Care of the Deteriorating Patient in Recovery

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Intended learning outcomes

- Describe the components of a comprehensive clinician’s handover in PACU;
- Summarise risk recognition and management strategies in common PACU complications (including airway management, hypertension and patient agitation);
- Describe the components of Pain management
- Describe the roles and responsibilities of the recovery room nurse in relation to ACORN standards
Routine Monitoring

- Conscious state
- Pulse rate
- Blood pressure
- Perfusion status
- Oxygen saturation
- Respiratory rate
- Temperature
Additional monitoring

- ECG
- Arterial blood pressure
- CVP
- Urine output
- Wound drainage
- Haematology
- ABG analysis
Receiving patient in Recovery

- First check your patient is stable
  - Lying in an appropriate position
  - Breathing / administer Oxygen
  - Check pulse & BP
  - Receive handover when you are satisfied the patient’s condition is stable

Hand over by anaesthetist to PACU nurse following the ISBAR principles

- Patients name & age
- Past history / indication for surgery
- Procedure performed
- Type of anaesthetic and drugs used
- Fluid balance status
- Complications encountered / blood loss
- Analgesia given & anticipated needs
- Specific post-operative orders and reportable parameters
Admission to Recovery

- Supervision of patients by nursing staff is continuous.

- Strict vigilance and observation of unconscious patients (1:1).

- Initial systematic assessment of patient:
  - Airway
  - Breathing
  - Circulation
  - Drips, drains, drugs
  - Extras
Potential complications in Recovery

Complications
- Restless/Agitated Patient
- Hypertension
- Hypotension
- Pain
- Airway obstruction
  (stridor, laryngospasm)
- Respiratory complications
- Cardiac Arrhythmias
- Post-obstructive Pulmonary oedema
- Hypoxia
- Delayed emergence

Complications
- Hypo-volaemia / Haemorrhage
- Nausea & Vomiting
- Hypothermia & shivering
- Fever / sepsis
- Pneumothorax
- Regional anaesthesia complications
- Incomplete Reversal
- Urinary Retention
- Allergy
- Hypoventilation
Airway complications

Total airway obstruction is silent and lethal!!!

Normal breathing = abdomen and chest rise and fall together
Airway Complications

Hypoxia clinical signs

**Early signs:**
- Confusion, restless & agitation
- $\text{SpO}_2 < 90\%$
- Cyanosis

**Late signs:**
- Pallor
- Chest pain, ST depression
- Hypotension, bradycardia
- Convulsions, coma, asystole arrest, death

Hypoxia Management

- 100% oxygen (bag & mask)
- Call for help
- Assess airway patency
- ECG monitoring
- ABG's
- Intubation
- Eliminate causes
Stridor

- Crowing noise – airflow is forced through a narrowing in the larynx or upper airway
- Leads to complete obstruction

→ GET HELP QUICKLY!!!

Laryngospasm

- Irritation of the larynx / pharynx
- Vocal cords clamp closed
- GET HELP QUICKLY!!!
- 100% oxygen
- Jaw support
- Bag valve mask continuous positive pressure to relieve spasm
- If no relief – sux / re-intubate.
Hypoventilation

Hypoventilation Signs and symptoms

- Delayed awakening
- Airway obstruction
- Low RR
- Tachypnoea with shallow breaths
- Laboured breathing
- Cardiac irritability / depression caused by severe acidosis

Hypoventilation Causes

- Most commonly due to the residual depressant effects of anaesthetic agents on respiratory drive
- Opioid
- Inadequate muscle reversal
- Overdose
- Pharmacological interactions
- Metabolic factors (hypokalaemia, resp. acidosis)
- Pain
  - Increases CO2 production from shivering, hyperthermia, or sepsis
Delayed wakening

Delayed emergence
- Hyperventilation – induced apnoea
- Hypothermia
- Hypercapnea
- Prolonged action of drugs / ↓ metabolism
  (cold, liver / renal disease)
- Neurological damage – signs???
  (hypoxia, stroke, emboli, intra-op hypotension)
- Residual relaxant
- Hypothermia

Delayed wakening
- Assess & identify the cause/causes
- Maintain oxygenation & ventilation
- Maintain adequate cardiac output
- Administration of reversal agents
- Residual anaesthetic agents may be treated with maintenance of ventilation
- Correction of metabolic disturbances
- Warming measures if hypothermia is suspected
Agitation /Confusion

Caused by

- Emergence delirium
- Hypoxia
- Intracerebral event
- Hypotension
  - Pre-existing psychiatric condition
  - Drugs
  - Metabolic

Management

- Oxygen, maintain airway, support ventilation
- Check / correct hypoglycaemia
- Exclude intracerebral event
- Sedation (must exclude hypoxia as cause)
Hypertension

Risks
- Ideally within 15% of pre-op pressure

Risks of Hypertension:
- Arrhythmias
- Myocardial ischemia / infarction
- Cardiac failure
- Strokes

Causes
- Noxious stimulation - pain, intubation or bladder distention
- Sympathetic activation
- Vasopressors
- Fluid overload
- Raised ICP
- Hypoxia
- CO₂ retention
- Hypoglycaemia
Hypertension Management

- Oxygen, pulse oximetry, regular BP, ECG
- BSL
- Eliminate hypoxia as the cause
- Check regular meds
- Check intra-op fluids
- Notify anaesthetist
- Treat symptoms
- ? vasodilator
Hypotension

Causes
- Hypovolaemia / blood loss
- Impaired cardiac contractility – ischaemia, arrhythmia, drugs used
- Cardiac tamponade
- Tension pneumothorax
- Anaphylaxis
- Septic shock
- Emboli
- Reduced after load – spinal or epidural block
- Combination of factors

Management
- Oxygen
- DRSABCD
- ECG (12 lead)
- Prepare to insert lines
- Medications
- Consider causes
Pain

• Subjective
• Influenced by:
  ➢ The neural stimuli received from damaged tissue
  ➢ Memory of previous pain
  ➢ Expected outcome
  ➢ Psychological factors (anxiety)

“pain is a combination of what your patient feels, and their emotional response to it”
Pain Principles

- Pain has 2 principle elements: hurt & fear
- Treat pain before it occurs (pre-emptive analgesia)
- Multimodal analgesia
- Do not let uncontrolled acute pain develop into chronic pain
- Cuddle crying children
- Inappropriate pain – call the surgeon / anaesthetist
- Know the actions of the drugs
- Elderly patients → small doses more frequently
- The cause of pain may not be surgical
Uncontrolled Pain is Harmful

- Causes restlessness $\rightarrow$ ↑$O_2$ consumption, ↑ cardiac work, & can result in hypoxia
- Contributes to PONV
- ↑ BP (risk of precipitating cardiac ischemia)
- ↓ hepatic & renal blood flow
- Prevents pt. from deep breathing & coughing
- Discourages pt. from moving their legs
- Impairs bonding between mum & bub after caesarean
- ↑ anxiety, disrupts sleep
Conclusion

As post-anaesthetic nurses, it is important to be aware of possible complications that can occur in the peri-operative setting, know your resources and act appropriately to achieve the best possible outcome.