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COVID-19 Pandemic and the New State of Oncology Practice: An Editorial

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The novel coronavirus disease 2019 (COVID-19) is a modern- day pandemic that started in Wuhan city, Hubei province in China in December 2019 and spread throughout the world affecting people in over 180 countries. To-date, the pandemic has claimed over 360,000 lives worldwide mainly due to severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2) as well as multi-organ failure including thromboembolic strokes and acute myocardial infarctions. This pandemic has overwhelmed health care systems in the USA, Europe and many other countries around the globe. Among the high-risk populations with increased morbidity and mortality from COVID-19 are the elderly, people with diabetes, immunocompromised patients and those with comorbid conditions such as cardiovascular disease as well as those with cancer. In this editorial, we present the unique, and challenging, relationship between COVID-19 and cancer, highlighting the higher risk of COVID and the higher burden of complications among cancer patients. We also present strategies proposed to mitigate the heightened risk associated with the new COVID-cancer state.

One of the first articles that reported on the increased incidence of COVID-19 state among cancer patients was by Whehua Liang and associates [1]. This prospective cohort study that was conducted by the National Clinical Research Center for Respiratory Disease, together with the National Health Commission of the People's Republic of China to monitor COVID-19 cases have collected and analyzed 2007 cases from 575 hospitals in 31 provincial administrative regions [1]. In this study, cancer was 3 times higher among COVID-19 patients, compared to the overall Chinese population [1], with a prevalence of 2.2%, which is 1.7 times higher than that of the Chinese population of the same age according to the International Agency for research on cancer [2]. Patients with cancer have also been found to have more severe symptoms with COVID-19, compared to non-cancer patients; Yang and

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Conflicts of Interest

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colleagues [3] observed worsening acute respiratory syndrome in COVID cancer patients. Similarly, Whehua and associates [1] observed that the percentage of patients being admitted to intensive care units requiring ventilation, or ultimately dying, was 39% compared to 8% in non-cancer patients ($p=0.0003$).

The etiology of why COVID cancer patients are more prone to worsening presentation or death is not as clear. Some have advocated a blunted immune response [4], while others have attempted to blame the underlying host related factors that may have initially caused the cancer such as smoking and increased lung injury. [5,6] Cytotoxic anti-cancer treatments may also be contributing factors. [7]

However, patients who are in need of active cancer therapy in the COVID state suffer from significant delays for very obvious reasons.

Several have attempted to mitigate the risk of delaying oncologic care; Nagar and Formenti warned about the deleterious effects of delaying radiotherapy. [8], while, Kutilov and associates [9] recommended an adaptive delay policy based on the type and stage of cancer (early-stage breast, prostate, cervical, non melanomatous skin), deemed more possible to be postponed, while others like acute leukemia, lung and pancreatic neoplasms cannot be.

While many consensus and guidelines are provided by Oncology societies such as American Society for Radiation Oncology (ASTRO) and/or the European Society for Radiotherapy (ESTRO), we are still left with several dilemmas on many fronts:

A. Patients and families:

- Reduced family and social support due to COVID constraints will place undue strain on patients 'tolerance and compliance with treatment.
- Transportation: many cancer patients are dependent on others to bring them in for their treatments while others live in fear of using public transportation.

B. Facilities:

- Social distancing: while it had been temporarily easier to comply with during the acute COVID state with fewer patients to handle, significant changes on the configuration of waiting areas, infusion chairs,...etc. will have to accommodate larger numbers of patients as tensions and restrictions are eased.
- Reduction of the duration of regimens: many radiation oncology centers had adopted hypofractionated regimens to lessen the frequency of visits. While many of these regimens have a high level evidence basis, some are being adopted due to the pandemic constraints without level-1 evidence for their utility.
- Confusion and constant changes in published messages: as much as we know about patients who have tested positive, there remains even more to be learned on how to manage those who continue to keep

shedding the virus remaining positive for weeks after their first test. The constantly changing paradigms may negatively affect health care workers as well as patients who are negative for the virus.

C. Patient-doctor relationship:

Because of social distancing and use of face masks, this long treasured relationship is under significant strain. The bond with our cancer patients and the empathy health care providers are known for is not easily conveyed from behind a mask. On the other hand, a patient's facial expressions may not be easily detected by the treating team and hence, we now face a disruption of one of the most important bonds we have with our cancer patients.

D. Clinical trials:

While it is considered part of standard of care in many institutions, the poetical need for extra visits just to comply with the design of the studies may result in decreased accrual.

E. Loss of financial support and/or insurance:

Many cancer patients who were laid off during the pandemic are now very concerned with how to begin or resume their care, and if the government stimulus will allow extension of their insurance coverage even when they are unemployed.

F. Psychological impact of COVID Cancer State:

The deleterious effects of COVID on the psychological wellbeing of previously unaffected individuals are emerging. At the same time, the synergistic effects of the COVID Cancer State on the psychological wellbeing promises to be more additive.

G. COVID Cancer state:

While oncologists are warning against the deleterious effects of delaying anti-cancer therapy, there remain several facets of this complex crisis yet to be uncovered; should we be more concerned about chronic effects of the virus on many organs especially in patients with cytokine release syndrome [10] or multiple organ inflammation that may render patients more susceptible to the adverse effects of chemotherapy?

These puzzles and more are slowly but surely being uncovered and in some instances properly addressed. However, it is a new phenomenon that we are facing in Oncology and we ought to be ready to face it as a state of practice rather than a fleeting syndrome for several months if not years.

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