

Original Article

Landscape of education and clinical practice in geriatric oncology: a Japanese nationwide survey

Tomohiro F. Nishijima^{1,2,3,†,*}, and Kazuo Tamura^{4,†}, On behalf of Geriatric Oncology Guideline-establishing (GOGGLE) Study Group

¹Geriatric Oncology Service, NHO Kyushu Cancer Center, Fukuoka, Japan, ²Division of Medical Oncology, NHO Kyushu Cancer Center, Fukuoka, Japan, ³UNC Lineberger Comprehensive Cancer Center, Chapel Hill, NC, USA, and ⁴Faculty of Medicine, General Medical Research Center, Fukuoka University, Fukuoka, Japan

*For reprints and all correspondence: Tomohiro F. Nishijima, Geriatric Oncology Service, NHO Kyushu Cancer Center, Fukuoka, Japan. E-mail: nishijima.tomohiro.zg@mail.hosp.go.jp

†T.F.N. and K.T. contributed to conception/design of the study, provision of study material or patients, collection and/or assembly of data, data analysis and interpretation, manuscript writing, and final approval of the manuscript.

Received 27 June 2019; Accepted 16 July 2019

Abstract

Objective: The aim of this survey was to describe how geriatric oncology is integrated in undergraduate teaching and graduate training as well as in daily clinical oncology practice in Japan.

Methods: All schools of medicine in Japan are allied with graduate schools of medicine. We conducted a survey of all Japanese medical and graduate schools ($n = 81$), and designated cancer hospitals ($n = 437$) from July 2018 to August 2018. The survey of the schools asked about existence of geriatrics division and geriatric oncology service and if an education curriculum in geriatrics and geriatric oncology was used. The survey of designated cancer hospitals requested general hospital information and the current practice patterns of general geriatric and cancer patients.

Results: Forty-eight medical schools (59%) participated in this survey, and teaching in geriatrics and geriatric oncology was implemented in 23 schools and 1 school, respectively. Forty-two graduate schools of medicine (52%) responded; five had an education curriculum in geriatrics, but none provided geriatric oncology training. Among 151 participating hospitals (35%), 5 had a geriatrics division and 20 hospitals employed geriatricians. There was no geriatric oncology service or geriatric oncology specialists in any of the 151 hospitals. Seventy percent of the hospitals reported performing a geriatric assessment for at least some older adults with cancer.

Conclusions: This survey provides information on the current state of Japanese education and clinical practice in geriatric oncology. In Japan, a nation with among the largest population of older citizens in the world, education and training greatly need to be promoted to disseminate a core set of geriatrics knowledge and skills to students, trainees and healthcare professionals.

Key words: clinical practice, education, geriatric oncology, Japanese survey

Introduction

Japan has been a front-runner of super-aged societies, which is defined as >21% of the population as 65 years or older according to the World Health Organization (1). Today, 27.7% of the Japanese population is aged 65 and older (35.2 million) and 13.8% aged 75 and older (17.5 million). By 2030, the proportion of the population aged 75 and older will reach 19.6% (22.9 million) (2). Cancer is a disease of aging. At present in Japan, people aged 65 and older account for 70% of patients with newly diagnosed cancer (3). Multimorbidity and geriatric syndromes, such as falls, incontinence and frailty, are prevalent in older people (4,5). Chronologic age and functional age minimally correlate as older adults are heterogeneous in terms of physical, medical, mental and social well-being. In order to provide individualized care for this population, geriatricians perform a comprehensive geriatric assessment, which is a multistep process that includes multiple domains to evaluate health and social status to optimize tailored care plans for individual patients (6). Based on the findings uncovered by the assessment, and coupled with patients' values and goals, a treatment plan for individual medical problems is determined. Furthermore, a multidisciplinary team intervenes on deficits identified by the assessment with a goal of maximizing functional status and quality of life. Geriatric oncology is a field that incorporates the geriatric principles into the care of older adults with cancer. The International Society of Geriatric Oncology was founded in 2000 and has greatly advanced this field through research and educational activities (7). There has been no attempt to evaluate how geriatric oncology is integrated in undergraduate teaching and graduate training as well as in daily clinical oncology practice in Japan. We conducted a survey of all Japanese medical schools, graduate schools of medicine and designated cancer hospitals and examined the current status of education and practice in geriatric oncology as compared with general geriatric care.

