

# COVID Infection in Cancer Patients

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## ABSTRACT

*Background: With approximately 1.7 million individuals infected and over 100,000 people killed, the emerging coronavirus disease epidemic of 2019 (COVID-19) has become the world's most serious public health hazard. In these rare cases, there is no well-established advice for cancer patients.*

*Patients having pre-existing diseases are more likely to get affected by coronavirus. The main purpose for this review article was to investigate incidence of having cancer in COVID patient and the associated danger in the patients of COVID-19 with cancer.*

*With increasing age and the presence of accompanying health problems, In COVID-19 patients, the risk of serious sickness and death increases. Extensive research has been conducted to better understand the infectivity and transmissibility mechanisms of the coronavirus that causes severe acute respiratory syndrome, a deadly virus having a low chance of survival. It is vital to recognise symptoms early and apply suitable therapy to lower fatality rates.*

*Some well-known clinicians suggested giving attention towards cancer patients diagnosed with COVID-19. For this pandemic, evidence from well-designed prospective and randomised clinical trials is being gathered to support long-term epidemiologic behaviour and clinical decision making.*

*Conclusions and Consequences: To increase the quality and consistency of data, a programme to stimulate active collaboration between multiple registries is required. For this and future pandemics, well-designed prospective and randomised clinical trials are required to gather high-level information to help with long-term epidemiologic, behavioural, and therapeutic decisions.*

**Key words:** COVID-19, Mortality, Epidemiologic behaviours

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## INTRODUCTION

What is COVID-19? What are the symptoms? COVID-19 is caused by novel corona virus that has been spread worldwide. It is a RNA virus that affects mammals and birds [1].

Its symptoms are variable but mostly include fever, cold, cough, breathing difficulties, loss of taste and smell. Humans are infected in both the upper and lower respiratory systems, with the lower respiratory tract infection causing the most serious infection [2]. There are occasions when there are no obvious signs or symptoms. While some develop severe symptoms like breathlessness (dyspnoea), hypoxia and involvement of lungs more than 50% on imaging. Death occurs mostly due to respiratory failure, shock or multi organ failure [3].

The risk factors for COVID-19 includes like Male gender, hypertension, diabetes, obesity, congestive heart disease, hyperlipidaemia and cancer [4].

Pathophysiological, as viral replication increases after infection, the innate immune response is activated locally and systemically. Endothelial dysfunction, complement activation, and hyper coagulopathy can all occur at the same time in extreme situations. Increased viral cytopathic damage, fluid leakage, and resident and invading macrophage innate immune activation are all associated as well as decreased gas exchange, respiratory failure, and systemic involvement [5].

## LITERATURE REVIEW

COVID-19 has been spread worldwide. The main reason for the transmission of this virus is that it can spread from one individual to other through air or a close contact. This ability of coronavirus made it extremely deadly. The numbers to cases are just reaching the heights. It has a great impact on the health as well as on the economy of the country. Many people loss their close one in this pandemic. It was declared pandemic by WHO. When it had afflicted roughly 4 million people worldwide and killed

approximately 16000 individuals in 195 countries. The main reason behind this pandemic it lacks specific immunity to fight against virus. It's often associated with cytokine storm a prothrombotic pathology leading to multiple organ dysfunctions.

The COVID-19 pandemic had a variety of consequences. On health-care services, including disrupting regular patient flow, taxing and overburdening health care resources, and necessitating the deployment of additional preventative measures. Many at times it has been underestimated by can diagnose infections and lack of vital statistics in many countries.

Cancer as usual cost by the group of diseases which give rise to aberrant cell proliferation, which can eventually lead to death. The individual can different to cancer due to its lifestyle as well as genetic causes. Cancer survivors reported that there are larger risks of critical events, pain, and infection with the coronavirus. Impact of coronavirus may vary from person to person due to certain factors like there is delay in recognition of disease, trouble in managing the cancer therapy and covid-19, delay in necessary surgical interventions. While it is unknown if SARS-CoV-2 can cause cancer, cancer patients and survivors have been linked to an increased risk of severe events, suffering, and death, as well as a COVID-19 infection is more likely [6].

According to an initial evaluation of 928 patients over the age of 18 SARS-CoV-2 infection has been confirmed in people who have cancer or have had cancer in the past. 43 percent of those surveyed had active (measurable) cancer, and 39 percent were undergoing active treatment. Thirteen percent of patients died during the first 30 days of their treatment. According to a follow-up article to this original post that incorporated more data, All-cause mortality climbed to 17% for all patients after 30 days, and 20% for those who did not receive a complete 30-day follow-up. Patients who had not completed a 30-day follow-up were censored [7].

