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Letter to the Editor

Several potential risks of novel coronavirus (COVID-19) pneumonia outbreaks in hospitals

Since the first case of the novel coronavirus disease 2019 (COVID-19) was reported from Wuhan, China, in December 2019, more cases have been reported nationwide and even around the whole world.¹ The good news is that the Chinese government now has the pandemic under control with a significant reduction in new cases and deaths through powerful and effective prevention and control measures. The prevention and control measures in hospitals are first line of defense and hence crucial for preventing the spread of COVID-19.² There have been several reported cases of mass isolation of the medical staff after they were in close contact with patients who were misdiagnosed of COVID-19.

MULTIPLE POTENTIAL RISKS OF COVID-19 OUTBREAKS IN HOSPITAL

According to the sixth edition of the National Health Commission of the People's Republic of China clinical guidelines for the diagnosis and treatment of COVID-19, some patients are asymptomatic. Due to the absence of clinical symptoms such as fever and cough, infected patients who were in the incubation period of the disease or the asymptomatic patients were treated as ordinary patients without preventive isolation and protection measures. In addition, some patients do not report any recent travel history to the pandemic regions or history of close contact with patients with COVID-19. These patients will also become a source of infection in hospitals if they were treated as ordinary patients without preventive isolation.³

COVID-19 can be diagnosed only by a positive nucleic acid detection of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) following the relevant diagnostic criteria. Some patients are treated as ordinary patients if the SARS-CoV-2 nucleic acid of their throat swab is negative. However, the positive rate of throat swab nucleic acid test is low. Some patients need to be tested repeatedly to confirm the diagnosis. It should be noted that the positive rate of sputum and alveolar lavage fluid nucleic acid test is more sensitive than the throat swab. In addition, it is worth noting that some patients who recovered from COVID-19 still showed a positive nucleic acid test even after hospitalization. These patients would be a source of infection in hospitals if there were no effective isolation measures in place.

Some critically ill patients may require emergency surgery, and the medical staff may not have followed the standard protective

measures during and after surgery. Patients who are unable to conduct an epidemiological investigation may not have been adequately isolated. These patients and the medical staff in close contact with them would be the source of SARS-CoV-2 infection in the hospital.

In addition, logistics cleaning staff, patient escorts, and health professionals under training working in teaching hospitals are groups easily overlooked in the prevention and control of a hospital pandemic. There may be inadequate monitoring measures for their training, physical conditions, and personnel movements. Personnel may also be a source of SARS-CoV-2 infection in hospitals.

HOW TO DEAL WITH THESE RISKS?

Keeping the entrance of the hospital well by strict pre-examination, and actively promoting the cooperation of relevant personnel, strict epidemiological history investigation, and constant reassessment of measures are effective steps to reduce the missed diagnosis of patients with asymptomatic latency. Patients who have not been ruled out of COVID-19 for emergency surgery are treated as suspected cases. Similarly, patients with related clinical symptoms (fever, cough, history of travel to infected regions, close contact with COVID-19 pneumonia, and patients with positive chest radiologic imaging), even if their nucleic acid testing is negative, should be treated as the suspected cases. The nucleic acid testing must be repeated to prevent the missed diagnosis of COVID-19 in these patients.

Strengthening the management, supervision, and training of key groups, such as the logistics cleaning staff, patient escorts, and health professionals under training in teaching hospitals are essential in closing the gap for these potential infection points. In addition, grasping the health status, life, and work trajectories of related personnel is crucial. It is worth noting that a rehabilitation station should be established for discharged patients who meet the discharge standards but continue to be isolated for 14 days to prevent them from becoming a source of infection again.

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