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Clinical Management of Advanced Lung Cancer Patients During the Outbreak Of COVID-19 Epidemic

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Abstract

In December 2019, an outbreak of 2019 novel coronavirus disease (COVID-19) was detected in Wuhan and then it spread worldwide, affecting the treatment of advanced lung cancer patients. Because of the systemic immunosuppressive nature of lung cancer patients caused by the malignancy and anti-tumor treatments, lung cancer patients are more susceptible to infection than healthy individuals. Furthermore, patients with cancer had poorer prognosis from infection. Lung cancer patients should be the priority group for COVID-19 prevention. If advanced lung cancer patients are not treated in time, the quality of life of the patients will be affected and even life will be endangered. During the COVID-19 outbreak period, there was a need for lung cancer patients receiving anti-tumor treatment to be differentiated and diagnosed—if they have respiratory symptoms such as fever and cough, so as to assess the risk of COVID-19 infection and to effectively prevent COVID-19; and at the same time, to ensure the progress of anti-tumor treatment, a meticulous and an individualized management is required.

Keywords: COVID-19; Lung cancer; Management; Anti-tumor; Treatment

Introduction

In December 2019, a kind of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) caused the outbreak of COVID-19 in Wuhan, Hebei Province, China, and then it spread worldwide [1]. Coronavirus can attack many systems that are dominated by human respiratory tract [2].

Lung cancer is a type of tumor with the highest mortality and morbidity in China, and half of these cases are patients in advanced stage [3]. Patients with advanced lung cancer may be more susceptible to infection because of malignant tumor itself or systemic immunosuppression caused by chemotherapy or radiotherapy. However, if patients with advanced lung cancer are not treated in time, the quality of life of the patients will be affected and even life will be endangered. During the COVID-19 outbreak period, clinicians faced great challenges so as to prevent infection of tumor patients and to ensure timely and safe treatment of the patients.

The 2019 novel coronavirus disease

COVID -19 novel coronavirus is a viral pneumonia caused by "SARS-CoV-2" [4, 5]. Patients newly diagnosed with COVID-19 can usually be traced back to a relevant epidemiological history. According to the interpretation of guidelines for the diagnosis and treatment of novel coronavirus (2019-nCoV) infection by the National Health Commission, the epidemiological characteristics of COVID-19 include: patients infected by novel coronavirus and asymptomatically infected persons. The main route of transmission is respiratory droplets and close contact. There is the possibility of aerosol transmission when exposed to high concentration aerosol for a long time in a relatively closed environment; in such a case, all populations are susceptible. The incubation period of COVID-19 is generally 1–14 days, mostly 3–7 days. Clinical symptoms are usually characterized by fever, fatigue, and dry cough [6]. A few patients have nasal obstruction, runny nose, diarrhea, and other symptoms. Severe cases usually have dyspnea one week later and it rapidly progresses to acute respiratory distress syndrome, septic shock, metabolic acidosis toxicity difficult to correct, and coagulation dysfunction [7]. However, most patients have nonpneumonia or mild to moderate pneumonia symptoms, and even some patients are asymptomatic carriers [8, 9]. Most patients with COVID-19 have good prognosis, whereas a few patients will be in critical condition [8]. Death cases of COVID-19 are mostly seen in the elderly and patients with chronic underlying diseases [8].

Epidemiological characteristics of cancer complicated with COVID-19

The Chinese Center for Disease Control and Prevention described and analyzed the epidemiological characteristics of 72,314 cases reported in mainland China as of February 11, 2020. It showed that 107 (0.5%) of the basic diseases of patients with COVID-19 were cancer patients, of which 6 died, with a crude mortality rate of 5.6%, which was 2.3% higher than that of the whole population [8]. A new study reveals the correlation between COVID-19 and cancer. Among the counted COVID-19 patients, about 1% has cancer history, which is higher than the national cancer incidence rate of 0.29%. Lung cancer is the most common cancer among COVID-19 patients. At the same time, cancer patients have a higher risk of serious events than noncancer patients, and the symptoms worsen more rapidly [10]. Therefore, the research team proposed three strategies to deal with cancer patients in the case of the COVID-19 epidemic: firstly, chemotherapy or surgery for cancer patients should be carried out as appropriate in the disease outbreak areas. Secondly, patients with cancer history should strengthen personal protection. Finally, monitoring should be strengthened and priority should be given to the treatment of COVID-19 patients with cancer history, especially the elderly and patients with complications.

Lung cancer patients receiving chemotherapy and/or immunotherapy

Patients should try their best to receive chemotherapy and/or immunotherapy in local hospitals to avoid abroad travel. If you have to consult a doctor in other places before this, you can take the discharge record and consult a doctor in the relevant department of the local hospital to continue the antitumor treatment and avoid unnecessary travel. If you have already agreed to go to a foreign hospital for medical treatment, you can only be admitted to the hospital for treatment after arriving at the place for medical treatment more than 14 days in advance and being isolated at home for 14 days.

