JACC: CARDIOONCOLOGY
PUBLISHED BY ELSEVIER ON BEHALF OF THE AMERICAN COLLEGE OF CARDIOLOGY FOUNDATION.

VOL. ■, NO. ■, 2020

VIEWPOINT

Cardio-Oncology Care in the Time of COVID-19 and the Role of Telehealth

Amar Parikh, MD, Anupam A. Kumar, MD, Eiman Jahangir, MD, MPH

In the last few months, the world has been swept by coronavirus disease-19 (COVID-19), a disease caused by the severe acute respiratory syndrome coronavirus-2 that can lead to fatal acute respiratory distress syndrome, cardiomyopathy, and arrhythmias. We have quickly learned that patients with pre-existing conditions, particularly cardiovascular disease and cancer, are at a higher risk of both acquiring the infection and poorer outcomes (1). The transmissibility of COVID-19 and its increased mortality in high-risk patients have led to social distancing as a strategy to "flatten the curve" and contain its spread. Given the global prevalence of both cancer and cardiovascular disease, mitigating the exposure risk of this vulnerable population is critical. Routine appointments are being rescheduled to enforce social distancing; however, given the dual diagnoses our cardio-oncology patients carry and their overall increased morbidity, many of these scheduled visits cannot safely be deferred. Telehealth, a broad term encompassing virtual clinic visits and digital health technology, has gained traction as a viable avenue for the provision of safe, high-quality medical care without placing the vulnerable cardio-oncology patient at risk. As the role of telehealth expands, it is crucial to understand its particular benefits and limitations. In this viewpoint, we explore the unique advantages of telehealth in the care of the cardio-oncology patient, share our institution's experience thus far, and advocate for its enduring use beyond the current pandemic.

Recent evidence summarized in this issue of *JACC: Case Reports* by Ganatra et al. (1) shows that patients with cancer or cardiovascular disease are at higher risk of both acquiring the COVID-19 infection and suffering worse outcomes compared to the general population. Early reports from China show that the COVID-19 mortality rate was highest among patients with cardiovascular disease (13.2%) compared to other comorbidities, and a recently updated World Health Organization report shows a high mortality (7.6%) among patients with cancer (1). This trend is corroborated in a review published by the U.S. Centers for Disease Control and Prevention of 7,162 patients in the United States, where pre-existing cardiovascular disease was present in 9% of all infected patients and 29% of patients requiring intensive care unit–level care, among the highest rates of any measured comorbidity (2). To reduce nosocomial COVID-19 transmission among patients with cancer and cardiovascular disease, Ganatra et al. (1) suggest "substituting in-person visits with telehealth visits," a viewpoint supported by a American College of Cardiology Clinical Bulletin that states "planning for emergency telehealth protocols should begin now" for patients with stable cardiovascular disease (1,3).

There are limited high-quality, randomized data supporting telehealth; however, some evidence does suggest a benefit to patients and health systems. Telehealth interventions in cardiology to date have largely focused on ambulatory management of hypertension and heart failure. Individual studies of telemonitoring in heart failure have yielded conflicting results, although meta-analyses of randomized trials of telehealth in heart failure have shown improved clinical outcomes (4). There is a similar absence of high-quality randomized data supporting

From the Division of Cardiovascular Medicine, Department of Medicine, Vanderbilt University Medical Center, Nashville, Tennessee. The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the *JACC: CardioOncology* author instructions page.

ISSN 2666-0873

https://doi.org/10.1016/j.jaccao.2020.04.003

use of telemedicine in oncologic care and survivorship visits, although studies have shown high levels of satisfaction among patients and providers and suggest cost-savings (5,6). Expansion of telehealth services in cardio-oncology should seek to improve overall quality and value of care delivery rather than innovate for the sake of innovation. The Institute of Medicine's 2001 report, *Crossing the Quality Chasm,* provides 6 dimensions of quality towards which new telehealth interventions should strive: care that is safe, effective, patient-centered, timely, efficient, and equitable (7). As telemedicine continues to increase in both popularity and usage, accelerated by the COVID-19 pandemic, it is vital that future studies assess outcomes and determine best practices.