Despite the availability of more vaccines, The COVID-19 pandemic is still posing a severe threat to people all over the world. Cancer patients are an especially vulnerable group 1 because they are typically immunocompromised and have a higher risk of COVID-19-related issues. COVID-19 potential therapy has been thoroughly examined in two to six cases. In the United Kingdom, the recovery (Randomised Evaluation of COVID-19 Therapy) clinical trial was done (UK) and the speed, with which vaccines are being developed and deployed, for example, have been outstanding. Regardless of these accomplishments, cancer patients have been mostly omitted from these trials [7]. Cancer was not included as comorbidity in the recovery study or four other corticosteroid therapy prospective clinical investigations or was underpowered to assess efficacy or safety in the cancer subgroup [8]. The majority of COVID-19 immunisation clinical investigations excluded individuals taking anticancer medication or with a recent history of cancer. As a result, Registries that are well-designed and retrospective cohort studies will continue to be

important tools for learning more about COVID-19's natural history and outcomes in cancer patients [9].

Oncology practises took preventive measures for reducing the number of people who visit outpatient clinics, reducing the number of unneeded or elective surgeries, the and dismissing patients from inpatient facilities as a preventive step are just a few examples.

However, it should be highlighted that Non-cancer patients are older and have more comorbidities than cancer patients. A new study looked at death rates in age-matched cancer and non-cancer individuals to determine if there were any differences. Furthermore, according to certain research, cancer patients die at a lower rate than the overall population.

The treatment of cancer patient's needs the involvement of interdisciplinary teams from start to finish. We've got you covered from diagnosis to survivorship and end-of-life care.

Cancer sufferers are a particularly susceptible population who are prone to a range of risks during pandemics, including infection susceptibility and the loss of cancer or regular medical care. It has been show me that Asian ethnicity and person on palliative treatment has increased risk of death. If infected it also causes the psychological effects of the COVID-19 epidemic and has a fatal consequences. Cancer screening services, such as colonoscopies, pap smears, and mammograms, should continue in compliance with state and municipal health authorities, according to ASCO (ASCO, 2020 a) and ESMO (ESMO, 2020) standards. Expansion of existing capacity as quickly as possible should be at the top of the priority list for cancer care delivery systems [10].

Cancer, on the other hand, is connected to a chronic pro-inflammatory state and innate immune system activation and anti-cancer immunotherapies have become standard of care for a range of cancer types. Anti-cancer immune responses are stimulated by these therapies, which include ICIs, BiTEs, cytokine-based therapies, tumour-infiltrating lymphocyte or Chimeric Antigen Receptor-T (CAR-T) cell therapy, and allogeneic stem cell transplantation. While also inducing a broad immune response that can harm typical healthy tissues, leading to immunological-related complications. Pneumonitis, a severe inflammation of the lungs, is one of the immune-related side effects. Beyond the reduction in respiratory reserve that pneumonitis causes, the overlapping immunological processes of ICI-treated individuals who develop COVID-19 pneumonia, ICI-induced pneumonitis and Immune-mediated lung damage may be increased by COVID-19 pneumonia [10].

Cancer patients require the assistance of a wide range of professionals, including social workers, psychologists, educators, and other support services. Patients who have received a cancer diagnosis required the greatest benefit to patients; these services must work together and in a timely manner, with a high level of commitment and compliance from patients, as any unjustified deviation from well-established standards may result in

fragmented and poor-quality care, as well as a worse patient outcome. Although little research has been done on the psychological effects of COVID-19 on cancer patients, it is possible that this pandemic will increase population's vulnerability, even though a Cancer patient who are supported by a health care team that includes psychologists have a higher quality of life, according to a new study [8].

Various questions still are not answered in these circumstances:

- Is it necessary to conduct routine screening programmes on a regular basis?
- What should a covid-19 infected patient's care? Is it better to start immunotherapy or chemotherapy before or after a cycle of chemotherapy?
- What kind of policies needs to be implemented in each and Every country should contribute to the oncology section.
- How immunocompromised people with comorbidities (such as cancer) who live in high-virus-infection areas be treated?

