Workflow for High flow nasal cannula oxygen therapy in MICU/HD

Indications

1. Acute hypoxemic respiratory failure (pa02-Fi02 ratio of <300) secondary to pneumonia, heart failure, pulmonary embolism, not excluding those with immunocompromised status and for palliation
2. Post extubation – to prevent re-intubation especially in certain high risk cases
3. During instrumentation of the airway for apneic oxygenation e.g. during intubation, bronchoscopy
   HFNC seems more effective than Convention Oxygen therapy (COT) and non-inferior to NIV in most studies. More data/studies are required for a clear signal of benefit.
   Best evidence for post extubation indication

Assessments prior to HFNC

1. Rule out Type 2 Respiratory failure
2. To ensure patient is clinically well enough for a trial of noninvasive therapy. (i.e. should not be in imminent need for intubation)

Contraindications

1. Rapidly decompensating respiratory failure
2. Increasing hemodynamic instability
3. Type 2 respiratory failure
4. Nasal passage abnormalities /recent surgery
5. Severe epistaxis
6. Significant mid facial trauma

HFNC Therapy benefits

1. Delivery of a high flow of oxygen to match the requirements of patients with increased flow demands (air hunger, increased work of breathing)
2. The delivery of warmed, humidified gas to aid patient comfort and maintain mucociliary clearance
3. There is a washout of CO2 in upper airways – reduction of anatomical dead space
4. It provides a minimum and variable PEEP effect (3-5 cm of H2O)
5. The interface is a nasal cannula which is more comfortable (less pressure ulcers) than a fitted face mask and the patients can continue to speak, eat, drink, clear secretions
Initial assessment

History & Clinical examination
(HR, BP, RR, SpO2, GCS, ABG, CXR)

Indication met
- Commence HFNC
- Repeat ABG at 1 hour after initiation
- Reassess patient
- Improvement
- Regular reassessments as required

If HFNC Contraindicated
- Consider NIV, or Invasive MV

No improvement
Description, Initial settings and Disinfection

Description

A High flow Nasal cannula oxygen delivery system is a type of respiratory support that delivers high flow (up to 60L/min) of medical gas to a patient through a nasal cannula, intended to create a washout of the upper airway. It may be an alternative to low flow mask oxygen therapy (which is limited to 15L/min) and could prevent the need to escalate to non-invasive ventilation. The aim of HFNC is to reduce the work of breathing and meet patient’s flow requirements.

Initial settings

Oxygen adjustments

FiO2 should be set according to patients acceptable SaO2 or PaO2. A fiO2 sufficient to maintain SaO2>90% is usually selected unless alternative parameters have been selected and documented by medical staff. This can then be titrated according to measurable results E.g. RR, PaO2:fiO2

Flow adjustments

Flows can be commenced at 40-60L/min depending on patient requirements and comfort. Flows to be titrated to patient comfort and measurable results E.g. RR, SaO2, PaO2:fiO2

Temperature adjustments

There are 3 temperatures settings available – 32C, 36C, 38C

Disinfection
8. Disinfection

Once therapy has been discontinued, the circuit must be discarded to the appropriate waste segregation. Equipment should then be cleaned according to manufacturer's instructions.

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Respiratory Therapy Clinical Guidelines: