COVID-19: PRONING CONSIDERATIONS FOR PATIENTS ON HFNC OR BIPAP

A Rapid Guidance Summary from the Penn Medicine Center for Evidence-based Practice
Last updated April 8, 2020 11:00 pm All links rechecked April 8 unless otherwise noted.

Key questions answered in this summary

- What is the guidance for when to initiate proning on HFNC or BIPAP?
- What is the guidance for caring for patients in the proned position while on HFNC or BIPAP?

Key sources:

Government/NGO guidelines: WHO, DoD, CDC, NHS
Professional society statements: ASA, SCCM, ESICM, ANZICS, SOCCA
Hospital policies: MGH, Zhejiang Hospital (China), UCSF, Washington, Cleveland Clinic, Mt. Sinai, Oregon, Weill-Cornell, NYU Langone, Johns Hopkins, Mayo, Emory, Penn Medicine.

Summary of major recommendations

Recommendation	Rating
Limited guidance suggests that proning a patient with HFNC or BIPAP may be both safe and effective in reducing hypoxemia.	B
Proning while on HFNC or BIPAP may be initiated for patients with no obvious respiratory distress but impaired oxygenation.	B
Patients on HFNC or BIPAP should be encouraged to adopt a prone position as often as possible, with the goal being for the patient to be in the prone position more often than not.	B
There are conflicting recommendations on whether proning while on HFNC or BIPAP may be used as a rescue therapy in patients with escalating oxygen needs.	C
While inconsistent guidance is provided, proned patients should be assessed at baseline (connection to oxygen device, SpO2, respiratory rate, and dyspnea) and reassessed after one-hour of proning while on HFNC or BIPAP.	C

Key: A–consistently recommended in multiple guidelines, B–recommended in a single guideline, recommended only in hospital policy documents, or recommended weakly, C–guideline recommendations lacking or inconsistent.

Guidelines related to proning in patients receiving HFNC or BIPAP

Source	Recommendations
MGH April 2	The benefits of proning are expected to extend to the non-ventilated patient. Patients admitted with hypoxemia should be encouraged to adapt the prone position where practical, and prone position may also be used as a rescue therapy in patients with escalating oxygen needs. Indications: Any patient experiencing respiratory symptoms or needing supplemental oxygen should be considered for the prone position. Contraindications: Spinal instability, facial or pelvic fractures, open chest or unstable chest wall. Proning is not a valid substitute for ICU transfer or intubation. Relative contraindications: Delirium, confusion, inability to independently change position, nausea/vomiting, advanced pregnancy.
Zhejiang March 18	Prone ventilation while awake may be attempted for patients who have not been intubated or have no obvious respiratory distress but with impaired oxygenation or have consolidation in gravity-dependent lung zones on lung images.

Guidance related to caring for patients in prone position while on CPAP or BIPAP

Hospital	Criteria
MGH April 2	On admission, patients experiencing respiratory symptoms or needing supplemental oxygen should receive an initial one hour period of prone position. Patients' oxygen delivery device (ex. nasal cannula or face mask), SpO2, respiratory rate, and dyspnea should be assessed just prior to and one hour after the initiation of the prone position. After this period, the patient may reposition themselves to be supine, but should be encouraged to adopt prone position as often as possible, with the goal being for the patient to be in the prone position more often than not. Proning as a rescue therapy: Prone positioning may be considered in a patient who develops increasing oxygen need (an increase of >2L/min in the amount of oxygen needed to maintain SpO2 > 90%). If the patient stabilizes in this position, monitor and reassess after 1 hour.
Zhejiang March 18	It is recommended that patients remain in the prone position for four hours at a time, several times a day depending on the effects of proning as well as patient tolerance.

Definition of terms

HFNC: High flow nasal cannula.
BIPAP: Bilevel Positive Airway Pressure

About this report

A Rapid Guidance Summary is a focused synopsis of recommendations from selected guideline issuers and health care systems, intended to provide guidance to Penn Medicine providers and administrators during times when latest guidance is urgently needed. It is not based on a complete systematic review of the evidence. Please see the CEP web site for further details on the methods for developing these reports.

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