Non-invasive Positive Pressure Ventilation Review

NIPPV: Delivers O_2 rich gas to alveoli under pressure through a non-invasive interface such as a mask, hood, or nasal pillow

CPAP:
Continuous Positive Airway Pressure [mm H_2O]

Indications:
Type 1 [Hypoxemic] Respiratory Failure

Settings:
Set the *CPAP* level [analogous to PEEP]

Range: 5-25 mm H_2O

Typical: 5-15

Set the *FiO_2*

Range: 21-100%

Titrating:
Titrate CPAP and FiO_2 to optimize patient's oxygenation as well as work of breathing

BPAP:
Bilevel Positive Airway Pressure [mm H_2O]

Indications:
Type 2 [Hypercapneic] Respiratory Failure OR Mixed Type 1 & 2 Failure

Settings:
Set the Inspiratory *IPAP* level

Typical: 7-20 mm H_2O

Set the Expiratory *EPAP* level [analogous to PEEP/CPAP]

Typical: 3-15 mm H_2O

Set the *FiO_2*: 21-100%

Titrating:
IPAP - EPAP = ΔPAP ~ Tidal Volume

Titrate IPAP, EPAP and FiO_2 to optimize patient's oxygenation as well as work of breathing

Titrate ΔPAP to increase/decrease TV and thus CO_2 levels

High Flow Nasal Cannula:
Heated and humidified oxygen delivery

Indications:
Type 1 [Hypoxemic] Respiratory Failure, CPAP/BPAP intolerance, DNR/DNI

Settings:
Set the *Flow Rate*:

Typical: 20 - 60 L/min

Set the *FiO_2*

Range: 21-100%

NIPPV Fun Facts:
- ***For suspected COVID: place a surgical mask or clear bag over the mask to decease travel distance of infectious particles***
- **BPAP machines are sophisticated: can set I:E ratio, flow rates, and minimum respiratory rate**
- **May decrease both preload and afterload**
- **May decrease blood pressure**

Contraindications: **Hemodynamic instability, inability to protect airway, vomiting, facial trauma, upper airway obstruction**