Methods

All schools of medicine (MD program) in Japan are allied with graduate schools of medicine (PhD program). We conducted a survey of all medical schools/graduate schools of medicine ($n = 81$) and designated cancer hospitals ($n = 437$) in Japan. Medical schools in Japan offer high school graduates a 6-year undergraduate medical education, typically consisting of 4-year preclinical curriculum and 2-year clinical curriculum (8). This education system is similar to several European countries (9). Graduate schools of medicine in Japan offer a 4-year program that combines clinical oncology training and PhD degree course. One of the career pathways to become an oncologist in Japan is to complete this combined program after postgraduate training (residency program). At the time of survey, there were 82 medical schools and graduate schools of medicine. However, we did not include one school (International University of Health and Welfare), which was just opened in April 2017. We mailed paper questionnaires to deans of the medical school and graduate schools of medicine and presidents of cancer hospitals on 13 July 2018 and collected them by 5 August 2018. We asked these leaders to designate a respondent who was best suited to complete the questionnaire. One follow-up reminder was sent to institutions that did not return the questionnaire in the requested time frame. The survey of medical schools and graduate schools of medicine asked about existence of a geriatrics division and geriatric oncology service and if an education curriculum in geriatrics and geriatric oncology was used. The survey of designated cancer hospitals comprised three

parts. The first part included general information about the hospitals (e.g. region; catchment population with a proportion of older adults aged ≥ 65 years; number of beds; number of all inpatients, all outpatients, new cancer patients, new patients admitted for cancer and cancer outpatients per year and the proportion of adults aged ≥ 65 years; existence of geriatrics division and geriatric oncology services; number of geriatricians and geriatric oncologists). The second part explored the current practice pattern of general geriatric patients [the use of multidisciplinary conferences and their perceived benefits and necessity, institutional guidelines of care for older adults and discussion of advance care planning (ACP)]. The third part included questions regarding the care for cancer patients (the use of tumor boards for all patients, geriatric assessments for older adults, difficulties with management of older adults compared with non-older adults and how to improve the quality of care for older adults). The questionnaire also included space for respondents to provide additional information and make comments. We performed only descriptive analyses without statistical analyses.

Results

Sample characteristics

The survey was completed by 48 of 81 medical schools (59.3%), 42 of 81 graduate schools of medicine (51.9%) and 151 of 437 designated cancer hospitals (34.6%). Responses came from all over the country, covering all regions of Japan (Supplemental Table 1).

Medical school and graduate school of medicine

Of the 48 medical schools, a geriatrics division and geriatric oncology service existed in 14 and 3 medical schools, respectively (Table 1). There were no other medical schools that had a plan for creating a geriatrics division or geriatric oncology service. Undergraduate teaching in geriatrics was implemented in 23 medical schools, but only one medical school had an education curriculum in geriatric oncology. Among the 23 medical schools with an education curriculum in geriatrics, the teaching was provided by the geriatrics division in only 6 schools and by multiple divisions with and without geriatrics division involvement in 16 schools (one school did not report this information). The length and number of geriatric lectures varied considerably, with a median of 70 min per lecture (range 50–90) and 11 lectures (range 1–43). Two medical schools were planning to create a curriculum in geriatrics and geriatric oncology. Among the 42 graduate schools of medicine, 6 graduate schools had a geriatrics division and 5 had an education curriculum in geriatrics. There were no graduate schools that had a geriatric oncology service or provided geriatric oncology training. Two and one graduate schools had a plan for creating a curriculum in geriatric oncology and geriatrics, respectively.

