

Editorial**Prudent use of Intensive Care Unit (ICU) in COVID-19 Situation**

The coronavirus disease due to severe acute respiratory syndrome 2 (SARS-CoV 2) was allegedly originated from the city of Wuhan of China and eventually spread in to all over the world. World Health Organization (WHO) has declared it pandemic on February 11, 2020. At the middle of July 2020, the total affected patient number raised to more than 14 million and more than 6 lac people died of this disease across more than 200 countries and territories. According to studies nearly 14% patients became severe and overall mortality was 7%. Most of COVID-19 patients (80.9%) were reported as mild cases whereas 13.8% cases were severely ill and 4.7% were critical. Most of the cases (86.6%) were within the age group of 30 to 70 years. Patients with co-existing diseases showed a higher mortality rate. The common co-morbidities were cardiovascular disease (10.5%), diabetes mellitus (7.3%), chronic respiratory disease (6.3%), hypertension (6.0%) and cancer (5.6%).¹

A single-centered study revealed the critical care patient's complications for COVID-19. Most of the patients admitted in to the intensive care unit (ICU) developed organ failures. More than two-third patient (67%) patients developed acute respiratory distress syndrome (ARDS) and more than one-fourth (29%) patients had acute kidney injury (AKI) and liver dysfunction. Cardiac injury was detected in 23% patients whereas 2% cases had pneumothorax.¹

It has been documented that corona viruses enter the brain through cribriform plate of nasal

mucosa and deposit to brain stem as this part expresses a lot of ACE2 receptors with which the viruses bind with to get attached with brain matter.² Most vulnerable parts of brainstem are nucleus of solitary tract and nucleus ambiguus which eventually control lung and respiratory tract by chemo and mechanoreceptors. Direct damage of vital centers of brainstem leads to respiratory failure to push the patient to ICU.

Turkish Public Health General Directorate Guidelines on ICU admission criterion of COVID-19 patients are widely used as it was prepared according to COVID-19 advisory committee.³ The considered parameters for ICU admission were respiratory rate (>30/min), SpO₂ < 90% or < 70 mm Hg (in room air), Oxygen requirement \geq 5L/min with nasal cannula, Lactate > 2 mmol/L, Hypotension (systolic blood pressure (SBP) < 90 mmHg or mean arterial pressure (MAP) < 65 mmHg) and Organ dysfunction such as confusion, kidney and liver tests abnormalities, thrombocytopenia, elevated troponin level and arrhythmia. Patients with hemodynamic stability who do not need respiratory or organ support meet the criterion to shift out from ICU. It was observed that the average time between the developing of clinical signs to the development of pulmonary infection was about 5 days and the average ICU admission time period after the development of hypoxia was between 7–12 days.⁴

It has been proposed that country wise pre-planning is required for the proper use of ICU beds, all devices, equipment and personnel

during the COVID-19 situation. If possible, separate ICU is recommended for COVID-19 patients, if not possible then separate designated isolated area in ICU is advised. From ICU patients to be transferred to isolated where necessary personnel protective equipment (PPE) to be provided and the whole process to be organized by a dedicated COVID ICU team. In this ICU 1:1 patient to nurse is highly recommended. A clean stand-by medical team will be prepared. This stand-by team can work in the other ICU in the mean while.⁵ The ICU team to be changed after every 14 days to provide a wash-out period. Each shift of ICU staffs should not be more than 12 hours to prevent infection. The team members to be examined for temperature and symptoms 2 times a day and not supposed to leave the city even during the rest period. If number of existing ICU beds fall short for COVID-19 patients then step-down high dependency unit (HDU), general wards, pre- and post-operative rooms and even operation theaters could be considered as extension of ICU beds.⁵ If demand of ventilators, other logistic equipment and health care worker (HCW) are more than routine admissions and operations could be compromised or stopped for the time being. Non-ICU HCW staffs to be trained periodically as well to keep a strong back-up team ready.

ICU beds, equipment and personnel are very important tools to fight against the life-

threatening disease of COVID-19. Proper planning and organization are essentially required for highest possible utilization of these resources.

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