ASSOCIATION OF COMMUNITY CANCER CENTERS

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COVID-19 and Patients Receiving Anticancer Immunotherapy

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SARS-CoV-2 and the resulting respiratory tract infection COVID-19 has upended our society and forcefully changed the way we care for patients. Since the emergence of the virus in early 2020, there have been questions surrounding the risk posed to patients with a cancer diagnosis and the safety of anticancer therapies. The desired effect of immune checkpoint blockade (ICB) drugs is to activate the innate immune system (t-cell subset) to recognize cancer cells as foreign and harness the immune system to eradicate disease. But can this heightened state of immune awareness result in a protective effect against pathogens like viruses and bacteria? Or is the potential inflammation generated from immune activation detrimental to those exposed to infectious pathogens[1]?

What will future data on immune response in patients with cancer teach us about immunotherapy and viruses?

Three large, retrospective cohort studies regarding the clinical impact of COVID-19 on patients with cancer have been published[2,3,4]. The largest report up until September 30, 2020, comes from the COVID-19 and Cancer Consortium (CCC19), which reported 30-day all-cause mortality for 928 patients from the United States, Canada, and Spain with laboratory confirmed SARS-CoV-2 and a diagnosis of invasive or hematologic malignancy between March 17, and April 16, 2020. Of those receiving anticancer therapy, only 16% (38 patients) had received immunotherapy, including ICB, allogeneic stem cell transplant, or adoptive cell therapy. The authors did not report the mortality risk for those patients receiving immunotherapy, however, type of malignancy, type and recency of anticancer therapy, and surgery were not associated with an increase in all-cause mortality[2].

The TERAVOLT study focused on patients with thoracic malignancies in Europe and North America. The results published in *Lancet Oncology* July 2020 reported on 200 patients, of which 74% (147 patients) were on therapy at the time of COVID-19 diagnosis. Thirty-four patients were receiving ICB alone at the time of COVID diagnosis and, importantly, these patients did not show an increased risk for hospitalization (OR 0.51, 0.16-1.56) nor risk of death (OR 1.39, 0.52-3.64) by univariable analysis[3]. A third study reflecting a single institution's experience of COVID-19 and cancer reported no increase in ICU admission or death in 102 patients receiving cytotoxic chemotherapy and 18 patients receiving immunotherapy[4]. Collectively, these findings suggest that ICB is not a strong risk factor for hospitalization or death in patients with cancer who have been infected with SARS-CoV-2.

The medical community is continuing to learn how to manage cancer patients amidst the COVID-19 pandemic. Mechanistically, immune checkpoint blockade drugs would not be expected to independently put cancer patients at risk of contracting COVID-19. The data presented here and our knowledge to date does not suggest that patients receiving these medications are at increased risk of a hyperinflammatory response to COVID-19, which might place a person at risk for hospitalization or death. It is recommended that providers thoughtfully consider the use of ICB for the treatment of malignancy as we navigate the many challenges surrounding patient care during the COVID-19 pandemic.

1. Failing *et. al.* Safety of influenza vaccine in patients with cancer receiving pembrolizumab. *JCO Oncology Practice.* 2020 July; 16(7):e573-e580.

2. Kuderer *et. al.* Clinical impact of COVID-19 on patients with cancer (CCC19) a cohort study. *Lancet Oncology.* 2020 May; 395:1907-18.

3. Whisenant *et. al.* TERAVOLT: Thoracic Cancers International COVID-19 Collaboration. *Lancet Oncology.* 2020 July; 21(7):914-922.

4. Jee *et. al.* Chemotherapy and COVID-19 outcomes in patients with cancer. *JCO.* 2020 Aug; 38:1-9.

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