Designated cancer hospitals

One hundred fifty-one hospitals responded to the survey, and the characteristics of these hospitals are summarized in Table 2. On average, the population coverage of each individual hospital was 872 000, and the proportion of the population aged 65 and older was 28.8%. Of all inpatients and outpatients, 58.2 and 52.1% were at least 65 years old. The mean number of new patients admitted for cancer per year in the participating hospitals was 3785, and 70.0% of these patients were 65 years and older. Five hospitals had a geriatrics division and geriatricians worked in 20 hospitals, but there

Table 1. Geriatrics and geriatric oncology division/service and education

	Geriatrics	Geriatric oncology
Medical school (<i>n</i> = 48)		
Division/service	14 (29.2)	3 (6.3)
Plan of creating a new division/service	0 (0)	0 (0)
Education curriculum	23 (47.9)	1 (2.1)
Plan of creating a new education curriculum	2 (4.2)	2 (4.2)
Graduate school (<i>n</i> = 42)		
Division/service	6 (14.3)	0 (0)
Plan of creating a new division/service	0 (0)	0 (0)
Education curriculum	5 (11.9)	0 (0)
Plan of creating a new education curriculum	1 (2.4)	2 (4.8)
Designated cancer hospital (<i>n</i> = 151)		
Division/service	5 (3.3)	0 (0)
Plan of creating a new division/service	NA	0 (0)
A number of board-certified physicians	20 (13.2)	0 (0)

NA, not asked.

Table 2. Characteristics of participating hospitals

Characteristics of participating hospitals (<i>n</i> = 151)	Mean (SD) or median (range)
Catchment population (mean, SD)	872 000 (1 288 000)
% ≥65 years of catchment population (median, range)	28.8 (18.8–67.0)
Number of beds (mean, SD)	582 (230)
Number of all inpatients per year (mean, SD)	92 337 (97 481)
% ≥65 years of all inpatients (median, range)	58.2 (35.0–85.0)
Number of all outpatients per year (mean, SD)	271 920 (170 447)
% ≥65 years of all outpatients (median, range)	52.1 (3.4–72.0)
Number of new cancer patients per year (mean, SD)	4345 (19 104)
Number of new patients admitted for cancer per year (mean, SD)	3785 (4788)
% ≥65 years of new patients admitted for cancer (median, range)	70.0 (30.0–86.0)
Number of cancer outpatients per year (mean, SD)	35 173 (48 483)
% ≥65 years of cancer outpatients (median, range)	66.9 (31.1–83.6)

SD, standard deviation.

was no geriatric oncology service or geriatric oncology specialist in the participating hospitals.

Regarding the current practice pattern of general geriatric patients, 96 hospitals reported having multidisciplinary conferences for the management of frail older adults: always (18.5%), more than half the time (21.9%) and less than half the time (23.2%) (Fig. 1). Of the 96 hospitals, most of them acknowledged the benefits and necessity of the conferences: benefits (great 27, moderate 42, some 16, little 0, no answer 11 hospitals) and necessity (great 34, moderate 37, some 10, little 0, no answer 15 hospitals). Additionally, 13 (8.6%) hospitals had institutional guidelines for care for older adults. When we asked how often ACP was discussed with patients, 134 hospitals answered having such discussion ‘always’, ‘more than half the time’ or ‘less than half the time’. ACP discussion was most commonly undertaken by physicians (122 hospitals) and/or nurses (114 hospitals).

