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National Survey Among Radiation Oncology Residents Related to Their Needs in Geriatric Oncology

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Abstract Currently, there is no formal curriculum addressing geriatric oncology within Canadian radiation oncology (RO) residency programs. Knowledge related to geriatric medicine may help radiation oncologists modify RT based on frailty status and geriatric considerations. Understanding specific learning needs allow program coordinators to align the current curriculum with residents' geriatric oncology learning needs. The purpose of this study is to determine the geriatric oncology educational needs of the Canadian RO residents and to inform Canadian RO residency training. A cross-sectional survey, with Likert, multiple choice, and open-ended questions, was pretested and distributed electronically by program directors to Canadian RO residents over 6 weeks. Responses were analyzed with descriptive statistics and common themes. One-hundred and thirty-five Canadian RO residents were contacted and 63 responded (47%). Half (49%) lacked confidence managing the elderly with multiple comorbidities, polypharmacy, functional and cognitive impairment, and challenging social circumstances;73% agreed additional training would be helpful. Forty-four percent lacked confidence regarding psychogeriatric referrals, fall prevention, palliative and hospice care, and community resources preventing rehospitalization; 63% agreed additional training would be helpful. Seventy-six percent believed discussion groups, continuing education, geriatric oncology electives, and journal clubs would provide learning opportunities. Seventy-one percent agreed integrating geriatric assessment into RO curricula would improve care. Seventy-nine percent believed geriatric oncology principles have not been adequately integrated into radiation oncology curricula. There are significant gaps specific to geriatric assessment and management of older cancer patients in the current Canadian RO curricula. Most residents agreed that it is important to integrate geriatric oncology training to improve and personalize the care of older cancer patients.

Keywords Radiation oncology · Geriatric oncology · Education · Learning needs · Survey

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Introduction

Cancer is a disease prominent among the older adult population. In Canada, 42% of new cancer cases and 59% of cancer deaths occur in persons aged ≥70 years (Canadian Cancer Society's Advisory Committee on Cancer Statistics, 2015) [1]. Older persons differ from the younger population in

regards to biological, functional, psychological, and social perspectives, requiring an interdisciplinary approach when addressing their needs [2]. Additionally, it is important to determine which patients have a longer life expectancy and will benefit from aggressive treatment compared with patients who may not benefit from aggressive treatment [3]. The geriatric population is heterogeneous, ranging from fit to frail and older adults are not well represented in clinical trials. This makes the assessment and intervention challenging when it comes to cancer diagnosis and treatment.

Older cancer patients often make treatment decisions based on their trust in the physician and following their physician's recommendation [4]. Wang et al. [5] found that older women are more likely to accept their doctor's recommendation without actively participating in decision-making compared with younger women; specifically, that >97% of women who participated in that study age 74 or less stated that information was essential regarding survival with radiation treatment while <73% of participants who were older than 75 rated it as essential. Although Puts et al. [6] determined that there was no difference in decision-making for treatment based on age for older adults with cancer, older patients valued their oncologist's opinion and neither comorbidity nor potential side effects were major considerations in the patient's treatment decision. Thus, considering the faith and trust older adults have in their oncologists in making treatment recommendations, it is important that each radiation oncologist has basic geriatric knowledge and skills to develop the best treatment recommendations.

Currently, there is no formal curriculum in geriatric oncology within the Canadian RO residency programs. As a result, many radiation oncologists lack an understanding of how to assess older patients with cancer. As the population is aging, there may be a need to modify radiation treatment for older frail cancer patients. This geriatric oncology knowledge, particularly related to geriatric assessment and geriatric syndromes, is very important for radiation oncologists and has not been properly addressed in the current postgraduate RO training programs nationwide. Future radiation oncologists will need to acquire the skills and knowledge to modify radiation treatment regimens based on patients' geriatric assessment and their frailty.

A review of the relevant literature indicated knowledge gaps pertaining to geriatric assessment among oncology trainees. Maggiore et al. [7] investigated the perceptions, attitudes, and experiences of hematology/oncology fellows towards exposure to geriatric medicine in their training programs. Researchers concluded that there was a perceived lack of formal geriatric oncology teaching among fellows, variability in pre-fellowship geriatric experiences, and significant differences in confidence levels for managing older adults. Thus, the integration of geriatric training within the context of the hematology/oncology fellowship remains unclear. A similar study conducted by Shipway et al. [8] surveyed surgical trainees about their knowledge and beliefs regarding common preoperative problems found in older surgical patients. One-hundred and fifty-seven UK surgical trainees participated in the survey which reported that 68% of trainees had insufficient training in geriatric medicine and 89% supported the inclusion of geriatric medicine in their surgical curricula.

Moreover, the literature indicates the lack of studies conducted among radiation oncology trainees in Canada or the USA related to their attitudes towards older patients with cancer and what should be the basic knowledge in geriatric medicine that would assist RO residents to feel comfortable in recommending radiation treatment. As radiation technology is expanding, there may be a need to modify radiation treatment for more frail individuals and use modalities that cause less side effects to the patients. In addition, treatment regimens should be time sensitive and more convenient for sick older patients. As a result, it is crucial to identify the principles in geriatric medicine assessing patients' status and their life expectancy. It is important to recognize the differences between the various RO programs in Canada and residents' attitudes towards older adults.

