital) and another hospital had a geriatric oncology service (NHO Kyushu Cancer Center). The other hospital characteristics were summarized in Table 2. There were no apparent associations between the conduct of the geriatric screening and the hospital characteristics (Table 3).

The geriatric screening covered by the health insurance was used at 11 hospitals (42%). It was implemented by all departments in 9 hospitals and some departments in 2 hospitals. Nine hospitals screened both patients older than 65 years and those younger than 65 years with terminal cancer

Table 3. Bivariable Associations between the Conduct of the Geriatric Screening and the Hospital Characteristics.

	Hospitals conducting the geriatric screening (n=11)	Hospitals not conducting the geriatric screening (n=15)	p value
Cancer centers, n (%)	5 (45.5%)	9 (60.0%)	0.69
Number of beds, median	594	500	0.36
Number of new cancer patients per year, median	2,131	2,357	0.70
Number of hospitalized patients with cancer per year, median	4,911	4,444	0.86
% 65-74 years of hospitalized patients with cancer, median	35.7	35.3	0.64
% 75-84 years of hospitalized patients with cancer, median	23.8	23.8	0.32
% ≥85 years of hospitalized patients with cancer, median	4.0	5.0	0.82

diagnosis, while two hospitals screened only patients older than 65 years. The screening was performed by physicians at 10 hospitals, nurses at 7 hospitals, and others (pharmacists, physical therapists and clerical staffs) at 3 hospitals. Regarding the screening tool question, 3 hospitals selected the Kihon-Checklist, 1 hospital selected CGA7 and 7 hospitals selected “other (this was mainly not specified).” When the screening was positive, the following assessment tools were used: Katz (n=1), Barthel (n=6), Lawton (n=2), “other (n=2)” for basic and/or instrumental ADLs; HDS-R (n=5), MMSE (n=4), “other (n=3)” for cognition; vitality index (n=2), GDS (n=1), “other (n=3)” for motivation. When asked how the screening results were utilized in care, more than half of the hospitals chose “early discharge planning”, and “applying for long-term care insurance” (Table 4). The most frequently reported perceived benefit of the screening was “meeting patient-post discharge needs,” which was followed by “shortening hospital stays,” “detecting unidentified problems,” and “improving ADLs.” Most of the hospitals rated the screening “somewhat helpful” or “a little helpful.”

The geriatric screening covered by the health insurance was not used at 15 hospitals, but three hospitals stated that they performed geriatric screening without claiming any reimbursement. Most of the hospitals knew about the screening (n=12) and 6 hospitals had at least one clinician completed the CGA training and were planning to implement this screening. The barriers to implementation reported by more than half of the hospitals were a “lack of leadership,” “shortage of human resources,” and “too few medical fee points” (Table 4).

Discussion

This is the first nationwide survey to ascertain how geriatric screening is integrated in the inpatient care of older adults with cancer in Japan. We found that approximately 40% of the JACCC member hospitals performed this screening covered by the health insurance.

Previous studies showed that a geriatric assessment (GA) detected otherwise unidentified problems in older adults with cancer admitted to the hospital (22, 23). The frequently impaired domains of GA are functional status, cognition, mood and emotional status, nutritional status, comorbidities and polypharmacy. In order to improve outcomes of older

adults, various types of intervention that target impairments identified through GA are necessary. A recent study by Jolly et al. provided treating clinicians with a GA report including recommendations for interventions on the care of older hospitalized patients with cancer (24). Only 6 % of patients were referred by their primary team for the recommended interventions for the detected impairments. The difficulty with implementing GA-based interventions in this study was likely similar to our finding of the small to modest benefits of the geriatric screening reported by the respondents.

One of the most frequently reported barriers to implementation was a “lack of leadership.” Given that there are very few geriatrics or geriatric oncology services available in Japan, a feasible solution to this barrier is to establish an interdisciplinary workgroup aiming focused on improving the care of hospitalized older adults. One excellent example of this strategy was reported by Borenstein et al. at Cedars Sinai in Los Angeles (25). They successfully implemented an interprofessional team-based program in inpatient general medical/surgical units. This program provided care plans for vulnerable older adults using principles of comprehensive geriatric assessment. This program was developed by an interprofessional quality improvement workgroup composed of leaders from multiple disciplines. This leadership workgroup assumed responsibility for successful implementation, continued monitoring, and program evaluation.

