Approach and Management for Treatment of Elderly Cancer Patients in Japan: Current Status and Future Prospects

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Abstract

Aging of the population is progressing more in Japan than any other country in the world, necessitating that all cancer-treating physicians be geriatric oncologists. Currently in Japan, cancer-treating physicians and medical staff have taken a growing interest in the treatment management of elderly cancer patients; however, the following problems exist: GA tools have not become widespread throughout Japan; the number of geriatricians specializing in cancer treatment is extremely small; and an education system for geriatric oncology has not been established. In order to overcome these problems, efforts to spread GA tools and establish an education system have just been initiated in Japan. We anticipate that these activities will become more widespread and precision medicine for elderly cancer patients involving treatment tailored to each individual patient will be further promoted.

Keywords: Geriatric oncology; Geriatric assessment

Introduction

Japan is a super-aged society ranked number one in the world in terms of average life expectancy, number of elderly people, and speed of aging. According to a report from the Statistic Bureau, Ministry of Internal Affairs and Communications in Japan, the aging population aged 65 years or older made up 26.6% of the total population in 2015 and is predicted to exceed 30% by 2025 [1]. On the other hand, the number one cause of mortality among Japanese for more than 30 years has been malignant neoplasm, with mortality continuing to rise. Japanese cancer-treating physicians are in a state in which the frequency with which they are faced with the treatment of elderly cancer patients is rapidly increasing, necessitating that all medical oncologists be geriatric oncologists. However, in Japan, there are extremely few physicians particularly specializing in the cancer field among geriatric specialists compared with western countries, with many designated cancer care hospitals not having established a geriatrics department as a hospital department. Therefore, it is inferred that there are many cases of under treatment in which the intensity of a treatment is inappropriately lowered simply due to advanced chronological age or overtreatment in which treatment similar to that provided to young people is conducted without taking into consideration the risks of chemotherapy in practical clinical settings. In this way, in Japan where a “Silver TSUNAMI” is currently surging, cancer-treating physicians and medical staff have taken a growing interest in how to determine the treatment strategy for elderly cancer patients and how to assess the risks of chemotherapy; however, neither guidelines nor educational systems for medical care for elderly cancer patients exist as of now. In this article, I would like to introduce geriatric assessment and chemotherapy risk assessment using a screening tool which are conducted at our hospital and mention the problems with Japanese medical care for elderly cancer patients as well as the efforts to resolve these, along with future prospects.

Problems with Medical Care for Elderly Cancer Patients and Precision Medicine

The problems with elderly cancer patients are based on the diversity in all items indicated in Table 1 compared with young people. Therefore, it is necessary to examine treatment strategies upon stratifying patients using some sort of scale other than chronological age. For stratification, many Geriatric Assessment (GA) tools have been developed and advocated in the world. Please refer to the following page for details. Among the items described in Table 2, assessment regarding...
In this way, it is important that the medical care for elderly cancer clinical settings were aged 75 or older, indicating a significant gap. Despite the fact that 37% of lung cancer patients in US practical in the US FDA, 9% of registered patients were aged 75 or older, this year that, among clinical trials for lung cancer patients registered American Society of Clinical Oncology (ASCO) annual meeting of website of ClinicalTrials.gov [6]. Singh H et al. [7] mentioned in the of clinical trials for elderly cancer patients worldwide is actually elderly cancer patients in clinical trials is extremely low. The number of problems in elderly cancer patients and their genetic information to Evidence Based Medicine (EBM) which medicine" is to provide the best medical care upon having added as the core of precision medicine; however, the essence of "precision medicine" came to be often used [2]. As a result, personal genetic analysis with the advancement of testing technology is often handled as the core of precision medicine; however, the essence of "precision medicine" is to provide the best medical care upon having added genetic information to Evidence Based Medicine (EBM) which clinicians have conventionally practiced on site [3] and I believe that the extraction of problems in elderly cancer patients and their stratification are also included in precision medicine (Figure 1) [4,5]. In order to put such precision medicine into practice for elderly cancer patients, another problem is raised in that the participation rate of elderly cancer patients in clinical trials is extremely low. The number of clinical trials for elderly cancer patients worldwide is actually less than 5% in clinical trials for cancer patients upon searching the website of ClinicalTrials.gov [6], Singh H et al. [7] mentioned in the American Society of Clinical Oncology (ASCO) annual meeting of this year that, among clinical trials for lung cancer patients registered in the US FDA, 9% of registered patients were aged 75 or older, despite the fact that 37% of lung cancer patients in US practical clinical settings were aged 75 or older, indicating a significant gap. In this way, it is important that the medical care for elderly cancer patients first stratify highly diverse elderly people and then examine treatments tailored to each individual patient by medical teams. Moreover, it is necessary to promote clinical trials for elderly people in order to establish evidence for the treatment regimen tailored to each group. Subsequently, it is believed that reflecting these results in daily medical practice will lead to the advancement of precision medicine in medical care for elderly cancer patients.

