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Covid-19 and Cancer Patients: Delving into Burning Questions

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Covid-19, caused by the 2019 novel coronavirus, is being transmitted across an increasing number of countries.¹ It is a critical global public health threat because of its high transmission rate and potential fatality.² On the last day of January 2020, the world health organization (WHO) announced a Public Health Emergency of International Concern (PHEIC).³ According to the WHO situation report, world statistics on 6 March 2020 were 98192 confirmed cases and 3380 deaths from the disease (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>).

Apart from physicians who are directly involved in the management of the viral infection in Covid-19 patients, medical specialists also have to make medical decisions for diagnosis or treatment of other disorders in patients infected with, or at risk of the novel virus. At the same time, there are still no confirmed guidelines and even no proven scientific evidence. Cancer is one of the most significant challenges that patients and health care professionals have to face under these circumstances. Meanwhile, oncologic surgeons face several dilemmas:

- Are patients with cancer at higher risk of contracting Covid-19?

- Are cancer patients at risk of more severe disease or higher mortality? Cancer is an underlying disease that puts patients at high risk of infections.^{4,5} Should they be admitted for surgery during the outbreak of this virus?

- What are the special considerations for the surgery of these patients during Covid-19 outbreak? What measures should be taken in the pre- and post-operative period, and throughout the operation?

- What preventive measures should be taken by the medical team during surgery in cancer patients during Covid-19 epidemic?

This paper aims to address the above questions based on the best available evidence.

Are patients with cancer at higher risk of contracting Covid-19? Are cancer patients at higher risk of more severe disease and higher mortality?

Despite insufficient evidence regarding the potential implication of Covid-19 in the context of malignancy, cancer is known to negatively affect the immune system.⁴ This can lead to critical unfavorable outcomes in patients undergoing chemotherapy. The National Clinical Research Center for Respiratory Disease and the National Health Commission of the People's Republic of China have mutually launched a prospective cohort of Covid-19 cases confirmed by laboratory tests in order to follow the course of the disease. Reviewing features of 1590 patients with complete data to detect patients with underlying cancer, Liang et al. found 18 cases.⁶ This means that 1% of the Covid-19 cases were afflicted by cancer. This rate is higher than that of cancer in the general Chinese population, which is around 0.3%. This may suggest that cancer patients are at higher risk of symptomatic Covid-19. Interestingly enough, 12 out of these 18 patients had no active cancer and were long-term cancer survivors. Moreover, cancer patients were older than others in that cohort.

Another finding of this research was a higher rate of severe disease, ICU admission, and death in Covid-19 cases with underlying cancer. Cancer survivors had higher chances of unfavorable outcomes compared with patients with no history of cancer.

Overall, this study showed a higher risk of Covid-19 infection and unfulfilling outcomes for patients. The authors recommended more strict personal protection for these patients and more aggressive management of the viral disease, if they showed symptoms of the novel coronavirus.

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Should patients with cancer be admitted for treatment and surgery during Covid-19 outbreak?

To date, risks of the untreated malignancy while waiting for the Covid-19 epidemic to subside versus risks of exposure to this virus during admission for cancer treatment have not been studied. Therefore, the physician must decide based on each patient's status and cancer conditions, as well as hospital settings. Liang et al. have proposed delaying the surgery or chemotherapy in stable cancer where Covid-19 is endemic.⁶ Li et al. have reviewed possible options for patients with esophageal cancer during Covid-19 outbreak, suggesting postponing the treatment, when possible.⁷ Also, Yu et al. suggested that if surgery is indicated for colorectal malignancy based on the characteristics of cancer, it should be done as soon as the hospital can accept admissions for elective surgeries. They opt for laparoscopic surgery (versus open surgery) under these conditions.⁸

Currently, precise estimates are not available on when Covid-19 epidemic in different countries is going to "hopefully" terminate. The decision about cancer treatment should follow the general principles of cancer management.

What measures should be taken in the pre- and post-operative period, and during the cancer operation?

Approaching the subject in terms of anesthesiology, and insisting on performing only emergency surgeries, Wen and Li recommended a full assessment of the patient for infection with the novel coronavirus in order to detect asymptomatic/ undiagnosed cases. History of recent travels and close contact with people affected with Covid-19, as well as body temperature measurement and even chest CT scan, have been recommended before surgery by these authors.⁹

Li et al. also recommended performing an accurate assessment of the patients for Covid-19 before surgery of esophageal cancer. They opt for a 2-week isolation of the patient and checking body temperature twice daily, as well as testing for the virus. Most importantly, they emphasize that any modifiable condition which can increase the risk of post-operative infection or other complications should be corrected before surgery; this would prevent lengthening of the patient's stay at the hospital, thus minimizing the risk of further infections, including Covid-19.⁷

Yu et al. also point to complete examinations for Covid-19, which should take place before operation on the cancer patient, stressing that the operating room should have a negative pressure system. They recommend having all the surgical equipment checked according to sterilization and disinfection protocols and using general anesthesia with tracheal intubation. The authors also state that surgical specimens should be considered infectious and

handled accordingly.⁸

These few articles have been published investigating the conditions in China, which is witnessing the most severe epidemic for Covid-19. In other parts of the world, with a lower burden of the disease, waiting for two weeks –as the incubation period- cannot be recommended, except for the patients with a positive history of travel or close contact. Thus, taking a thorough history, and physical examination and a pre-operative x-ray of the chest would probably suffice. This is what we are doing under present conditions. If endemic diseases occur, the same approach as above would be necessary.

What precautions are needed for the medical team during surgery in cancer patients during Covid-19 epidemic?

Previous coronavirus epidemics, including MERS and SARS, affected health care workers at a very high rate of around 20%.¹⁰ This seems possible for Covid-19, and thus all protective precautions are warranted for the medical staff while they provide care during the whole length of patient's stay at the hospital.⁸

In conclusion, in the light of the limited available evidence, cancer patients should be considered high risk for Covid-19. They must be protected against the virus by protective personal behaviors, including using physical, respiratory barriers and hygienic habits, and aggressive treatment if affected by the novel coronavirus. In stable conditions, patients should undergo operation according to their cancer characteristics in non-epidemic areas. If the conditions are endemic, stable cancer surgery can be postponed. Further studies would lead to more conclusive results and assist in making decisions on more evidence-based grounds.

Conflict of Interest

None.

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