Should We Fear A Wave of Cancers After the COVID-19 Pandemic?

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Cancer incidence is increasing globally. It is well documented that the incidence of most cancers increases with age [1]. Due to factors such as improved medical care, better hygiene, healthier life styles, sufficient food and decreased child mortality, human life expectancy is increasing at a rapid rate so that nowadays we can expect to live much longer than our ancestors who lived a few generations back [2]. Given these considerations, It is widely believed that increased life span is the main reason cancer risk overall is rising [3]. A paper published in the Lancet reports that delays in screening, diagnosis, and treatment due to the COVID-19 pandemic could lead to excess cancer deaths, and slow or even reverse the declining trend in mortality projected for some cancers [4].

Furthermore, the report by Harvard Medical School researchers at Dana-Farber Cancer Institute and colleagues from other institutions, suggests that COVID-19 has complicated the treatment for patients with cancer. “In patients with cancer, COVID-19 can be especially harsh. This is likely because many of these patients have a weakened immune system—either as a result of the cancer itself or the therapies used to treat it—and are therefore less able to fight off infection by the new coronavirus” [5].

In 2021, a research team led by Zhou highlighted the clinical and molecular similarities between cancer and COVID-19 and summarized the four major signaling pathways at the intersection of COVID-19 and cancer, namely, cytokine, type I interferon (IFN-I), androgen receptor (AR), and immune checkpoint signaling. They also discussed the advantages and disadvantages of repurposing anticancer treatment for the treatment of COVID-19 [6].

However, Professor Abdollah Jafarzadeh and his research team, in their paper “Review SARS-CoV-2 Infection: A Possible Risk Factor for Incidence and Recurrence of Cancers” explored another aspect of the interplays of COVID and cancer. Their findings which are published in the International Journal of Hematology-Oncology and Stem Cell Research might shed some light on the dark corners of the potential interactions of COVID-19 and cancer development [7].

Jafarzadeh et al. reported that the patients with some types of cancers may be more vulnerable to SARS-CoV-2 infection compared with the

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Received: 30 October 2023
Accepted: 10 November 2023

non-cancerous individuals, due to their immunocompromised state resulted from malignancy, chemotherapy, and other concomitant abnormalities as well as perhaps greater expression of angiotensin-converting enzyme 2. Moreover, they reported that clinically recovered COVID-19 individuals display immune abnormalities that persist several months after discharge [7].

The lymphopenia-related immunosuppression, functional exhaustion of cytotoxic lymphocytes (such as CD8+ cytotoxic T-cells and natural killer cells), hyperinflammatory responses, oxidative stress, downregulation of interferon response, development of the myeloid-derived suppressor cells, downregulation of tumor suppressor proteins and perhaps reactivation of the latent oncogenic viruses may directly and/or indirectly play a role in the cancer development and recurrence in severe COVID-19 [7].

Conflict of Interest

None

References

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