**Guidelines and Geriatric Assessment in Medical Care for Elderly Cancer Patients**

The details on the methods for approach to decision making for elderly cancer patients are described in the NCCN Guidelines* Older Adult Oncology Version 2, 2017* [8]. The guidelines use a flow chart to explain that a prediction of the prognosis for a patient is first made, after which cognitive function in terms of whether or not understanding one’s own disease state as well as determination and acceptance of the treatment strategy are possible are assessed, then the goals of the patient and treatment are discussed and treatment preference confirmed, and a risk assessment is subsequently conducted in the event of chemotherapy. The GA is explained for each domain (functional status, comorbidities, cognitive function, nutritional status and polypharmacy), including an introduction to the GA tools for which the usefulness is reported. In the event that there is some kind of problem with cognitive function during the course of assessment, it is described that consultation with a geriatrician, etc. with experience in cognitive evaluations is recommended along with the fact that care planning for elderly cancer patients by an oncologist together with a geriatrician will benefit the patient. Moreover, regarding the risks of chemotherapy, MAX2 index [9] and CRASH score by Extermann et al. [10] are explained. The CRASH score is an assessment for evaluating the risk of serious adverse events associated with chemotherapy by dividing patients into hematotoxicity (diastolic blood pressure, IADL, lactate dehydrogenase and the type of treatment) and non-hematotoxicity (performance status, cognitive function, nutritional status and the type of treatment), which is useful in daily practice. However, the CRASH score announced in 2012 does not include molecular target drugs such as Epidermal Growth Factor Receptor-Tyrosine Kinase Inhibitor (EGFR-TKI) which have become key drugs in the non-small cell lung cancer field in recent years and immune checkpoint inhibitors which have become the new pillar of chemotherapy including other cancers in the chemotex index which indicates the intensity of the chemotherapeutic regimen required for scoring. Therefore, it is impossible to assess patients who are going to use these drugs, and going forward, it is anticipated that a new risk assessment tool for these drugs will be developed. Moreover, the International Society of Geriatric Oncology (SIOG) also announced recommendations regarding GA tools [11] including a detailed examination regarding numerous clinical trials in which the usefulness of functional assessment tools was examined. Furthermore, it is possible to download an explanation of each tool, descriptions of the cutoff values, and actual assessment tables from the SIOG home page under the assumption that each functional assessment tool is used in a clinical setting [12]. Moreover, the SIOG discloses e-learning content in addition to holding a four-day advanced course every year along with creating educational programs for geriatric oncology. In daily medical practices, vulnerability is first confirmed using screening tools such as G8, TRUST, VES-13, etc. and cases requiring a comprehensive GA (CGA) to be conducted are picked up. Based on the results of CGA, in cancer treatment for elderly people, it is important to examine whether or not some sort of intervention, such