The practical advantages that telehealth provides are myriad, particularly within cardio-oncology. It takes effort for a patient to attend an in-person clinic appointment for what may amount to a brief visit—telehealth obviates that inconvenience. In addition, there is untapped potential in incorporating remote data monitoring into the practice of telehealth. Cardio-oncology patients can be monitored in a variety of useful ways—e.g., weight scales and CardioMEMS in patients with anthracycline-induced heart failure or the transmission of blood pressure readings in patients starting vascular endothelial growth factor signaling pathway inhibitors—and these data can still be continuously evaluated in between clinic visits. This offers clinicians the opportunity to intervene early and prevent hospitalizations, making the provision of care more longitudinal and therefore improving patient safety and overall quality of care.

Although telehealth offers several advantages over in-person care, it does have inherent shortcomings and barriers to its effective implementation. While the geographical divide between physician and patient is a compelling argument in favor of telehealth, it can also be a significant obstacle. Physicians caring for patients across state lines must also be licensed in the state where the patient is located. Practitioners are additionally required to adhere to local telehealth practice regulations, which can be byzantine in complexity and highly variable across states. Encouragingly, however, in recognition of the growing importance of remote care during the COVID-19 pandemic, federal officials have approved interstate licensing, allowing for telehealth expansion.

In regards to clinical challenges, the physical exam can be a pivotal component of the patient assessment in cardio-oncology. However, for a majority of routine visits, telehealth is a viable option. Heart failure patients can provide daily weights and be taught how to evaluate for edema to determine if they are volume-overloaded. Another consideration is that our patient population tends to be sicker and our clinical encounters more emotionally charged – does telehealth "depersonalize" the bond between patient and cardio-oncologist? We believe that a thoughtful "webside" manner is as effective a method to convey compassionate care, especially given the hectic pace and chaotic environment frequently encountered in a brick-and-mortar clinic. In our experience, practical components of an empathetic webside manner include looking directly into the camera when listening or talking so the patient can see you making eye contact, acknowledging the novelty of the setting to mitigate patient apprehension, and starting the visit with a moment to recognize and appreciate that the patient has taken the personal step of inviting you into their home (8). These simple but critical steps can help cultivate patient trust.

Finally, thoughtful collaboration with our oncology colleagues will be vital during these uncertain times. Oncologists are being forced to make exceptionally challenging triage decisions, including which cancer patients can wait to be treated and for how long? How can treatment regimens be modified to reduce health care exposure? For which patients are the incremental clinical benefits of chemotherapy outweighed by the risk of infection? This added layer of complexity in clinical decision-making will require rigorous coordination with oncology, and we should anticipate the need for flexibility and creativity with our care plans while remaining steadfast in our support (9).

Factoring in the unique circumstances imposed by COVID-19, we implemented a cardio-oncology telehealth clinic between the dates of March 23, 2020, and April 3, 2020. Typically, before the pandemic we would see 30 to 40 patients a week in our cardio-oncology clinic. Starting March 23, 2020, we initiated the telehealth program and as expected our overall number of visits have decreased. Over the initial 2.5-week period, we have seen a total of 11 patients with a variety of cancers and complaints via telehealth visits.

Using this model, we have seen 5 new patients and 6 return patients including 3 post-hospital visits. Primary diagnoses among these individuals included prostate cancer, chronic myeloid leukemia, renal cell carcinoma, esophageal adenocarcinoma, myelodysplastic syndrome, metastatic breast carcinoma, chronic lymphocytic leukemia, multiple myeloma, and amyloidosis. The new patient visits included evaluation of pericardial effusion, follow-up from hospitalization for pericarditis and pulmonary

hypertension, and cardiovascular optimization before stem cell transplant or androgen deprivation therapy. Return patient visits included management of atrial fibrillation in 2 patients who were planning on having stem cell transplant, management of pulmonary hypertension, medication optimization in stable coronary artery disease, and follow-up of 2 individuals for supraventricular tachycardia. Of the 11 individuals, 6 six had cardiovascular risk factors including hypertension, hyperlipidemia, or diabetes mellitus; 2 had known coronary artery disease; 2 had atrial fibrillation; and 2 had supraventricular tachycardia. The patient visits allowed for 4 individuals to proceed with planned treatment for their cancer. In 7 patients there was no significant change in management.

