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BRIEF REPORT: COVID-19 SCIENTIFIC COMMUNICATION

Impact of the COVID-19 Pandemic on Canadian Radiation Oncology Practices

Corinne M. Doll, MD,[*] Daniel V. Wakefield, MD,[†] Jolie Ringash, MD, MSc,[‡] Paris-Ann Ingledew, MD,[§] Laura A. Dawson, MD,[‡] Thomas Eichler, MD,[‖] and David L. Schwartz, MD[¶]

[*]*Department of Oncology, University of Calgary, Calgary, Alberta, Canada;* [†]*Division of Radiation Oncology, Tennessee Oncology, Nashville, Tennessee;* [‡]*Department of Radiation Oncology, Radiation Medicine Program, Princess Margaret Cancer Centre, University of Toronto, Toronto, Ontario, Canada;* [§]*Department of Surgery, Division of Radiation Oncology, University of British Columbia, Vancouver, British Columbia, Canada;* [‖]*Department of Radiation Oncology, Virginia Commonwealth University, Massey Cancer Center, Richmond, Virginia; and* [¶]*Department of Radiation Oncology, University of Tennessee, Memphis, Tennessee*

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Purpose: To survey Canadian radiation oncology (RO) practice leaders to determine the effect of the COVID-19 pandemic on radiation services and patient and staff issues in the early phase of the pandemic and 1 year later.
Methods and Materials: The RO leader (department or division head) from every Canadian cancer center with radiation services was identified. Two surveys were circulated to the identified leader via email from the Canadian Association of Radiation Oncology central office, using the SurveyMonkey survey tool: the first closed in June 2020 and the second (expanded) survey in June 2021, representing 2 points in time of the COVID-19 pandemic. Questions included patient volume, service interruptions and delays, and changes in scheduling and telemedicine use. Additional questions were included in the follow-up survey to determine further effects on disease presentation, volume, vaccination and access, and personnel issues.
Results: Telemedicine was widely adopted early in the pandemic and continued to be a common technique to communicate and connect with patients. Although many centers were deferring or delaying certain disease sites early in the pandemic, this was not as prevalent 1 year later. Reduced cancer screening and patients presenting with more advanced disease were concerns documented in the 2021 survey. A high level of concern regarding stress among health care professionals was identified.
Conclusions: Canadian RO centers have faced numerous challenges during the COVID-19 pandemic but continued to provide timely and essential cancer care for patients with cancer. Future evaluation of RO center practices will be important to continue to document and address the effect of the COVID-19 pandemic on issues relevant to RO leaders, patients, and staff.

Introduction

To determine the effect of COVID-19 on radiation oncology (RO) practice, the American Society for Radiation Oncology (ASTRO) and the European Society for Radiotherapy and Oncology (ESTRO) sequentially surveyed physician leaders.[1-4] The Canadian Association of Radiation Oncology (CARO) was invited by ASTRO to participate in this sequential survey, to query Canadian centers' practice responses and challenges related to the COVID-19 pandemic, and to document the changes from the early part of the pandemic to 1 year later.

Corresponding author: Corinne M. Doll, MD; E-mail: corinne.doll@albertahealthservices.ca

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Methods and Materials

The RO leader (department or division head) from every Canadian cancer center with radiation services was identified from the CARO directory and verified with the CARO Board. The questionnaire was based on the developed ASTRO surveys,[1,4] with modifications for Canadian practice. Two surveys were circulated via e-mail from the CARO central office, using the SurveyMonkey survey tool: the first (29 questions) on May 11, 2020, with closure on June 22, 2020, and the second (45 questions) on May 27, 2021, with closure on June 18, 2021. Questions pertained to patient volume, service interruptions or delays, changes in consultation scheduling, and telemedicine use. Additional questions in the follow-up survey queried pandemic effect on disease presentation, volume, and personnel issues. All data were collected in accordance with the Health Information Act of Alberta after ethical review using the Alberta Research Ethics Community Consensus Initiative method.[5]