With regard to the care for cancer patients, tumor boards were held at 134 (88.7%) hospitals (Fig. 1). One hundred five hospitals reported performing a geriatric assessment for older adults with cancer: always (25.8%), more than half the time (17.2%) and less than half the time (27.2%). The perceived difficulties with management of older adults with cancer were summarized into three categories: first patient safety (such as falls), second communication

with patient and family including the decision-making process and third issues related to diagnostic tests and treatments (Table 3). There were no hospitals that had a plan for hiring a physician specialized in geriatric oncology, but six hospitals planned to hire nurse specialists dedicated to care for older adults with cancer. When asked how to improve the quality of care for geriatric oncology patients, more than half of the hospitals stated that they would increase knowledge and skills by holding local workshops or seminars and also increase the capacity of counseling and support centers for these patients. Additionally, 22 (15.8%) hospitals answered that they would develop institutional guidelines for older adults with cancer.

Discussion

We explored the current landscape of education and practice in geriatric oncology at medical schools, graduate schools of medicine and designated cancer hospitals in Japan as compared with geriatrics. To the best of our knowledge, there have been no prior nationwide surveys to ascertain how geriatric oncology is integrated in undergraduate and graduate teaching as well as in daily clinical oncology practice in Japan.

No. of hospitals performing the patient care activities (n=151)

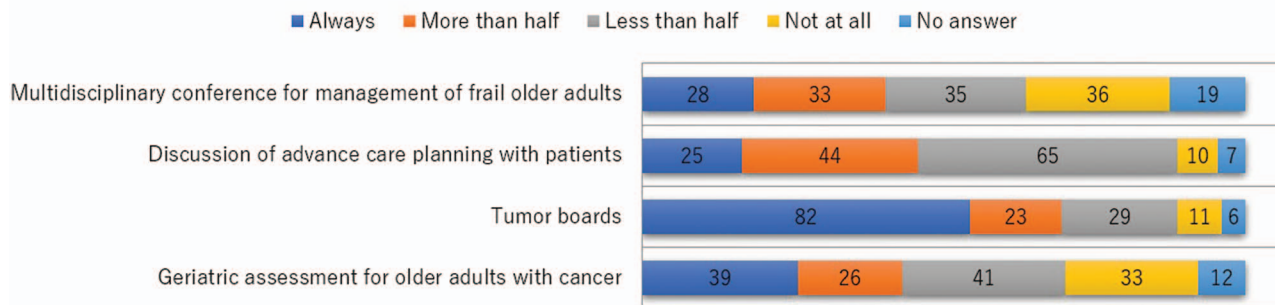


Figure 1. Comparisons between geriatric and oncology care at the designated cancer hospitals.

Table 3. Difficulties with management of older cancer patients and plans for improvement of quality of care

Difficulties with management of older adults with cancer compared with non-older adults (n = 151)	Number (%)
Patient safety (e.g. falls)	117 (77.5)
Decision-making	114 (75.5)
Coordination of care with family	100 (66.2)
Communication with patient	93 (61.6)
Adherence to treatment and/or test	87 (57.6)
Selection of treatment (standard- vs reduced-intensity treatment vs palliative care)	79 (52.3)
Adverse events from treatments and/or diagnostic tests	68 (45.0)
Financial problems	27 (17.9)
Others	22 (14.6)
How to improve the quality of care for older adults (n = 151)	Number (%)
Have local workshops or seminars in geriatrics/geriatric oncology	84 (55.6)
Increase capacity of counseling and support centers	73 (48.3)
Develop institutional guidelines for older adults with cancer	22 (14.6)
No plan on making any changes	35 (23.2)
Others	24 (15.9)

First, our study indicated that geriatric education was suboptimal in Japanese medical schools as a geriatrics division and education curriculum existed in only 29 and 48% of medical schools, respectively. Training in geriatric oncology in medical schools was almost non-existent. A survey of geriatric education in 31 European countries was performed in 2006 (9). Six European countries (Belgium, Finland, France, Iceland, Norway and Sweden) had an established chair of geriatrics in all of their medical schools. There was an established chair of geriatrics in 71% of the Italian medical schools, 60% of the Swiss, 50% of the Dutch, 39% of the English and 36% of the Spanish. Undergraduate teaching in geriatrics was implemented in 25 of the 31 surveyed countries (81%), and clinical rotations in geriatrics were organized in 16 countries (60%). Considering the gap in geriatric education between these European countries and Japan, we think the priority to improve medical school education is in geriatrics rather than geriatric oncology. Given Japan is the front-runner of super-aged societies with the aging rate of 27.7%, it is essential for medical students to acquire knowledge and skills to manage older adults with chronic conditions and functional impairments. The Japan Geriatrics Society (JGS) has been working on this task in collaboration with ministry of education (10,11). An undergraduate core curriculum in