This study explored the knowledge gaps of geriatric medicine among Canadian RO residents in order to review and improve the current situation.

Methods

We used a 26-item survey to collect cross-sectional opinion data from Canadian RO residents over 6 weeks. This quantitative survey was developed through discussions with multidiscliplinary team members including nurses, geriatricians, radiation therapists, radiation and medical oncologists, and through collaboration with the Canadian Network of Aging and Cancer [9]. In addition, the survey development included a literature review of relevant articles. The research team constructed a survey using Likert scale, multiple choice, and open-ended and demographic questions.

The survey was pretested among a sample of 10 RO residents from the University of Toronto program to ensure reliability and understanding of the survey content. The electronic survey was finalized and distributed to all the program directors nationwide, through a survey link from FluidSurveys. Program directors had been contacted in advance and agreed to facilitate survey distribution to their RO residents. The survey was accompanied by an introductory email which explained the study rationale and invited the RO residents to participate. The residents were not contacted directly by the study team. Completion of the survey was indicative of consent. The Sunnybrook Health Sciences Research Ethics Board approved the study. The survey was available in English and French.

Descriptive statistics were used to analyze the Likert scale and multiple choice questions. The percentage of respondents for each of the Likert scale options were calculated. Opinions expressed in open-ended questions were compiled and analyzed for common themes or topics.

Results

A total of 135 radiation oncology residents were eligible to participate. Sixty-three RO residents completed the surveys for a response rate of 47%. Participants represented all regions of Canada and all postgraduate years. Ten (16%) of the respondents represented McGill University, 2 (3%) from Sherbrooke University, 4 (6%) from Western University, 13 (21%) from Ottawa University, 2 (3%) from the University of Alberta, 2 (3%) from the University of British Columbia, 8 (13%) from the University of Manitoba, 4 (6%) from the University of Calgary, and 12 (19%) from the University of Toronto. Eleven (17%) of the respondents were in PGY1, 13 (21%) in PGY2, 12 (19%) in PGY3, 13 (21%) in PGY4, 12 (19%) in PGY5, and 2 (3%) in others.

Half the participants (n = 31, 49%) lack confidence dealing with elderly patients with comorbidities, polypharmacy, functional and cognitive impairment, and challenging social circumstances and 46 (73%) agree that additional training in these areas would be helpful. In addition, 28 (44%) of participants lack confidence when it comes to treating older patients who need a referral to psychogeriatric services, fall prevention education, facilitating palliative and hospice care, and especially education regarding community resources available that might prevent rehospitalization. However, 40 (70%) respondents agreed that additional training with these services would be very helpful. Fifty-two (83%) respondents do not review current geriatric medicine literature relevant to geriatric patients undergoing radiation treatment. Forty-eight (76%) respondents believe that discussion groups, continuing education, geriatric oncology electives, and a journal club would better address the education and training needs in the current geriatric medicine curricula.

Moreover, residents provided their specific comments regarding the geriatric oncology and medicine needs among Canadian RO residents estimating that "50%, if not more, of our cancer patients are elderly patients". One resident indicated that "if they counselled about fall risks and community programs available, they would not be able to see any patients". They saw a role for a geriatric nurse being involved with the radiation team, but stated "it is unreasonable to expect radiation oncologists to behave as geriatricians". Another resident expressed that the gap in knowledge regarding geriatric medicine and oncology can be resolved with a single referral form and "better managed by an easily accessed geriatric service" thus "they feel comfortable with a moderate-low amount of knowledge".

Furthermore, forty-five respondents (71%) stated that it is important to integrate geriatric medicine principles into a RO training program to improve the care of older patients; however, fifty residents (79%) responded that geriatric medicine has not been adequately integrated in their current radiation oncology curricula.

Discussion

Our study investigated the needs of the Canadian RO residents regarding geriatric medicine training. We have identified several gaps that hopefully can be addressed in the RO training curricula to allow the residents to better assess the older cancer patients who need radiation treatment. Moreover, Hsu [10] further supports the need for supplemental training in geriatric medicine and oncology and recognized that by default, oncologists are geriatric oncologists since the majority of their patients are older.

Performance scales frequently used, such as the Karnofsky Performance Scale (KPS) or Eastern Cooperative Oncology Group (ECOG), are able to identify the patient functional status; however, they lack the sensitivity to detect geriatric syndromes and to be a useful prediction tool assessing patients' suitability for oncology treatment. The KPS allows patients to be classified according to their functional impairment, which helps assess the prognosis in individual patients and compares the efficiency of various therapies. The lower the KPS score, the lower the chances of survival for severe illnesses [11]. Similarly, the ECOG performance status is used to assess how a patient's disease is progressing, how the disease affects the daily living abilities of the patient and determines appropriate treatment and prognosis. A high ECOG score indicates more severe functional impairment [12]. Although these scales indicate degree of functionality, they lack the specificity to address geriatric syndrome.