Results

Forty-six RO physician leaders (department or division heads) representing 48 cancer centers (2 are leaders for 2 separate centers) in each of the 10 Canadian provinces were sent the electronic survey. Response rates were 18 of 46 (39.1%) for the first, and 26 of 46 (56.5%) for the second survey. Survey completion rate (answering every question on the survey) was 83% for the first and 100% for the second survey. In the first survey, all centers reported providing radiation therapy treatment services to patients; all but 1 center in the second survey reported continuing radiation therapy treatment services to patients throughout the pandemic, with 1 closure of a satellite regional center.

Treatment scheduling and shift to virtual care

Regarding new patient scheduling, in the first survey, 47.1% reported deferring some new consultation visits (including benign diseases), whereas in the later survey, respondents reported 7.7% deferred in the prior 2 months, and 3.8% during May and June 2021. All centers incorporated telemedicine visits into their practices: telephone visits in 100%; computer-based visits in 65.4%, and video-link visits in 34.6%. For 58.8% of responding centers, telemedicine was new to their center's practice in 2020.

Patient screening and volumes

In the follow-up survey, which included additional questions about the effect of the pandemic on various issues, 80% of respondents noted fewer patients receiving cancer screening; 61.5% (16 of 26) indicated patients presented to their center or practice with more advanced disease compared with before the pandemic. In the earlier survey, 12 of 17 (70.6%) of respondents reported a decline in patient treatment volume, mainly due to fewer referrals (90% of respondents). In the second survey, patient volumes remained reduced (57.7% of respondents) in 2020 compared with 2019, with 80% of respondents attributing this to fewer referrals and/or delays or deferrals of treatment for certain diseases. In the first survey, almost half (7 of 15) of respondents estimated there was a 11% to 20% decrease in patient treatment numbers, whereas in the second survey the most common estimate of decrease in patient volume was 1% to 10% (53.3% of respondents), with 11% to 20% mentioned by 26.7% of respondents.

Treatment delays, interruptions, and effect on patients

Figure 1 details the percentage of centers reporting planned treatment delays by cancer type in 2020 versus 2021; the most common radiation treatment delays by cancer type were early-stage breast cancer and low- or intermediate-risk prostate cancer. Figure 2 shows the CARO survey delay data with the corresponding ASTRO and ESTRO surveys. In 2021, 57.7% (15 of 26) of respondents reported that patients experienced treatment interruption during their treatment course as a result of the pandemic, including a patient's COVID-19 illness (52%, 13 of 25), patient caregiver quarantine protocol (32%, 8 of 25), and delays related to reduced hospital capacity (16%).

Staff reductions and stress

Details on the effect of COVID-19 on various staff roles are shown in Figure 3. Reduction due to COVID-19–related self-isolation or quarantine (not COVID-19 positive) was high (80.8%), and 46.2% of respondents reported reduction due to staff COVID-19 illness. Other effects on staff numbers included family care responsibilities due to COVID-19 (65.4%) and staff transfer to other clinical areas (46.2%). The most affected staff positions were nursing and radiation therapists. When leaders were queried about their COVID-19–related concerns for their colleagues, the most common response was well-being of health professionals (24 of 26, 92.3%), followed by burnout (22 of 26, 84.6%) and work-life balance (21 of 26, 80.8%) (Fig. 4).

Discussion

To our knowledge, this is the first survey to document the effect of COVID-19 over time from a Canadian RO leadership perspective. Canadian cancer centers and RO leaders, in collaboration with multidisciplinary colleagues, have had to make major adjustments in response to the pandemic, including development and implementation of processes and protocols to protect patients and staff, pivoting to

