CLINICAL PRACTICE GUIDELINE

Oxygen Therapy

This document should be read in conjunction with the Disclaimer

Contents

Key points

1. This guideline applies to specific Obstetrics and Gynaecology clinical areas of KEMH- Wards 3, 4, 5 and 6 only
2. No patient shall be denied oxygen therapy in an emergency.[1] Patients in cardiac arrest and / or respiratory arrest shall be managed as per Clinical Guideline O&G: Acute Deterioration (Adult): Resuscitation and Life Support
3. All other patients with suspected or known tissue hypoxia shall have oxygen therapy initiated immediately by the attending health care professional (Doctor, Nurse, Midwife or Physiotherapist)
4. Patients commenced on acute oxygen therapy shall be examined by a doctor as soon as possible and if possible, initial investigations may include an arterial blood gas (ABG), haemoglobin level and chest x-ray
5. **Observations**:
    - Initial and regular observations should include vital signs (respiratory rate, oxygen saturation, oxygen flow rate, heart rate, blood pressure, temperature and consciousness)

- Patients receiving oxygen therapy shall be monitored by pulse oximetry at least as frequently as the observations of vital signs and clearly documented on the patient's ORC[1] with the oxygen flow rate. Monitor observations at minimum of 4 hourly[1] unless modifications are in place on the Observation and Response Chart (ORC), whereby refer to medical instructions

6. **Escalation and review of patients** must be managed as per the ORC for
    - patients commenced on oxygen for deteriorating SpO_2 [1]
    - patients requiring increasing oxygen flow rates to maintain minimum SpO_2 [1]
    - patients developing other signs of deterioration (e.g. acute breathlessness, decreasing conscious state)
7. Specialist medical advice shall be obtained promptly from the Anaesthetic Department if the patient cannot be stabilised
8. Once the patient is stable, the oxygen therapy must be prescribed on the dedicated 'Oxygen Therapy Medication Chart' (MR 810.70) by a Medical Officer
    - The MR 810.70 shall define the target oxygen saturation, oxygen therapy delivery device, range for oxygen flow or percent of inspired oxygen, and when oxygen is to be applied. The prescription shall be signed, dated and the name of the prescriber printed legibly. The prescription shall be reviewed **daily**
9. On the Medication Chart (MR 810), document (tick) in "Additional Charts" to indicate there is an Oxygen Therapy Medication Chart in use
10. Oxygen therapy shall be titrated to the lowest concentration that meets oxygenation goals:
    - 94-98% for all patients except those with, or at risk of, hypercapnoeic respiratory failure
    - 88-92% for those patients with or at risk of hypercapnoeic failure[2]

Patients with severe chronic lung disease or other conditions at risk of hypercapnoeic failure

Oxygen therapy shall be prescribed cautiously to patients with severe chronic lung disease and other conditions at risk of hypercapnoeic respiratory failure e.g. morbid obesity, neuromuscular disorders, and chest wall disorders.

1. These patients who require oxygen therapy shall be commenced on nasal prongs at 0.5 – 2L/min or oxygen using a Venturi mask at 24-28%.[1]
2. Titrate oxygen to maintain an oxygen saturation level of 88-92% as per modification[1]
3. Monitor SpO_2. [1]

4. In patients with hypercapnoea, ABGs should be repeated as per medical instruction after commencement of oxygen therapy.[1] Assisted ventilation (either non- invasive or intubation) should be considered in patients where respiratory acidaemia develops (pH < 7.35 with an increase in PaCO2).[1]
5. If nebulised bronchodilators are required, the nebuliser is best driven by compressed air with oxygen therapy given concurrently by nasal cannulae at 2 – 4L / min to maintain an oxygen saturation of 88-92%. If compressed air is not available, the nebuliser can be driven by oxygen at a flow rate of 6-10L / min for 3-4 minutes.

Reduction and discontinuation of oxygen therapy

- Oxygen therapy shall be reduced and discontinued in stable patients with satisfactory oxygen saturation. The oxygen saturation shall be above the target range or have been at the upper end of the target range for at least 4 hours
- Discuss with the Medical Officer prior to reduction or ceasing of oxygen therapy in patients with severe chronic lung disease or other conditions at risk of hypercapnoeic failure
- Oxygen therapy shall cease when the patient is able to maintain oxygen saturation in the target range when breathing room air. Oxygen saturation on room air shall be monitored for at least 5 minutes after discontinuing oxygen therapy and shall be rechecked at 1 hour. Oxygen therapy shall be recommenced if the oxygen saturation falls below the target range.
- **Once discontinued, the Nurse/Midwife is to document ‘Ceased’ on the MR810.70**

Pregnancy

- All women with hypoxaemia who are more than 20 weeks gestation should be managed with lateral tilt to improve cardiac output
- The use of oxygen therapy during labour in normoxic women has been associated with acidosis of cord blood

Posture and oxygenation

To increase oxygenation patients should be nursed in the upright position unless:

- the upright position causes discomfort
- immobilisation is required for a medical/surgical condition
- the patient is hypotensive
- the patient is recovering from a seizure

Oxygen delivery systems

For additional details on use oxygen delivery systems, safety, comparison of delivered oxygen, and reference ranges for ABGs, see SCGH Nursing Practice Guideline No. 10 Oxygen Therapy.

