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TELEMEDICINE

“Connection Failed”: A Word of Caution on Telemedicine in Radiation Oncology



The coronavirus disease 2019 (COVID-19) pandemic is an unprecedented global health crisis that has triggered seismic shifts in medical practices worldwide. Facing the challenges of the outbreak, the medical community has responded with urgency, introducing rapid changes, many of which will likely prove temporary. However, as the crisis casts a critical spotlight on all facets of medicine, some changes may turn out to be of lasting consequence, and they may profoundly alter the way we provide our care.

As radiation oncologists (ROs), we were confronted with the challenge of providing safe and effective cancer therapy while minimizing the risks to both patients and staff. In response, centers have shared their institutional experiences, and expert recommendations have been released for various tumor sites to provide guidance during these uncertain times.¹⁻⁵

One unanimous recommendation has been to reduce in-person visits during COVID-19. Instead, the use of telemedicine technology has been suggested, which allows for remote audio or video consultations, thereby reducing exposure of patients and staff. There is little doubt that telemedicine has been a necessary adjustment under COVID-19 and that many patients will continue to benefit from remote consultations once the pandemic has subsided. However, we are reluctant to share the enthusiasm expressed by some of our colleagues, who may advocate for a transition to routine telemedicine, rightfully citing its efficiency, particularly for follow-up. We aim to deliver a word of caution and highlight the need for careful evaluation of telemedicine in radiation oncology.

Telemedicine—Healing at a Distance

The origins of telemedicine, a term that literally translates to “healing at a distance,” date back to the early 20th century, when a Dutch physiologist used telephone wires to

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record signals from an electrocardiograph in a hospital 1.5 km away.⁶ More recently, telemedicine has entered the clinical routine in various areas, with the World Health Organization recognizing its potential to provide accessible, cost-effective, high-quality health care, particularly for rural and underserved communities.^{7,8}

The benefits of digital health technologies have also been recognized in cancer care. As an example, web-based surveillance in patients with lung cancer was shown to be more cost-effective than conventional follow-up⁹ and even improved survival in a randomized phase 3 trial.¹⁰ Beyond follow-up, teleoncology applications may include remote treatment supervision, symptom management, palliative and survivorship care, and improved patient access to clinical trials.^{11,12}

As a field deeply interlinked with technology, radiation oncology may be particularly receptive to the introduction of telemedicine, which can also be used for remote treatment planning, quality assurance, physician coverage, or documentation of patient-reported outcome measures.¹³⁻¹⁵ Few centers have reported on their long-term clinical experiences, indicating a high level of patient satisfaction with telemedicine for radiation oncology consultations. Telemedicine consultations were viewed favorably due to their broad applicability, the reduced time and costs needed for follow-up, and increased convenience for patients with long travel distances.^{16,17} However, these experiences included radiation oncology consultations for truly rural areas, with one survey being performed among patients a mean distance of 403 km from the hospital.¹⁷ It is unclear how these experiences would translate to a broader application, as travel time and costs may be of lower priority for patients. Studies will also need to address clinical outcomes with routine use of telemedicine, which may depend on surveillance frequency, as well as patient self-management and community-based interventions.^{9,10,18-20}

More Than a Pat on the Back: In-Person Visits in Radiation Oncology

Some aspects of cancer care cannot be provided through telemedicine technology. This includes physical examination as a diagnostic tool, as well as in-person

communication, including physical touch, as components of a complex doctor–patient relationship.^{21,22}

Physical examinations are recommended during follow-up for many cancer sites, although evidence is generally limited. Typical scenarios for ROs may include digital rectal examinations for prostate cancer, laryngoscopy for head and neck cancers, lymph node palpation for lymphomas, or pelvic examinations for gynecologic cancers. Physical examinations are helpful when assessing toxicities, which is a responsibility of treating ROs, and which often requires detailed knowledge of the delivered radiation therapy (RT) plan. Although skin reactions may be assessed using video technology, this is not always feasible, and some patients benefit from immediate local care.