geriatrics has been created, and the JGS has published a standardized textbook of geriatrics. The creation of a chair of geriatrics and geriatrics division needs to be promoted to provide medical students with not only lectures but also clinical rotations (clerkships).

Second, our survey showed that geriatric oncology training was currently not provided to oncology trainees at graduate schools of medicine in Japan, which offer a combination of clinical oncology training and PhD degrees. The importance of incorporation of geriatric principles into oncology training has been acknowledged in the USA and European countries (12). For medical oncology training, geriatric oncology is included in the American Society of Clinical Oncology (ASCO)/European Society for Medical Oncology global curriculum (13). ASCO developed educational materials in geriatric oncology, such as the ASCO University modules, and also created a Web site, which compiled tools, assessments, clinical guidelines and research in geriatric oncology (14,15). These are valuable resources for trainees and clinicians all over the world. In the USA, the Accreditation Council for Graduate Medical Education requires that hematology–oncology fellows obtain the competency in the care and management of the older adult with cancer (16). The Japanese oncology training programs should also consider including geriatric

oncology competencies in the curricular milestones. The first step is to give trainees lectures on a core set of geriatric oncology knowledge. Recently, Japanese Society of Medical Oncology started seminars on geriatric oncology for healthcare professionals. The important next step is to provide trainees with clinical experiences to acquire skills to properly assess and manage older adults with cancer, which will likely require collaboration with geriatricians.

Third, we found more than 60% of designated cancer hospitals implemented multidisciplinary conferences and ACP for the care of general geriatric patients at various frequencies. Additionally, ~70% of the hospitals reported doing a geriatric assessment for at least some older adults with cancer. Somewhat surprisingly, these results were better than expected considering the inadequate education in geriatrics and the shortage of geriatricians in Japan. These results suggest that healthcare professionals have incorporated some geriatric principles into daily practice for facing the necessity of managing older adults with complex care needs in this super-aged society. Since 2012, geriatric screening and assessment performed during admission has been assigned a medical remuneration point under the health insurance system in Japan. However, the point is only 100, which is equivalent to 1000 yen (100 Japanese yen = 0.92 US dollars as of June 2019), and is given only once for one admission providing little incentive to implement this service. Additionally, geriatric assessment in the outpatient setting has not been covered. It is not clear how much this poor remuneration has influenced the use of geriatric evaluation in Japan. In this survey, we did not ask for specific descriptions of geriatric assessment. Some respondents might have confused geriatric assessment with geriatric screening such as the Geriatric 8 and Vulnerable Elders Survey-13 (17,18). This potential misunderstanding of the definition of the term 'geriatric assessment' might be related to its prevalent use reported by the respondents. Further work is warranted to explore how a geriatric assessment is performed and what are the potential barriers and solutions for the incorporation of this approach into Japanese oncology practice.