Patients, diagnosed or suspected of COVID-19, who need to be treated for fever, cough, and other respiratory symptoms, should go to the prescribed fever clinic, in accordance with the provisions of the designated hospital's centralized isolation. After full recovery and more than 2 weeks of medical observation period, if the situation is stable, antitumor treatment should be given. Asymptomatic patients with contact history of epidemic area, fever and/or contact history of patients complicated with respiratory symptoms, or contact history of patients with newly

diagnosed/suspected coronavirus pneumonia, or with aggregated incidence, shall be isolated in a single room at home for 14 days, and shall not be admitted to hospital before the isolation period is lifted. Before admission, patients should be asked in detail about their recent fever history, residence, or travel history in epidemic areas and related contact history. During hospitalization, a family member should be fixed to accompany the patient, so the family member should do self-protection together with the patient.

During chemotherapy and/or immunotherapy, routine blood tests, liver and kidney functions, electrocardiogram, and other examinations shall be completed regularly to assess the safety of the treatment. Patients may complete relevant examinations and treatments at the nearest local hospital. Doctors shall carefully inquire about the discomfort symptoms of patients and give targeted diagnosis and treatment.

Lung cancer patients receiving radiotherapy

Patients who have not yet started radiotherapy are advised to undergo radiotherapy in local hospitals to avoid abroad travel as much as possible. If you have already agreed to go to a foreign hospital for medical treatment, you should arrive at the place for medical treatment more than 14 days in advance and isolate yourself at home. You should record your body temperature, cough, dyspnea, and other symptoms daily, and collect your recent body temperature and respiratory symptoms when you are admitted to the hospital. Patients to be treated with radiotherapy, who have respiratory symptoms such as fever, cough, and chest tightness should go to the fever clinic according to regulations. In addition, if they are diagnosed or suspected of COVID-19, they should be treated in centralized isolation in designated hospitals according to regulations. After full recovery, they should undergo more than 2 weeks of medical observation. If the situation is stable, they should receive radiotherapy again. If the patient to be treated with radiotherapy has no symptoms, but has contact history of epidemic area, fever and/or respiratory symptoms, or contact history of newly diagnosed or suspected coronavirus pneumonia, or has aggregated incidence, the patient shall be isolated in a single room at home for 14 days. Radiotherapy cannot be performed before the isolation period is lifted. During the epidemic period, only one fixed family member is usually allowed to accompany, so the family member should make the same self-home isolation and temperature symptom records as the patient.

Patients who undergo routine radiotherapy should minimize personal contact, monitor and record their body temperature daily, report to doctors, and pay attention to whether they have cough, fatigue, and other symptoms. Doctors and patients can make an appointment to confirm the radiotherapy time by telephone, or confirm the next appointment after radiotherapy is completed on the same day. Patients need to go to the radiotherapy department for treatment and receive it under the premise of personal protection. They should wait in accordance to the appointment time to avoid centralized waiting and to keep a certain distance from other patients. Before radiotherapy, the patient's recent fever history, residence or travel history in epidemic area, and relevant contact history shall be inquired in detail in addition to the recent symptom changes.

During radiotherapy, routine blood tests, liver and kidney functions should be performed regularly to inquire about the patient's recent symptoms; and combined with laboratory tests, targeted treatment should be given.

Lung cancer patients receiving targeted therapy

If the condition of lung cancer patients treated with targeted therapy is stable, follow-up and imaging evaluation can be postponed appropriately in accordance with the condition. Lung cancer patients should seek medical treatment in local hospitals as far as possible to avoid unnecessary travel. Patients can follow up by appointment, telephone follow-up, and WeChat communication. If the condition is stable, only targeted drugs need to be issued, and family members can be invited to bring all case data and relevant certificates to the hospital to collect drugs on their behalf. According to the relevant policies of the city where they are located, treatment drugs can be prescribed for a longer period of time to reduce the frequency of prescription.

Before receiving the patients in the outpatient department, the patients should be asked in detail about their recent fever history, residence/travel history in the epidemic area, and relevant contact history. Asymptomatic patients with contact history of epidemic area, fever and/or contact history of respiratory symptoms, or contact history of newly diagnosed or suspected patients with COVID-19, or aggregated incidence, need to be isolated in a single room at home for 14 days. Outpatient consultation cannot be conducted before the isolation period is lifted. If the patient has fever, cough, dyspnea, or other new symptoms, he should go to the fever clinic of the local hospital. For example, lung cancer patients may have more pain and headache than fever, cough, dyspnea, and other symptoms, and may make an appointment to see a specialist clinic or an emergency clinic in a local hospital.

Conclusion

To sum up, with the spread of the COVID-19, lung cancer patients, once infected with the coronavirus pneumonia, have severe symptoms and high mortality rate, and are the focus of epidemic prevention. Patients with lung cancer receiving antitumor therapy such as fever and respiratory symptoms need to be carefully differentiated and diagnosed to assess the risk of COVID-19. For lung cancer patients, meticulous and individualized management is needed during the COVID-19 outbreak period to effectively prevent the coronavirus pneumonia.

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