Care Delivery in Cancer Patients With Asymptomatic COVID-19 Infection in a Tertiary, Safety-Net Hospital in Houston, Texas

Nan Chen, MD, Aparna Jotwani, MD, and Ang Li, MD

Objectives: Current coronavirus disease 2019 (COVID-19) guidelines recommend delaying clinical care for all affected cancer patients, including incidentally diagnosed asymptomatic infections. This retrospective study conducted in a safety-net hospital in Houston examines the care delivery of asymptomatic COVID-19 cancer patients and how their diagnosis affected their care.

Methods: A retrospective chart review was conducted on cancer patients with a documented positive SARS-CoV-2 laboratory result in the Harris Health System in Houston, Texas. Patient demographics, treatment delays, and patient outcomes were analyzed.

Results: Thirteen percent (n = 24) of all patients with cancer and COVID-19 diagnosis (n = 181) were asymptomatic and 96% had a solid organ malignancy. Among asymptomatic patients, 44% (n = 11) of them experienced a median treatment delay of 33 days and 21% (n = 5) transitioned to hospice. No patients had progression of disease at first evaluation after recovering from COVID-19 diagnosis. Asymptomatic patients were more likely to have a worse ECOG performance status, metastatic disease, and charity insurance as compared with symptomatic patients.

Conclusions: This study supports the safety of our current isolation guidelines for all COVID-19 asymptomatic cancer patients. While treatment delays occurred, they did not appear to significantly impact overall care. Differences in care delivery and health care usage patterns between symptomatic and asymptomatic patients demonstrate the need for continued studies in vulnerable populations.

Key Words: COVID-19, care delivery, coronavirus

This study supports the safety of our current isolation guidelines for all COVID-19 asymptomatic cancer patients. While treatment delays occurred, they did not appear to significantly impact overall care. Differences in care delivery and health care usage patterns between symptomatic and asymptomatic patients demonstrate the need for continued studies in vulnerable populations.

METHODS

A retrospective chart review was conducted on cancer patients with a documented positive SARS-CoV-2 laboratory result in HHS or an outside positive result confirmed by institutional patient navigators from March 1, 2020 to November 7, 2020. Patients were included in the total population if they were on active treatment within the last 5 years, all asymptomatic patients had active cancer. Asymptomatic infection was defined as the absence of all symptoms and radiographic signs of COVID-19. Length of treatment delay was defined as the difference in days from the initial outpatient scheduled or inpatient clinically intended treatments and the actual receipt of treatment. Patient outcomes were evaluated with radiological, laboratory, or pathologic disease assessment and clinical assessment of adverse events in first clinic follow-up after diagnosis. Median household income was calculated by zip code of primary address. We investigated patient demographics, comorbidities, cancer types, treatment delays, and patient outcomes. Statistical analysis was performed with the Fisher exact and Wilcoxon Rank Sum as appropriate. This retrospective study was approved by the institutional review board (IRB) of Baylor College of Medicine and is in compliance with the Declaration of Helsinki and International Conference on Harmonization Guidelines for Good Clinical Practice.

RESULTS

Among 1164 patients with active or a history of cancer tested during the study period, 181 (16%) had positive SARS-CoV-2 testing and 24 of 181 (13%) were asymptomatic.
throughout their disease course. These asymptomatic infections were diagnosed on testing performed before initiation of therapy or procedure or during an emergency room visit for an unrelated medical concern. A total 167 (93%) of the patients identified as Hispanic or African American. Demographic data for symptomatic and asymptomatic patients is shown in Table 1. Between symptomatic and asymptomatic patients, there were statistically significant differences in ECOG performance status, presence of metastatic disease, and type of insurance. Asymptomatic patients were more likely to have worse performance status, metastatic disease, and charity or self-pay insurance. Among the 24 asymptomatic patients, the most common malignancies were breast, gastrointestinal, and genitourinary, 23 (96%) patients had a solid organ malignancy. Within this group, 8 (33%) patients did not experience a delay in treatment. Five (21%) patients had a delay, however, due to progression of their underlying disease did not receive additional therapy and transitioned to hospice care. The remaining 11 (44%) patients had a treatment delay and resumed care. Of these, 5 had a delay in systemic therapy, 5 had a delay in a surgical procedure, and 1 had a delay in radiation therapy. These data are summarized in Figure 1. The median length of treatment delay was 33 days. At the time of data analysis, 8 of the 11 patients had disease evaluation following treatment delay with radiologic imaging or pathologic evaluation, none showed disease progression. One patient reported worsening of symptoms at the first clinic visit following their positive test. She was scheduled for internalization of a ureteral stent, and she reported worsening of nausea and vomiting.