In regards to our telehealth clinic, we plan to continue to increase capacity. Currently, all individuals, new or established, are being offered telehealth visits at their previously scheduled appointment time or within 1 week of a referral placement due to their higher risk of a negative outcome with COVID-19 infection. If at the time of the telehealth visit we determine the individual needs more acute care, they are referred to their local emergency room. If it is determined they need an in-person visit, it is scheduled as soon as possible, typically within 1 week, with practices for social distancing and protective personal equipment maintained for both the provider and patient. By following this algorithm, all individuals can be assessed by a physician in a timely manner, stay safe, and provide appropriate level of care as needed.

In every crisis, there is opportunity for reflection and improvement. The COVID-19 pandemic has forced the medical community to re-evaluate its approach to the optimal delivery of clinical care, resulting in the rapid expansion of telehealth services across the nation in a matter of weeks. Systems improvements along with the temporary relaxation of laws surrounding interstate practice and reimbursements should allow us to evaluate telehealth at its full potential. While these changes may initially be temporary, the benefits that will be gained in health care systems are likely to be permanent, making it doubtful that we will return to the old ways of solely in-person visits. Cardio-oncology is still a nascent field with a comparatively small pool of trained clinicians, making it even harder for patients with limited access to specialized care to obtain the clinical expertise they need. Therefore, the cardio-oncology community should remain attentive to the evolution of telehealth and how we can become more facile with its use to extend our clinical reach and take better care of our patients. We are encouraged by the experience with our institution's cardio-oncology telehealth clinic thus far, and believe that a similar approach can be safely and effectively implemented more widely across health care systems.

Telehealth is in prime position to shift the landscape of cardio-oncology. We believe that it can serve as a durable method of delivering high-quality, longitudinal, accessible care to our cardio-oncology patients both during the pandemic—and beyond.

ADDRESS FOR CORRESPONDENCE: Dr. Eiman Jahangir, Vanderbilt University Medical Center, 1211 Medical Center Drive, Nashville, Tennessee 37212. E-mail: eiman.jahangir@vumc.org. Twitter: @eimanjahangir.

REFERENCES

1. Ganatra S, Hammond SP, Nohria A. The novel coronavirus disease (COVID-19) Threat for patients with cardiovascular disease and cancer. J Am Coll Cardiol CardioOnc 2020 Mar 20 [E-pub ahead of print].

2. CDC. Preliminary Estimates of the Prevalence of Selected Underlying Health Conditions Among Patients with Coronavirus Disease 2019—United States, February 12–March 28, 2020. MMWR Morb Mortal Wkly Rep 2020;69:343–6.

3. Committee ASaQ. ACC Clinical Bulletin: COVID-19 Clinical Guidance For the Cardiovascular Care Team 2020. Available at: https://www.acc.org/~/media/665AFA1E710B4B3293138D14BE8D1213.pdf. Accessed February 5, 2020.

4. Lin M-h, Yuan W-l, Huang T-c, Zhang H-f, Mai J-t, Wang J-f. Clinical effectiveness of telemedicine for chronic heart failure: a systematic review and meta-analysis. Clin Res 2017;65:899–911.

5. Blakely LJ, Dickson NR, Erter JW, et al. Launch of telemedicine in community oncology practice. J Clin Oncol 2019;37:275.

6. Corcoran S, Kenny S. Telemedicine: a new survivorship visit model. J Clin Oncol 2019;37:89.

7. Schwamm LH. Telehealth: seven strategies to successfully implement disruptive technology and transform health care. Health Aff 2014;33:200–6.

8. Talierco R, Jhangiani N, Modic M. Improve Your Webside Manner: Tips on Virtual Visits. 2018. Available at: https://consultqd.clevelandclinic.org/improve-your-webside-manner-tips-on-virtual-visits/. Accessed April 15, 2020.

9. Schrag D, Hershman DL, Basch E. Oncology practice during the COVID-19 pandemic. JAMA 2020 Apr 13 [E-pub ahead of print].

KEY WORDS care delivery model, cost-effectiveness, health economics, innovation, medical technology, provider education