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**Table 1: The background of aging cancer patient.**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Social support (caregiver, finance, insurance)</td>
</tr>
<tr>
<td>2</td>
<td>Polypharmacy</td>
</tr>
<tr>
<td>3</td>
<td>Malnutrition</td>
</tr>
<tr>
<td>4</td>
<td>Past diseases, comorbidities</td>
</tr>
<tr>
<td>5</td>
<td>Decline of physical function</td>
</tr>
<tr>
<td>6</td>
<td>Decline of cognitive function</td>
</tr>
<tr>
<td>7</td>
<td>Senescence of biological metabolism</td>
</tr>
</tbody>
</table>

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**Figure 1: Four elements of the EBM.**

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*The best treatment*
as referral to a geriatrician, is necessary and to assess the risk using the CRASH score, etc. in the event that chemotherapy is conducted.

Current Situation Regarding Japanese Medical Care for Elderly Cancer Patients

As mentioned in the beginning, aging of the population is progressing more in Japan than any other country in the world, with the aging population aged 65 years or older predicted to exceed 30% by 2025. At our hospital, which is a designated cancer care hospital in Shimane Prefecture where the aging population is remarkable even in Japan, elderly patients with lung cancer aged 70 or older who undergo chemotherapy already account for approximately 50% of all patients as of 2009 [13], with more than 65% of patients diagnosed with lung cancer regardless of the disease stage at our hospital aged 70 or older in 2016. However, vulnerability screening and the implementation of GA in elderly cancer patients is not common in Japan. The reasons for this include: 1) Because there are multiple screening tools and validation among Japanese has not been conducted, they have not become widespread; 2) Because Japanese medical oncologists examine more outpatients per day compared with their European and American counterparts, it is very difficult to conduct GA in the Outpatient Department; furthermore; no staff known as nurse practitioners who can conduct GA in their stead exist in Japan; 3) Even if vulnerability is determined upon screening or GA, because there are very few geriatricians specializing in tumors to whom we can request a diagnosis parallel to cancer treatment, the intervention method is not clear; 4) No systematic education regarding geriatric oncology exists either before or after graduation of medical school. At Shimane University Hospital, in order to solve the abovementioned problems, we have contrived ways to conduct screening by first creating screening tools such as G8, VES-13, CGA7, etc. in the electronic medical records in cooperation with the medical information department so that any medical staff can easily conduct screening. These tools include an automatic calculation system and in the event the results require the implementation of GA or intervention, an alert is displayed. Using this system, for lung cancer patients aged 65 or older diagnosed with lung cancer at our hospital from 2013 to 2016, an exclusive nurse conducted G8, VES-13, and CGA7, while for patients who are going to undergo chemotherapy, we conducted clinical trials to evaluate the risk using the CCI and CRASH score (manuscript regarding the results of clinical trials is in preparation) (Figure 2). As far as we know, hospitals in which a team medical care system for elderly cancer patients has been established in Japan, like our hospitals, are rare. Because those aged 75 or older are determined as "elderly people" in terms of non-small cell lung cancer according to the guidelines for diagnosis and treatment of lung cancer by the Japan lung cancer society, we currently make use of it in daily medical practice by conducting screening for patients aged 75 or older. However, no full-time geriatricians specializing in cancer practices work in this hospital and also the education system needs to be promoted throughout Japan, which is left as issues at hand. A working group for education regarding cancer care for elderly people will be set up within the Japanese society of medical oncology this year, for which we hope attendance of educational systems will be mandatory for medical oncologists and content available for life-long education will be created.

Conclusion

Cancer is the number one cause of mortality in elderly people not only in Japan but all over the world. There is also a group requiring special intervention when undergoing chemotherapy due to decreased metabolic function associated with chronological age. However, more effective and safer treatment management of elderly cancer patients is possible by stratifying elderly cancer patients and conducting timely functional assessment as well as appropriate GA, coming up with a treatment regimen tailored to the individual conditions of each, and providing a support system. It is anticipated that the spread of GA tools and the implementation of validation in Japan as well as the establishment of an educational system regarding geriatric oncology will further promote precision medicine in elderly cancer patients.

References


