Neurosurgery safety management during Covid-19 pandemic

The novel coronavirus disease 2019 (Covid-19) was first found in Wuhan in December 2019, and it was declared as a global pandemic in March 2020 by the World Health Organization (WHO).^{1,2} It was thought that the virus could only be transmitted from animal to human, but other types of transmission emerged lately. Operating room staff is those who are mainly exposed to the risk of catching Covid-19. The use of personal protective equipment (PPE) in health-care workers is very essential as a protective measure for hospital staff. In this pandemic situation, it is wise to delay all unnecessary surgery. It will reduce patient traffic in the hospital, decreasing the risk of transmission of coronavirus in the hospital, and we can save PPE for other purposes.

Neurosurgical pathologies should be classified as elective, urgent, or emergency cases. While elective cases should be postponed until the pandemic is over, urgent patients should be screened before the surgery.³⁻⁶ The screening should include risk assessment, the presence of upper respiratory infection, body temperature, complete blood count, biochemistry profile, and chest CT scan.^{4,5} We can use Covid19's Early Warning Score if the score is above 10 then Covid19's suspicion is very high. High-risk patients should be immediately checked for a rapid test for Covid-19. Patients with low or no risk of having Covid-19 can proceed for urgent surgery with standardized PPE. Emergency surgery should be performed immediately without spending time on the Covid-19 screening process. However, the surgery itself should be performed with the highest level of PPEs.⁴

During a surgical procedure, all staff should wear PPEs that at least include N95 masks, protective masks, eye goggles, protective gloves, isolation suits, and shoe covers. Patients should also wear surgical masks to prevent transmission of the virus. The full-face coverage screen does not protect from aerosols, which is why proper masks are essential.

The number of staff should be kept to the minimum, as well as the movement of the staff.⁷ This means that there should be no staff rotating in and out of the operating room until the surgery has finished. All PPEs must be taken off properly in the intermediate room between the operating room and the common room. The use of the high-speed cutting device should also be limited since the application of these devices could cause aerosolization too.⁸

Postoperatively, patients should be re-screened for the possibility of coronavirus transmission. Covid-19 is usually manifested as fever and accompanied by dry cough, fatigue, muscular soreness, chest depression, shortness of breath, and diarrhea.^{1,9} In unconscious patients,

the cough reflex is important to prevent pneumonia. The cough reflex will produce droplets and aerosols to the surrounding, and this increases the exposure to the environment. So staffs attending postoperative patients should be equipped with standardized PPEs too. Neurosurgeons should properly categorize cases based on their urgency. Safety management should be carefully performed to prevent further transmission of the virus.

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