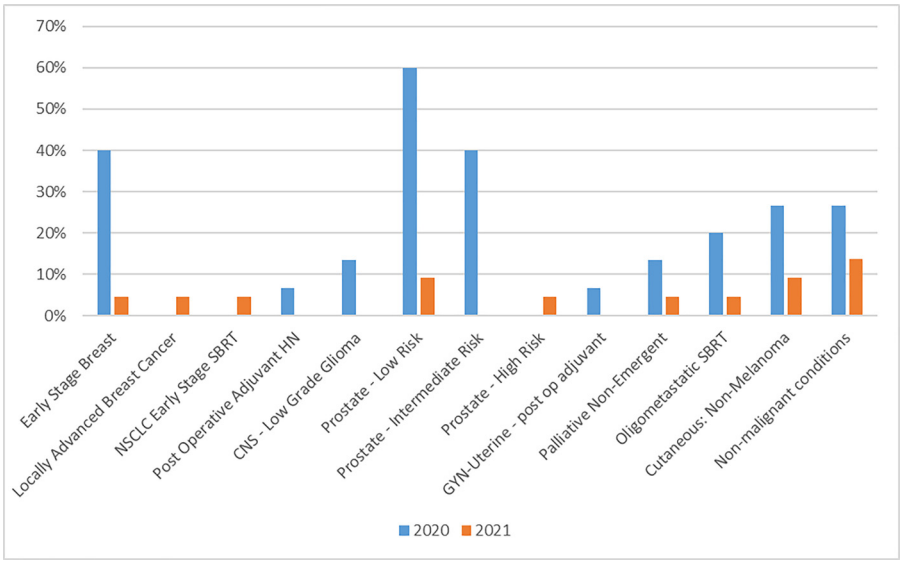

Fig. 1. Percentage of centers reporting planned treatment delays by clinical type, 2020 versus 2021. *Abbreviations*: CNS = central nervous system; NSCLC = non-small cell lung cancer; SBRT = stereotactic body radiotherapy.

telemedicine from in-person encounters for most tumor sites, and deferring and delaying visits and treatments for certain disease sites.

There was an overall reduction in radiation therapy deferrals in the later versus the earlier part of the pandemic, but to some degree, patients were still being deferred 1 year later. The most dramatic example of this was low-risk prostate cancer; 60% of centers were deferring radiation therapy in the early part of the pandemic, which decreased to just over 9% in the most recent survey. This was very similar to the ESTRO survey, which reported 62% of centers deferring treatment for patients with low-risk prostate cancer in the early pandemic, decreasing to 8% in the 1-year follow-up survey,[2,3] but less than what was reported in the early pandemic 2020 ASTRO survey (88%; decreasing to 12.8%).[1,4]

The shift to virtual care came early in the pandemic and remained a model of care delivery 1 year later. In Canada, many centers rapidly adopted virtual care to maintain patient consultations and follow-up and to limit patient exposure to busy hospital environments. This high uptake