Forth, designated cancer hospitals in Japan are faced with the unique challenges of caring for older adults with cancer. Continuing education and training in geriatric oncology was the most commonly reported way of overcoming the perceived difficulties with management of this population. Some hospitals were interested in developing institutional guidelines for older adults with cancer. However, the JGS has mainly focused on cognitive, metabolic and cardiac disorders in older adults and not oncology. In addition, there was no collaboration between the JGS and Japanese oncology societies for education, training and research in geriatric oncology. Acknowledging the current challenges and their possible solutions revealed in this survey, the authors founded Japanese Association of Geriatric Oncology (JAGO) in January 2019 in collaboration with the Geriatric Oncology Guideline-establishing (GOGGLE) Study Group with grant support from the Ministry of Health. The mission of the JAGO is to contribute to the public welfare by dissemination of the high-quality care for older adults with cancer. The JAGO collaborates with Japanese professional organizations in oncology, palliative care and geriatrics. Furthermore, the JAGO is developing a Japanese clinical practice guideline in geriatric oncology based on the currently available published literature and guidelines. Our goal is that this guideline will help promote educational activities and improve quality of care in geriatric oncology.

Our survey has some limitations. First, the response rate of medical schools and graduate schools of medicine ranged from 50 to 60% and that of the hospitals was 35%. These numbers are

comparable to previous survey results (19,20). It is possible that schools and hospitals interested in geriatric oncology more frequently responded to our survey than those without an interest in this field. However, this is the first nationwide survey regarding geriatric oncology in Japan and collected responses from >40 schools and 150 hospitals across the country, a reasonable sample to shed light on the current status of geriatric oncology. Second, we made the questionnaires short and simple so that it could be filled out quickly by respondents. At the expense of brevity, we could not collect more detailed information, for instance, teaching methodology (problem-based learning, clerkships, etc.), who performs a geriatric assessment and how the results are used in the care of older cancer patients. Third, each institution was represented by one respondent designated by the institutional leader. There are likely to be differences in the respondent's level of interest in geriatrics and/or geriatric oncology as well as efforts made to gather necessary information to answer the questionnaire, possibly affecting the responses.

Conclusions

In conclusion, the current undergraduate and graduate education in geriatrics and geriatric oncology is inadequate in Japan. Geriatric education in medical school and geriatric oncology education during oncology training needs to be promoted so that students and trainees acquire a core set of geriatrics knowledge and skills that are necessary for their professional development. Facing the unique challenges in caring for older adults, healthcare professionals have incorporated some geriatric principles, such as multidisciplinary care and geriatric assessment, into daily practice. However, there are wide variations in the implementation among the hospitals and the geriatric oncology approach has not yet been adopted as routine practice. We recently founded the JAGO to improve the quality of care for older adults with cancer in Japan to enhance education, training and research in geriatric oncology.

Supplementary data

Supplementary data are available at *JJCO* online.

Acknowledgements

The authors would like to thank Hyman B. Muss for his expertise and help in reviewing and revising the manuscript. The authors also would like to thank Drs Tomoko Takayama and Kiyotaka Watanabe for reviewing and revising questionnaires. Thanks go to Ms Noriko Ikoma and Etsuko Kumakawa for secretarial work. Last but not least, the authors are deeply grateful to the participating institutions for taking the time to complete the survey and give us valuable comments.

Funding

This work was supported by the Health and Labor Sciences Research Grant of the Ministry of Health [grant number 30050501].

Conflict of interest statement

Tomohiro F. Nishijima has no conflict on interests. Kazuo Tamura received honoraria from Eisai, Ono Pharmaceutical and Kyowa Hakko Kirin, and fees for promotional materials from Ono Pharmaceutical.