Aside from the “shortage of human resources,” the other most frequently reported barrier was “too few medical remuneration points.” When our survey was conducted, the medical fee point for the geriatric screening was 100, but subsequently it was lowered to 50 in April 2020. This would likely disincentivize the hospitals that were planning to implement the screening. Furthermore, there has been no additional medical fee point to reward the implementation of GA interventions tailored to address the identified problems. Appropriate medical fee points are essential to disseminate CGA-based, personalized care of older adults.

Among the JACCC member hospitals, we did not observe any apparent differences in the hospital characteristics between those conducting and not conducting the geriatric screening. Additionally, the fourth most frequently reported barrier was a “lack of knowledge in screening methods.” These findings suggest that it is feasible to increase the number of hospitals implementing this approach. This report

Table 4. Key Survey Results.

Hospitals performing the geriatric screening (n=11)	
<i>How are the geriatric screening results utilized in the patient care? (multiple choices allowed)</i>	
	n
Early discharge planning	8
Use of long-term care insurance	6
Referral to physical therapy	3
Use of visiting nurse service	3
Discussing the findings at conference before discharge	2
Advanced care planning	1
Other	1
Deprescribing medications	0
<i>What are the benefits of the geriatric screening? (multiple choices allowed)</i>	
	n
Meeting patient-post discharge needs	7
Shortening hospital stays	4
Detecting unidentified problems	4
Improving ADLs	4
Fostering multidisciplinary care	2
Reducing hospital readmissions	1
Other	1
Decreasing delirium	0
Decreasing falls	0
Decreasing polypharmacy	0
<i>How helpful is the geriatric screening in the care of hospitalized older adults with cancer?</i>	
	n
Very helpful	1
Somewhat helpful	6
A little helpful	4
Not helpful	0
Hospitals not performing the geriatric screening (n=15)	
<i>What are barriers to implementation of the geriatric screening? (multiple choices allowed)</i>	
	n
Lack of leadership to improve the care of older adults	10
Shortage of human resources	9
Too few medical fee points	8
Lack of knowledge in screening methods	5
Lack of shared necessity among clinicians	5
Too time consuming	4
Lack of knowledge in how to utilize the results in patient care	2
Other	1
Lack of usefulness	0

itself may be helpful for hospitals to start performing geriatric screening as we showed how such geriatric screening was performed and the results of screening were utilized in care. In order to expedite the implementation process, teaching collaborations between leading hospitals and less experienced hospitals to share their knowledge and skills are crucial.

Our survey is associated with some limitations. First, we surveyed only the JACCC member hospitals which specialize in care of cancer patients and have more resources. The results of this study may not be generalizable to community hospitals in Japan. Second, we did not collect objective outcome data such as the length of hospital stay, and the readmission rate. A question of whether the geriatric screening improves these outcomes of hospitalized older adults with cancer was beyond the scope of this study.

In conclusion, geriatric screening was used in the inpatient care of older adults with cancer at less than half of the

major cancer centers and hospitals in Japan. In addition, there was a wide variation in the screening tools and evaluation methods among them. The perceived benefits of the screening were modest at best, which was most likely related to the suboptimal strategy for intervening regarding any identified problems. Considering the severe shortage of geriatricians, the formulation of an interprofessional workgroup at each hospital may be the most viable strategy for improving the care of older adults with cancer.

The authors state that they have no Conflict of Interest (COI).