- Please note that this guideline is for clinical information only. Information contained in it regarding contacts and paperwork (forms) are not applicable for KEMH
- KEMH uses Observation and Response Charts (ORC)- MR285.01 (Maternal); MR285.02 (Adult) and Oxygen Therapy Medication Chart (MR810.70)

Simple nasal cannula

- Flow rate greater than 4 litres/minute oxygen, should not be used[1]
- Refer to section “Nasal Cannula” within SCGH NPG No. 10 Oxygen Therapy

Humidified high flow nasal prong oxygen

- See sections “Humidification” and “Humidified Nasal Cannula” within SCGH NPG No. 10 Oxygen Therapy

Simple (Hudson) mask

- Simple face masks deliver oxygen concentrations up to 60% [1]
- The flow should be at least 5L/min because lower flows can cause resistance to inspiration and rebreathing of exhaled CO_2 . [1]
- The mask is suitable for patients with hypoxaemic (Type 1) respiratory failure but not for patients with hypercapnoeic (Type II) respiratory failure
- Refer to section “Simple Face Mask” within SCGH NPG No. 10 Oxygen Therapy

Reservoir (non-rebreathing) mask

Reservoir masks can be used to provide a higher FiO_2 than simple masks. They are most suitable in an emergency (e.g. shock, trauma) where CO_2 retention is less relevant. The bag must be fully inflated before application to the patient and should remain inflated. Deflation suggests a leak or inadequate oxygen flow and may be a sign of deterioration.

- See section “Partial and Full Non-Rebreather Mask” within SCGH NPG No. 10 Oxygen Therapy

Graduated (e.g. Venturi) mask

Venturi masks provide a more predictable oxygen concentration to the patient. The masks are available in the following concentrations: 24%, 28%, 31%, 35%, 40% and 50% depending on the colour-coded mask attachment used. They are suitable for all patients needing a known concentration of oxygen. The 24% and 28% Venturi masks are particularly suited to those at risk of CO_2 retention. The oxygen low

required to achieve the appropriate concentration is defined on the colour coded mask attachment. The accuracy of the oxygen concentration delivered is greatly reduced if the mask is not accurately placed on the patients face, the flow is too low or the diluter jet is obstructed. The latter may be caused by clothing and can be prevented by the use of a protective hood over the jet diluter.

- See section “Graduated “Venturi” Type Mask” within SCGH NPG No. 10 Oxygen Therapy

Documentation

‘Oxygen Therapy Medication Chart’ (MR 810.70)

1. The Medical Officer orders the oxygen therapy on the oxygen prescription form. This is then attached to the medication chart
2. Document in the “Additional charts” sections of the Medication Chart to indicate the patient has been prescribed oxygen therapy
3. The Registered Nurse/Midwife signs the chart once per shift to indicate the oxygen prescription has been checked
4. The MR 810.70 is reviewed every 24 hours, or according to clinical state by the medical team
5. Changed oxygen therapy is ordered and documented on the MR 810.70
6. Record oxygen saturations on the ORC- MR 285.01/ MR 285.02
7. Record commencement, completion and changes to oxygen therapy on the ORC
8. At the beginning of the shift, the Midwife / Registered Nurse will check the order for oxygen therapy with the oxygen therapy the patient is receiving, and then document the type and flow rate of the oxygen on the ORC

References

1. Sir Charles Gairdner Hospital [SCGH]. Nursing practice guideline No.10: Oxygen therapy: SCGH; 2019. Available from: https://healthpoint.hdwa.health.wa.gov.au/policies/Policies/NMAHS/SCGH/SCGH.NPG.Oxygen_Therapy.pdf
2. Australian and New Zealand Committee on Resuscitation. ANZCOR Guideline 11.6.1: Targeted oxygen therapy in adult advanced life support: ANZCOR; 2016. Available from: https://resus.org.au/guidelines/

Related legislation and policies

SCGH NPG No.10: Oxygen Therapy (WA Health staff access via Healthpoint)

Related WNHS policies, procedures and guidelines

KEMH Clinical Guideline, Obstetrics & Gynaecology: Acute Deterioration (Adult): Resuscitation and Life Support

Useful resources (including related forms)

Forms

- Observation and Response Charts (ORC)- MR285.01 (Maternal); MR285.02 (Adult)
- Oxygen Therapy Medication Chart (MR810.70)

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