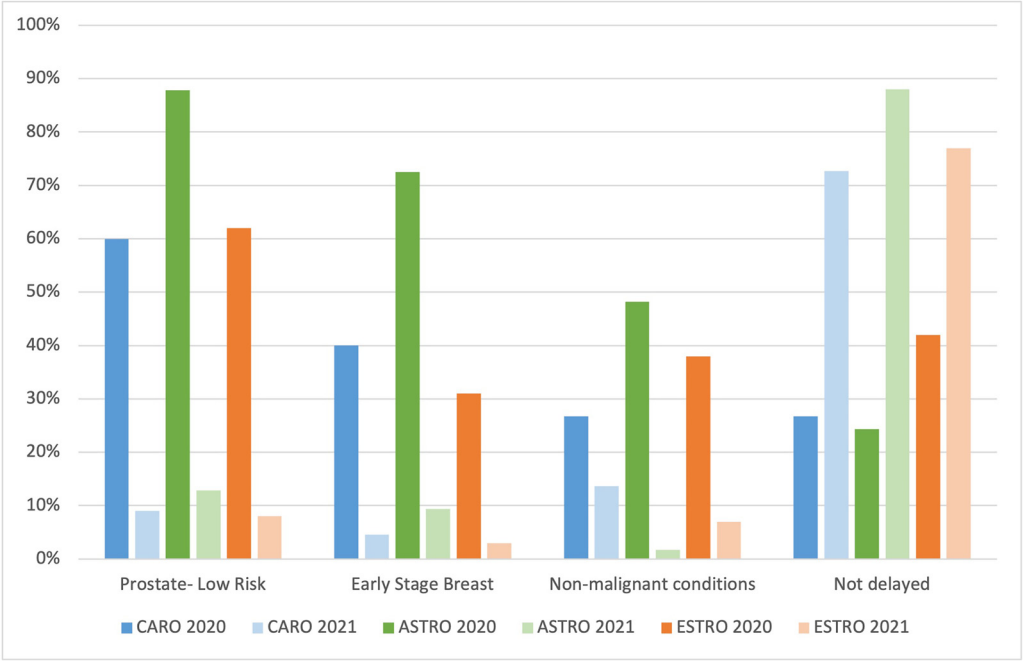

Fig. 2. Percentage of centers reporting planned treatment delays by most common types in the Canadian Association of Radiation Oncology (CARO), American Society for Radiation Oncology (ASTRO), and European Society for Radiotherapy and Oncology (ESTRO) surveys, 2020 versus 2021.

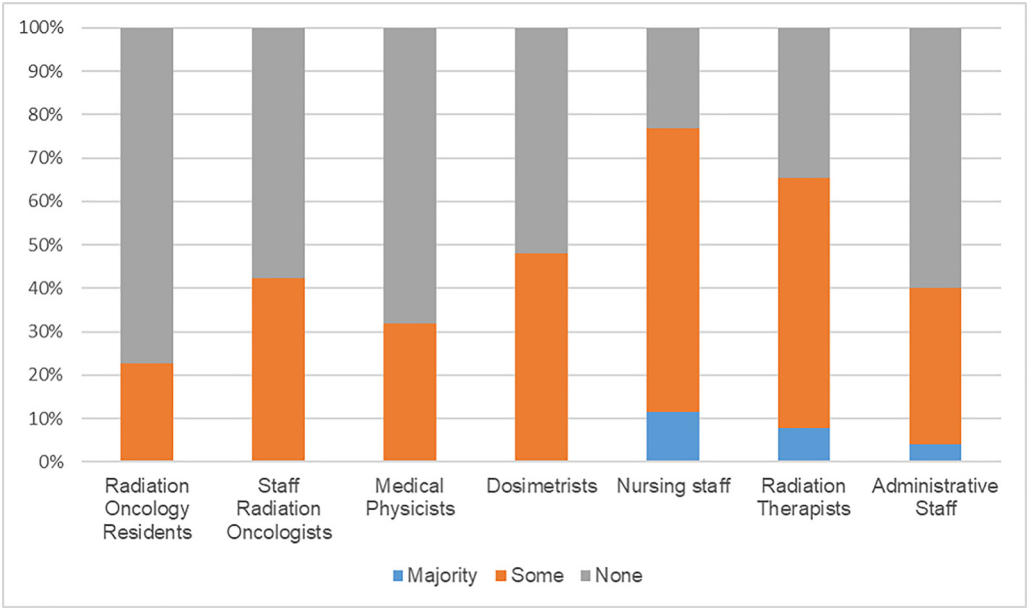

Fig. 3. Staff shortages due to COVID-19 illness, by professional role.

of virtual care was also noted in the ASTRO and ESTRO surveys, with 74% and 72% incorporating telemedicine for follow-up visits or surveillance, respectively.[1,2]

This study demonstrated a perceived effect on screening, with 80% of respondents noting a change in cancer screening. Cancino et al[6] similarly documented the effect of COVID-19 on cancer screening. It is estimated that because of COVID-19, screenings for cancers of the breast, colon, and cervix dropped by 94%, 86%, and 94% between January 20, 2020, and April 21, 2020, respectively.[6,7] Concerningly, all 3 follow-up surveys indicated that patients presented with more advanced disease (CARO 61.5%, ASTRO 65.5%, and ESTRO 71%) than before the pandemic. It will take considerable time for the cancer system to readjust, and this may ultimately affect the quality of patient care and outcomes.[8,9]