Follow-ups are increasingly recommended using imaging and laboratory studies in clinical practice guidelines. Furthermore, physical examinations are also performed by referring specialists, who may have additional equipment or practical expertise. However, ROs should continue to play an active role in clinical follow-up to assess the impact of RT from a practice quality improvement perspective.²³ This involves the commitment and skills to provide focused yet careful physical examinations to assess outcomes and toxicities.

Telemedicine can be used to preselect patients who may benefit from in-person appointments, particularly in cancers where the role of physical examination for recurrence surveillance is limited.^{16,17} However, studies will need to assess which patients are suitable for this approach and which patients will continue to benefit from regular in-person follow-up. As ROs, we treat many elderly patients, some of whom may not be familiar with telemedicine technologies or have difficulty using them. Others may lack access or face additional communication barriers, such as patients from an ethnic minority background.²⁴ We need to ensure that these patients are not intimidated by the technology or pressured into its use. This transition will therefore not only require technological infrastructure and dedicated workflows, but also training and education for both staff and patients.^{20,25}

The Future of Radiation Oncology: Where Are We Heading?

There are a number of unknowns surrounding telemedicine in radiation oncology that go beyond the lack of physical patient contact. These include questions about reimbursement, privacy, job markets, and physician health, with anecdotal evidence indicating that many perceive high-volume telemedicine, as experienced under COVID-19, as exhausting. In particular, however, we need to recognize where we are heading as a field and study how telemedicine may redefine our role as clinicians.

As ROs, we contribute to the cure or palliation of disease in approximately half of all patients with cancer.²⁶ We do

so ever more efficiently, delivering higher radiation doses in fewer fractions, to the benefit of our patients. Our responsibility is therefore to recognize when RT is indicated and to deliver high-quality treatments. In addition, however, we serve a role as partners to our patients, many of whom will require long-term care or additional treatments. The impact of telemedicine on these longitudinal doctor–patient relationships is largely unknown, as studies have mostly looked at the feasibility and (cost-)effectiveness of digital health technologies.^{27,28}

The changes may be particularly palpable for ROs, who are often not considered the primary caretakers during follow-up.²⁹ Medical oncologists have been rated as more warm and patient-centered compared with ROs in initial consultations.³⁰ Furthermore, in-person doctor–patient interactions are often limited during RT, as ROs are generally not present or visible during treatment delivery. It is therefore a challenge to form a strong therapeutic relationship built on trust and empathy, which may then be continued in a telemedicine setting.^{22,31} Not all patients may require longitudinal follow-up with their ROs, even though an increasing number of, for example, oligometastatic patients may be candidates for multiple treatments. However, ROs need to be aware that a shift toward telemedicine may mitigate their connection to patients, and ultimately their role as clinicians, which goes beyond that of a mere service provider. This development coincides with the emergence of artificial intelligence in our field, which will further reduce the RO's role in RT planning and delivery.^{23,32} ROs may therefore need to redefine their role as caregivers who are fully engaged with their patients and colleagues, whether in person or virtually, in an era of patient-centered care.²³ The challenges we are facing are reflected by a study on end-of-life care, where medical oncologists perceived the RO's role as comparable to surgeons, whose patient interactions ceased after their services had been performed.³³

Putting Our Patients First

There is no doubt that the future of health care is a digital one and that technology will continue to transform the way we practice medicine. Radiation oncology will be no exception, as telemedicine technology will continue to improve, and influence our practice long after COVID-19 has passed. It is therefore not our intention to downplay the benefits of this change or to question those who will be pioneers in breaking down the barriers of its widespread adoption.⁸ Rather, we hope that the introduction of telemedicine is subjected to the same level of critical appraisal that we demand for all aspects of our care, and that we continue to put our patients first when analyzing the costs and benefits of this transformation. Future studies are therefore needed, and steps have to be taken carefully as the current events continue to act as a catalyst for change. We

may end up realizing that no change was bigger than waving at a screen instead of shaking a hand.

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