### DISCUSSION

Articles referred from PubMed, Web of Science, med RXiv and Cochrane were studied that Data on the incidence and death of cancer patients was supplied with COVID-19 infection. Eligibility criteria established/considered for the study are as follows,

- Confirmed clinically and laboratory diagnosed cancer patients with COVID-19.
- Study that contained statistics of cases and death of cancer and non-cancer patients.
- Language was limited to English [9].

In a study, Meta-analysis was carried out to know about the risk ratios, pooled incidences. 95% confidence interval using random effect model. To demonstrate the likely source of heterogeneity between trials, a Meta regression was used [10].

Performing a risk analysis in every patient assessment appears like an affordable choice during this COVID-19 pandemic, especially where the in terms of recurrences in cancer patients, an oncological intervention may have a potential benefit or Overall survival is so low that the danger of death from COVID-19 infection is not worth it [11].

The main reason for the cutbacks was to restrict patient visits to a bare minimum and maintain social distance. Taking these safeguards is recommended in many published guidelines and suggestions for dealing with cancer patients during this outbreak [12]. Mandy of the authors' recommendations were based on their best judgement and throughout the current pandemic, anecdotal experience, as well as accounts from frontline oncologists or people who have previously dealt with infectious epidemics like Middle East respiratory syndrome and severe acute respiratory syndrome. However, because there were various aspects that were

unknown. About the epidemic and In addition to the intrinsic diversity of cancer patients and health-care systems, how it might influence a certain country or even an individual institution is unknown many arbitrary decisions were made. More research on the influence of these decisions on patient care is needed in the future to assist establish an evidence-based approach. And outcomes are needed [13]. Other causes for limiting the amount of care offered, such as staff shortages, PPE shortages, and a lack of access to pharmaceuticals, should be explored in the future to avoid or at least mitigate their impact.

Patients receiving neoadjuvant/adjuvant therapy should be continuing their treatment and if it's possible receive longer interval gap between cycles and longer treatments, but should be avoid weekly infusions, taking into account each patient's individual drug regimen.

For patients with advanced disease, it must be established on a case-by-case basis, based on the link between health risks and benefits, if continuous therapies should be postponed or discontinued for that period of time, similar to the well-known "drug holiday." As a result, patients have a high probability of surviving COVID-19 but subsequently putting their lives in danger due to a lack of effective cancer care. Patients are concerned not only about the risk of infection, but also about the potential that a health system overburdened with COVID-19 patients will fail to treat them. In this case, patients' ability to manage with the condition may be impaired, demanding additional medical assistance [14].

Due to their comorbidities, elderly cancer patients should receive special treatment. As the pandemic progresses, we're learning new things and modifying some of our old habits, which is beneficial to oncology and health-care systems in general. What we can be confident of is that a new normal of health care, including oncology, will develop following the pandemic. This new normal will include more distant care, care closer to home, and increased use of technology in care delivery, research, education, and business management [4,15].

A case fatality rate of 28 percent was found in a single institution study from New York City, which was more than four times the rate for the entire city and more than double, the rate of cancer-free controls from the same institution. Similarly, despite the fact that the percentage of instances that resulted in death (11.4 percent) was significantly low as compared to our group, a multi-institutional Chinese investigation found that cancer cases had a higher death rate [5,16].

### CONCLUSION

The authors, as ASCO specialists, campaigned for increased awareness and education on hand hygiene, infection management, COVID-19 signs and symptoms, and high-risk exposure. They recommended considering each patient's condition should be properly assessed before active intervention, elective surgery postponement, or chemo with a low risk of progression is considered. According to current preliminary results,

immunosuppressive medications and management in COVID-19 patients with lung involvement should be closely monitored by all investigators, particularly in terms of the relationship between immunosuppression and the overall duration of the disease. The research helps to advance our understanding of cancer's effects and prognosis. We discovered that not only does having a history of cancer, having active cancer, and receiving systemic cancer therapy increase the risk of death from the corona virus, but that hospitalised individuals without cancer are more likely to have advanced corona infection, necessitating intubation, ICU admission, and ARDS. Finally, protection measures all the health workers and their family members are also important.

The lessons learned from this epidemic should be incorporated into the new health-care standard. Integrating cancer care into an institution's disaster preparedness plan can enhance patient outcomes in comparable situations. Taking good care of patients during pandemics or major disasters should be an important part of the cancer treatment process. These partnerships and initiatives should aim to address the worldwide cancer care gap, which is exacerbated by the pandemic and driven by discrepancies in resource availability. This can be accomplished by putting in place a multidimensional strategy that utilises technology or modern approaches to improve care across borders, and also within the same country.

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