

CORRESPONDENCE

CORONA EXPERIENCE

Pressure injuries in ventilated COVID-19 patients

Priyanka Sethi, MD, Vaishnavi BD, MD, Himanshu Aneejwal, MD, Manbir Kaur, MD

Author affiliation:

Department of Anesthesia & Critical Care, All India Institute of Medical Sciences (AIIMS), Jodhpur, Rajasthan, India 342005

Correspondence: Dr. Manbir Kaur, E-mail: doctor.manbir@gmail.com

Summary: Prolonged high-flow nasal oxygenation (HFNO), or non-invasive ventilation (NIV), or endotracheal intubation with prone ventilation in COVID-19 patients may result in pressure sores or ulcers at points on sustained pressure at patient-equipment interphase. Expert nursing care and following the relevant guidelines can prevent the development of such injuries.

Key words: COVID-19; Intensive Care Units; NIV; Endotracheal Intubation; Prone Ventilation; Pressure Ulcer

Citation: Sethi P, Vaishnavi BD, Aneejwal H, Kaur M. Pressure injuries in ventilated COVID-19 patients. *Anaesth. pain intensive care* 2022;26(5):730–731; DOI: 10.35975/apic.v26i5.2014

Received: July 13, 2022; **Accepted:** September 11, 2022

The pandemic of the corona virus disease (COVID-19) has resulted in a significant increase in the number of patients being admitted to intensive care units (ICU). Most of these patients need high-flow nasal oxygenation (HFNO), or non-invasive ventilation (NIV), or endotracheal intubation and prone ventilation. The highly contagious nature of this disease may make the usual nursing care difficult and may reduce the frequency of the routine procedures to a minimum.



Figure 1: Pressure ulcers over nose and lower lip

Pressure injuries caused by a tight-fitting mask during NIV, endotracheal tube (ETT) fixation and pressure sores in prone ventilation due to inappropriate padding may happen and should be avoided.

We present one such case of pressure injury to the nose and lips caused by an improperly fitted NIV mask followed by endotracheal intubation.

A 38-year-old male intubated patient was shifted to COVID ICU and the treatment started. On examination, large pressure injury was seen on lips and nose which was taken care of after cleaning and dressing (Figure 1). On history, it was revealed that he had been admitted to a private hospital for the last 16 days, where he was put on NIV for 7 days and then shifted to invasive ventilation with ETT in situ.

Frequency of pressure injuries has increased due exponential surge in COVID-19 patients resulting in overall scarcity of healthcare resources and personnel. There has been a rapid increase in patients requiring NIV, endotracheal intubation and prone ventilation for an extended period, and these patients need extra attention in order to avoid pressure sores. Pressure injuries occur when susceptible soft tissues are compressed between a bone and an external surface, resulting in skin ischemia and necrosis. Repetitive friction between the skin and the device used will lead to ulcer formation.¹ It contributes to increased costs, discomfort, infection rates, disfigurement, and duration of hospital stay. Facial pressure injuries can also have psychological impact.

Patients at high risk of facial pressure ulcers include male gender, age greater than 60 y and body mass index of more than 28.5 kg/m². Patient on inotropic support or on prone ventilation are also vulnerable.² A retrospective study done in children on NIV showed that a leak around the rim of the mask led to tightening the mask straps, thereby, increasing the pressure on the underlying tissues and the incidence of pressure injury.³

Preventive measures for such injuries include regular skin examination, mask-rotation, assessment of leak,

avoiding high inspiratory positive airway pressures and over-tightening of mask straps, use of gel barrier or proper padding between the device and contact area along with education and training of the nursing staff.³ The pressure ulcers over the face are conservatively managed with paraffin or antibiotic ointment.

Conflict of Interest

Authors declare no conflict of interests.

Consent of the patient

Written consent of the patient was obtained to publish his picture for academic use.

References

1. Apold J, Rydrych D. Preventing device-related pressure ulcers: using data to guide statewide change. *J Nurs Care Qual.* 2012 Jan-Mar;27(1):28-34. [PubMed] DOI: [10.1097/NCQ.0b013e31822b1fd9](https://doi.org/10.1097/NCQ.0b013e31822b1fd9)
2. Sleiwah A, Nair G, Mughal M, Lancaster K, Ahmad I. Perioral pressure ulcers in patients with COVID-19 requiring invasive mechanical ventilation. *Eur J Plast Surg.* 2020;43(6):727-32. [PubMed] DOI: [10.1007/s00238-020-01737-6](https://doi.org/10.1007/s00238-020-01737-6)
3. Lauderbaugh DL, Bhattacharjee R, Proudfoot J, Ortega EV, Pratt LA, Popien TL, Lesser DJ. Noninvasive ventilation device-related pressure injury in a children's hospital. *Respir Care.* 2019 Dec;64(12):1455-60. [PubMed] DOI: [10.4187/respcare.06784](https://doi.org/10.4187/respcare.06784)