

Letter to the Editor

How to Use Non-Invasive Ventilation in Acute Respiratory Failure due to Covid 19? Early, Short-Time, Low Drive Pressure

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Respected Editor

It is recommended that patients who are candidates for non-invasive ventilation be admitted to the ICU or a ward reserved only for non-invasive ventilated patients with Covid 19 disease.

Due to the risk of transmission of the disease to the patient's staff and nurse, all instructions related to hospital infection control should be followed especially wearing masks and hats and glasses and clothing. Use ventilators with both inhaled and exhaled arms and non-vented masks to reduce the risk of infection with low leakage (1, 2).

Non-invasive ventilation (NIV) should be started in the early stages of Covid 19 disease. This means that non-invasive ventilation is helpful when the lungs have not yet reached a low compliance level, and the oxygen saturation is not too low, especially in obese patients when atelectasis occurs, the lungs will not open with non-invasive ventilation. Moreover, if recruiting maneuvers are performed, it has many complications such as cardiac arrest, subcutaneous emphysema, pneumomediastinum, and pneumothorax.

In mild cases, even if the patient has normal oxygen with a mask or reservoir bag, the patient

should attach the oronasal mask for 5 minutes every hour to prevent the disease from progressing to lung atelectasis. During non-invasive ventilation, if the oxygen saturation is acceptable, it should be oxygen-free. In the patient's recovery, sometimes non-invasive ventilation is left every one to two hours for 1 to 2 minutes to keep the lungs open and prevent atelectasis.

If the disease is good without oxygen, be sure to check the oxygen saturation after walking or after activity (walking for 6 minutes). It comes down most of the time. So give oxygen after activity. The main reason for the decrease in oxygen saturation in this situation is the involvement of the Interstitial tissues of the lungs.

NIV setting: To adjust the ventilator (aggressive and non-invasive), the driving pressure should be between 12 and 14 cm of water. The mod of PSV + PEEP is more easily tolerated in different experiments. In this method, PSV = 12-14 cm/H₂O of water and PEEP = 6-8 cm/H₂O are usually required. Higher pressure is unnecessary and can cause discomfort to the patient and even damage the lungs (3).

When the lungs open slowly for the first time and the patient has a frequent cough, in these cases, first set the IPAP and EPAP to the minimum pressure and then gradually increase it. If the cough continues, you can use morphine or dexmedetomidine in the ICU. Increase EPAP in cases of hypoxia and Bipap with Back up rate in hypercarbia (3). If you have a decrease in oxygen saturation during non-invasive ventilation, one of the reasons could be the simultaneous heart injury that we have in Covid 19 (4). I recommend giving furosemide 10 mg per 6 hours. Patients often have diastolic dysfunction, and therefore, patients are sensitive to both hypovolemia and hypervolemia. If the patient develops severe respiratory distress, hypoxia, and hypercarbia during non-invasive ventilation, the patient should be intubated. Excessive delay in intubation increases mortality. If intubated, use pressure control modes (with a pressure of less than 20 if the volumes are slightly more than 300 ml).

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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