**DISCUSSION**

Cancer patients are a vulnerable subpopulation during the COVID-19 pandemic, with an increased rate of mortality and...
severe complications. However, infections vary in their severity and very limited data exists for cancer patients with positive SARS-CoV-2 testing whom are clinically asymptomatic. Studies conducted in multiple countries determined the asymptomatic COVID-19 rate to be between 1% and 3% in their cancer centers. Understanding the care delivery in these patients is becoming increasingly important as we expand our testing capabilities and continue to provide appropriate cancer care during the pandemic. Our single-center retrospective case series conducted from March to November 2020 in the Houston metropolitan area captures a racially diverse population. It demonstrates that a significant portion of our COVID-19 cancer patients (13%) were asymptomatic. We found that while treatment delays frequently occurred, this did not result in a worsening of outcomes as no patients had progression of disease on subsequent disease evaluation and 1 patient had worsening of an adverse event. While 5 patients had treatment delays and ultimately transitioned to hospice, it is unlikely that systemic therapy would have changed the course of their terminal disease. Many factors are involved in any goals of care discussion, and the decision to transition to hospice can be difficult. For 2 of these patients, their treatment delay coincided with a worsening of a medical condition (hyperbilirubinemia and liver failure) which precluded further treatment. For the remaining 3 patients, it is likely that treatment delays from COVID-19 factored into their decisions regarding goals of care. Each of these patients made the decision on a subsequent visit after their isolation period.

In our under-served and predominantly Hispanic or African-American population, asymptomatic patients were more likely to have a worse performance status, metastatic disease, and charity or self-pay insurance. Interestingly, this suggests that patients who have worse functional status or increased burden of disease at baseline were less likely to develop symptoms with their COVID infection. There is limited data on clinical differences between asymptomatic and symptomatic patients. Some studies suggest that asymptomatic patients in the general population tend to be younger than symptomatic ones and one small study found that baseline comorbidities were similar in both groups. In symptomatic, hospitalized COVID-19 patients, chronic comorbidities have been correlated with increased mortality. Therefore, our finding is likely not related to the pathophysiology of COVID infection, but rather a reflection of care patterns in our population. Patients with worse performance status and metastatic disease are more likely to have an increased frequency of health care encounters including emergency room visits and thus testing for asymptomatic disease. Understanding care delivery patterns in this vulnerable population to improve patient safety and outcomes is vitally important as we navigate the continuing pandemic. Acknowledging our small sample size, limited geographic area, and local patient population, this study provides evidence to support the safety of national and institutional guidelines for the recommendation of isolation in all asymptomatic COVID-19 patients. Our study found that while treatment delays were common, there was no short-term disease progression in asymptomatic COVID-19 patients, although the added burden from COVID-19 could impact patient’s decision to transition to hospice. Furthermore, comprehensive and available testing in vulnerable populations is necessary to identify asymptomatic cases and deter disease transmission. Further studies are needed to guide evidence-based health policies in this population.

REFERENCES

1. Texas Medical Center, Coronavirus (COVID-19) Updates. Available at: https://www.tmc.edu/coronavirus-updates/daily-new-covid-19-positive-cases. Accessed November 30, 2020.
2. Centers for Disease Control and Prevention. COVID-19 hospitalization and death by race/ethnicity. Available at: https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html. Accessed November 30, 2020.
3. American Society of Clinical Oncology (ASCO). ASCO special report: a guide to care delivery during the COVID-19 pandemic. Available at: https://www.asco.org/sites/new-www.asco.org/files/content-files/2020-ASCO-Guide-Cancer-COVID19.pdf. Accessed October 7, 2020.
4. Ceruglano G, Banerjee S, Cervantes A, et al. Managing cancer patients during the COVID-19 pandemic: an ESMO multidisciplinary expert consensus. Ann Oncol. 2020;31:P1320–P1335.
5. Hanson K, Caliendo A, Arias C, et al. Infectious Diseases Society of America Guidelines on the Diagnosis of COVID-19. Clin Infect Dis. 2020. doi: https://doi.org/10.1093/cid/ciaa760
6. Harris Health System Standard Operating Procedures. Available at: https://www.harrishealth.org/home/employees. Accessed October 19, 2020.
7. Zip Code Characteristics: Mean and Median Household Incomes (2006-2010), The University of Michigan Population Studies Center Institute for Social Research.
8. Kuderer N, Choueiri T, Shah D, et al. Clinical Impact of COVID-19 on patients with cancer (CC19): a cohort study. Lancet. 2020; 395:1907–1918.
9. Shah M, Mayer S, Emlen F, et al. Clinical screening for COVID-19 in asymptomatic patients with cancer. JAMA Netw Open. 2020;3: e2023121.
10. Yin P, Zeng R, Duan YR, et al. An analysis of cancer patients with asymptomatic infection of SARS-CoV-2 in a cancer center in Wuhan, China. Ann Oncol. 2020;31:1420–1422.
11. Kong W, Wang Y, Hu J, et al. Comparison of clinical and epidemiological characteristics of asymptomatic and symptomatic SARS-CoV-2 infection: a multi-center study in Sichuan Province, China. Travel Med Infect Dis. 2020;37:101754.
12. Yang R, Gui X, Xiong Y. Comparison of clinical characteristics of patients with symptomatic vs. asymptomatic Coronavirus Disease 2019 in Wuhan, China. JAMA Netw Open. 2020;3:e2010182.
13. Li Y, Shi J, Xia J, et al. Asymptomatic and symptomatic patients with non-severe coronavirus disease (COVID-19) have similar clinical features and virological courses: a retrospective single center study. Front Microbiol. 2020;11:1570.
14. Navar A, Taylor R, Purinton S, et al. Impact of cardiovascular disease on outcomes among hospitalized COVID-19 patients: results from >14,000 patients across the United States. LBS.08, AHA Scientific Sessions. 2020, 13–17.
15. Guan W, Liang W, Liang H, et al. Comorbidity and its impact on 1590 patients with COVID-19 in China: a nationwide analysis. Eur Respir J. 2020;55:2000547.