Screening tools used to assess older adults were used to inform survey development for this study. Decoster et al. [13] researched 17 different screening tools for multidimensional health problems warranting a geriatric assessment in older cancer patients. Researchers concluded that screening tools do not replace geriatric assessments but they are recommended in a busy practice to identify patients who require a full geriatric assessment. Additionally, Korc-Grodzicki [3] points out that geriatric assessments can be used to design treatment strategies to alleviate reversible deficits and assist clinicians to stratify patients prior to any potentially high-risk treatment.

More specifically, Hamaker [14] examined the G8 screening tool which was developed to separate fit older cancer patients receiving standard treatment from those patients that require a geriatric assessment to tailor their treatment plan. The G8 score appears to predict prognosis efficiently and is deemed useful for future treatment decisions. Lastly, Kenis et al. [15]

examined the use of the G8 and the Flemish version of the Triage Risk Screening Tool and concluded that they both have the predictive power to recognize patients with a geriatric risk profile and identify patients' functional decline and overall survival. Additional geriatric screening tools including the VES-13, gait speed, and others are in use in clinical geriatric oncology clinics [16].The literature, however, is unclear which of these instruments is superior and should be recommended in clinical settings.

As Huisman et al. [17] indicated, it is unlikely that there is one universal screening tool that is optimal for older cancer patients but the goal is for both patient and clinician to anticipate post-treatment outcomes. However, simple geriatric assessments have had an impact on decision-making in surgery and adjuvant treatments for women over 70 with early stage hormone positive breast cancer, taking into consideration life expectancy and higher lifetime risk of recurrence [18].

Furthermore, perceived frailty associated with age could potentially require a modified treatment plan for elderly patients receiving curative or palliative radiation. As Ulger et al. [19] specified, chronological age is not sufficient to guide management in elderly cancer patients. A treatment based on a patient's chronological age will result in an inadequate therapy for geriatric patients, particularly those who could tolerate the treatment and have a chance of survival with an aggressive approach. Thus, there is a need to personalize radiation treatment in older adults based on a multidiscipinary evaluation and a comprehensive geriatric assessment. This form of assessment provides a better understanding of a patient's health status that may impact life expectancy, cognition, functional decline, and the effectiveness of oncological treatment [20]. This method has shown to be more effective and useful than the evaluation of patients according to their chronological age. A recent study of the ELCAPA patient subgroup, one of the largest studies of older cancer patients published to date, identified subgroups based on GA that were predictive of overall outcome, hospital admission within 6 months and fatal outcome within 1 year [20].

There are significant gaps present in the current radiation oncology curriculum specific to geriatric medicine. The majority of radiation oncology residents lack confidence dealing with elderly patients in regards to their inpatient and outpatient care. The majority (83%) of RO residents do not review geriatric medicine literature relevant to geriatric patients undergoing radiation oncology treatment with one participant stating that it was because "it was more relevant to medical oncology". Similar to Maggiore's study [7] of hematology fellows who perceived lack of formal geriatric oncology teaching, the majority of RO resident participants agreed that a formal geriatric medicine curriculum has not been integrated in their current radiation oncology program. Despite this, the majority of participants (71%) believe that it is important to integrate geriatric medicine principles into a RO training program to improve the care of older patients similar to Shipway's study [8] where the majority (89%) of surgical residents supported the inclusion of geriatric medicine in their curricula. The majority of residents deem discussion groups, continuing education, electives in geriatric medicine, and a journal club as effective means to better address the education and training needs in current geriatric medicine curriculum. Furthermore, with more training in geriatric medicine, the radiation oncology trainees and radiation oncologists can improve their knowledge and skills related to treatment of older adults to provide optimal care to these patients. Development of CME courses and/or Accelerating Educational programs related to cancer and aging specifically looking at the radiation treatment modalities may be one of the education strategies that the residents indicated in their responses.

In addition, closer collaboration with the geriatric teams in a multidisciplinary clinical model with geriatricians or geriatric nurses could facilitate the decision- making for treatment of older adults undergoing radiation treatment. Thus, residents feel strongly towards the integration of a formal geriatric medicine curriculum in their current radiation oncology programs. There is no formal training in geriatric medicine in radiation oncology programs across the nation; it would be important to identify how these geriatric oncology training needs can better be integrated through the formal or informal training.

Study Limitations

Despite that our research was the first in Canada assessing the needs of the radiation oncology residents in geriatric oncology, it had several limitations.

Our response rate was modest 50%, but it only provided perspective from Canada and radiation oncology. We were not able to determine what will be the form of the future geriatric oncology curriculum, these needs to be determined in the future studies. The survey was validated using face validity and piloted among small sample of radiation oncology residents.

In addition, we were not able to stratify the needs based on the residents training year due to not sufficient number of the residents from the same year.

Conclusion

The treatment of older patients can be challenging due to the heterogeneity of this population, mandating optimal geriatric assessments to provide personal treatment and improve outcomes. Geriatric oncology represents an area requiring attention in radiation oncology curriculum. There are significant gaps specific to geriatric assessment and management of older cancer patients in radiation oncology curriculum across Canada. The majority of residents agreed it is important to integrate geriatric oncology training to improve and personalize the care of older cancer patients.

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