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References

- Nishijima TF, Tamura K; Geriatric Oncology Guideline-establishing Study G. Landscape of education and clinical practice in geriatric oncology: a Japanese nationwide survey. *Jpn J Clin Oncol* **49**: 1114-1119, 2019.
- Helvik AS, Selbaek G, Engedal K. Functional decline in older adults one year after hospitalization. *Arch Gerontol Geriatr* **57**: 305-310, 2013.
- Pilotto A, Cella A, Pilotto A, et al. Three decades of comprehensive geriatric assessment: evidence coming from different health-care settings and specific clinical conditions. *J Am Med Dir Assoc* **18**: 192.e1-192.e11, 2017.
- Reuben DB, Fishman LK, McNabney M, Wolde-Tsadik G. Looking inside the black box of comprehensive geriatric assessment: a classification system for problems, recommendations, and implementation strategies. *J Am Geriatr Soc* **44**: 835-838, 1996.
- Decoster L, Van Puyvelde K, Mohile S, et al. Screening tools for multidimensional health problems warranting a geriatric assessment in older cancer patients: an update on SIOG recommendationsdagger. *Ann Oncol* **26**: 288-300, 2015.
- National Comprehensive Cancer Network. Older adult oncology (Version 1.2020) [Internet]. [cited 2020 Apr 1]. Available from: https://www.nccn.org/professionals/physician_gls/pdf/senior.pdf
- Japanese Association of Clinical Cancer Centers home page [Internet]. [cited 2020 Oct 9]. Available from: <http://www.zengankyo.nc.c.go.jp> (in Japanese)
- Toba K. The guideline for comprehensive geriatric assessment. *Nihon Ronen Igakkai Zasshi* **42**: 177-180, 2005.
- Satake S, Senda K, Hong YJ, et al. Validity of the Kihon Checklist for assessing frailty status. *Geriatr Gerontol Int* **16**: 709-715, 2016.
- Bellera CA, Rainfray M, Mathoulin-Pelissier S, et al. Screening older cancer patients: first evaluation of the G-8 geriatric screening tool. *Ann Oncol* **23**: 2166-2172, 2012.
- Saliba D, Elliott M, Rubenstein LZ, et al. The vulnerable elders survey: a tool for identifying vulnerable older people in the community. *J Am Geriatr Soc* **49**: 1691-1699, 2001.
- Katz S, Downs TD, Cash HR, Grotz RC. Progress in development of the index of ADL. *Gerontologist* **10**: 20-30, 1970.
- Mahoney FI, Barthel DW. Functional evaluation: the Barthel index. *Md State Med J* **14**: 61-65, 1965.
- Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. *Gerontologist* **9**: 179-186, 1969.
- Koyano W, Shibata H, Nakazato K, et al. Measurement of competence: reliability and validity of the TMIG index of competence. *Arch Gerontol Geriatr* **13**: 103-116, 1991.
- 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* **51**: 1451-1454, 2003.
- Yukimichi I, Hasegawa K. The revised Hasegawa's dementia scale (HDS-R)-evaluation of its usefulness as a screening test for dementia. *Hong Kong J Psychiatr* **4**: 20-24, 1994.
- Cockrell JR, Folstein MF. Mini-mental state examination (MMSE). *Psychopharmacol Bull* **24**: 689-692, 1988.
- Toba K, Nakai R, Akishita M, et al. Vitality index as a useful tool to assess elderly with dementia. *Geriatr Gerontol Int* **2**: 23-29, 2002.
- Yesavage JA. Geriatric depression scale. *Psychopharmacol Bull* **24**: 709-711, 1988.
- Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med* **16**: 606-613, 2001.
- Hamaker ME, Buurman BM, van Munster BC, et al. The value of a comprehensive geriatric assessment for patient care in acutely hospitalized older patients with cancer. *Oncologist* **16**: 1403-1412, 2011.
- Mariano C, Williams G, Deal A, et al. Geriatric assessment of older adults with cancer during unplanned hospitalizations: an opportunity in disguise. *Oncologist* **20**: 767-772, 2015.
- Jolly TA, Deal AM, Mariano C, et al. A randomized trial of real-time geriatric assessment reporting in nonelectively hospitalized older adults with cancer. *Oncologist* **25**: 488-496, 2020.
- Borenstein JE, Aronow HU, Bolton LB, et al. Identification and team-based interprofessional management of hospitalized vulnerable older adults. *Nurs Outlook* **64**: 137-145, 2016.

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