References

1. Arai H, Ouchi Y, Toba K, *et al.* Japan as the front-runner of super-aged societies: perspectives from medicine and medical care in Japan. *Geriatr Gerontol Int* 2015;15:673–87.
2. Annual Report on the Aging Society 2018 [cited 2019 June 26]. Available from: https://www8.cao.go.jp/kourei/whitepaper/w-2018/zenbun/30pdf_index.html
3. Cancer Statistics in Japan 2017 [cited 2019 June 26]. Available from: https://ganjoho.jp/data/reg_stat/statistics/brochure/2017/cancer_statistics_2017_date_E.pdf
4. Salive ME. Multimorbidity in older adults. *Epidemiol Rev* 2013;35:75–83.
5. Inouye SK, Studenski S, Tinetti ME, Kuchel GA. Geriatric syndromes: clinical, research, and policy implications of a core geriatric concept. *J Am Geriatr Soc* 2007;55:780–91.
6. Reuben DB, Fishman LK, McNabney M, Wolde-Tsodik G. Looking inside the black box of comprehensive geriatric assessment: a classification system for problems, recommendations, and implementation strategies. *J Am Geriatr Soc* 1996;44:835–8.
7. Extermann M, Aapro M, Bernabei R, *et al.* Use of comprehensive geriatric assessment in older cancer patients: recommendations from the task force on CGA of the International Society of Geriatric Oncology (SIOG). *Crit Rev Oncol Hematol* 2005;55:241–52.
8. Koza T. Medical education in Japan. *Acad Med* 2006;81:1069–75.
9. Michel JP, Huber P, Cruz-Jentoft AJ. Europe-wide survey of teaching in geriatric medicine. *J Am Geriatr Soc* 2008;56:1536–42.
10. Rakugi H. Current status and tasks of geriatric medicine in Japan from the perspective of education, clinical medicine, and research. *Nihon Ronen Igakkai Zasshi* 2018;55:209–14.
11. Yamaguchi K. Expectation for gerontological education—from a viewpoint of ministry of education, culture, sports, science and technology. *Nihon Ronen Igakkai Zasshi* 2018;55:215–21.
12. Muss HB, Von Roenn J, Damon LE, *et al.* ACCO: ASCO core curriculum outline. *J Clin Oncol* 2005;23:2049–77.
13. Dittrich C, Kosty M, Jezdic S, *et al.* ESMO/ASCO recommendations for a global curriculum in medical oncology edition 2016. *ESMO Open* 2016;1:e000097.
14. ASCO University Modules: Geriatric Oncology [cited 2019 June 26]. Available from: <https://elearning.asco.org/coursecollection/cancer-care-for-older-patients>
15. ASCO. Geriatric Oncology [cited 2019 June 26]. Available from: <https://www.asco.org/practice-guidelines/cancer-care-initiatives/geriatric-oncology/geriatric-oncology-resources>
16. Accreditation Council for Graduate Medical Education. Hematology/oncology Fellowship Program Requirements [cited 2019 Aug 1]. Available from: https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/155_HematologyAndMedicalOncology_2019.pdf?ver=2019-08-01-123253-047
17. Bellera CA, Rainfray M, Mathoulin-Pelissier S, *et al.* Screening older cancer patients: first evaluation of the G-8 geriatric screening tool. *Ann Oncol* 2012;23:2166–72.
18. 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* 2001;49:1691–9.
19. Jonker JM, Smorenburg CH, Schiphorst AH, *et al.* Geriatric oncology in the Netherlands: a survey of medical oncology specialists and oncology nursing specialists. *Eur J Cancer Care (Engl)* 2014;23:803–10.
20. Girones R, Morilla I, Guillen-Ponce C, *et al.* Geriatric oncology in Spain: survey results and analysis of the current situation. *Clin Transl Oncol* 2018;20:1087–92.

Appendix

In addition to the authors listed on the first page, the following authors contributed equally to this study. List of the other members from the GOGGLE Study Group:

- Fumio Nagashima: Kyorin University School of Medicine.
- Keisuke Aiba: Toda Central General Hospital.
- Mitsue Saito: Juntendo University.
- Toshiaki Saeki: Saitama Medical University International Medical Center.
- Kumiko Karasawa: Tokyo Women's Medical University School of Medicine.
- Yosuke Uchitomi: National Cancer Center.
- Takao Takahashi: Saitama Medical University International Medical Center.
- Masaki Kaibori: Kansai Medical University.
- Hiromi Sakuda: Osaka City University.
- Chiyo Imamura: Showa University School of Medicine.
- Tetsuya Tsuji: Keio University School of Medicine.