There were considerable stresses related to the pandemic on health professionals, with RO leaders reporting extremely high concern for their colleagues regarding well-being, burnout, and work-life balance issues. Rising rates of stress and burnout among oncology physicians have been previously documented,[10] and it is deeply concerning that there may be further repercussions and effects in this specialized workforce as a result of the pandemic.

Limitations of this survey-based study must be stated. Given that this was a retrospective survey involving 1 leader

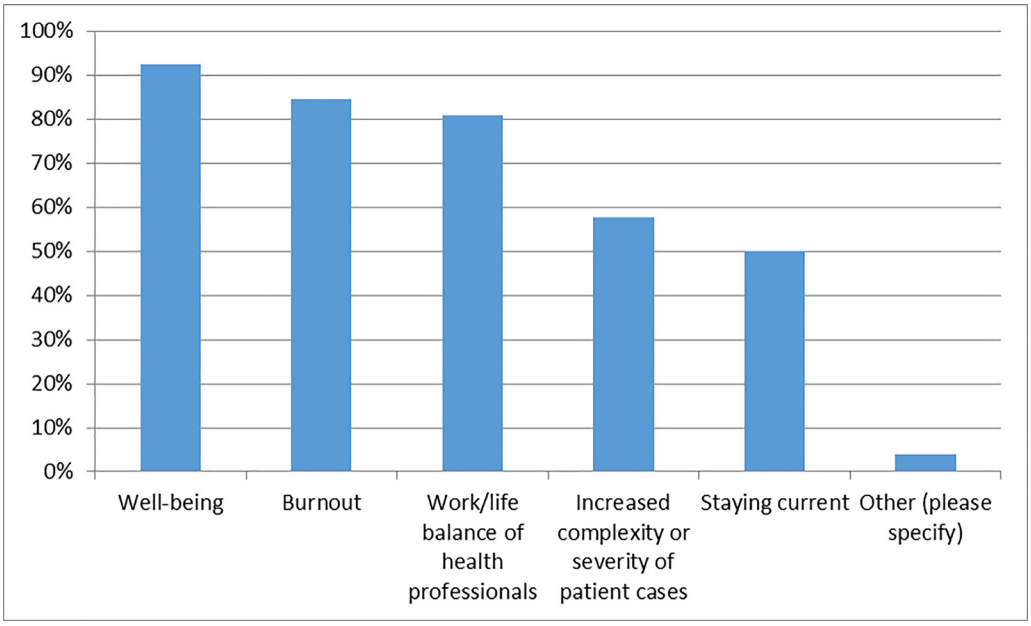

Fig. 4. Leadership concerns for colleagues regarding professional stresses associated with the pandemic.

per center, responder recall or awareness bias is possible, and there was no ability to cross-reference responses. Responses were anonymized; thus, comparisons between province or region could not be performed. The timing of the survey distribution was slightly different than the ASTRO and ESTRO surveys, making direct comparisons challenging. However, with a relatively robust response rate (particularly for the 2021 survey, which had a 56% response rate and 100% of received surveys fully completed) and the specific identification of the cancer center's RO leader for participation in the survey, it was believed that their responses would most likely represent the practice patterns and response of the center to COVID-19 issues.

Conclusions

This study aimed to compare responses related to the COVID-19 pandemic over 2 time points, focusing on RO practices and operations, patient care, and personnel issues. Generally, there were similar issues identified within Canadian RO practices as noted in the ASTRO and ESTRO communities. The identification of patterns related to pandemic response between international cancer care centers is important and meaningful to document to guide and optimize the long-term response and recovery from this pandemic, particularly as COVID-19 will continue to affect cancer care resources over the longer term.

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