CARDIOVASCULAR MANAGEMENT (Contd.)

Postoperative blood pressure should always be reviewed with reference to the preoperative and intraoperative assessments.

Further assessment is required for patients with:
- heart rate < 50 and > 100 bpm
- blood pressure <100 mm Hg systolic.

Patients on regular antihypertensive medication should normally be maintained on this medication perioperatively. If the patient becomes hypotensive then it may be appropriate to discontinue some drugs.

Beta blockers and IV nitrates may be used safely and effectively in postoperative hypertension.

Beta blockers should be continued perioperatively in patients previously taking these drugs for coronary disease, congestive heart failure, hypertension or arrhythmias.

Be aware of clinical factors which increase risk to the patient and how these interact with the risks imposed by the surgical procedure.

Seek expert help early in the management of serious or potentially serious arrhythmias. Reconsider the level of care.

Search for the underlying causes of any supraventricular arrhythmias, eg hypoxia, hypovolaemia, electrolyte abnormality, sepsis or drug toxicity.

Where perioperative MI is diagnosed or suspected early specialist medical advice should be sought.

Maintain normothermia in the postoperative period.

FLUID, ELECTROLYTE & RENAL MANAGEMENT

Accurate assessment of fluid and electrolyte status can be difficult and the treatment of a particular patient must be individualised and reviewed frequently in the light of the response to treatment.

Volume depletion should be avoided as this can lead to poor perfusion and problems such as anastomotic breakdown, cerebral damage, renal failure and multiple organ failure.

Diuretics should not be used to treat oliguria and should be reserved for fluid overload.

Hypernatraemia is more commonly due to excess water than sodium deficiency – assess volume status.

Hypernatraemia most commonly indicates a total body deficiency of water and is an indication for prompt assessment and intervention, especially when levels exceed 155 mmol/L.

Hypokalaemia can delay postoperative recovery - magnesium supplementation may also be required.

Hypokalaemia is more commonly due to excess water than sodium deficiency – assess volume status.

Hyperkalaemia is a medical emergency – obtain senior help.

Metabolic acidosis is usually due to poor tissue perfusion but can also be caused by excessive administration of saline.

SEPSIS

Hand washing with soap and water or with alcoholic cleansing agents should be performed before and after patient contact.

Early identification and appropriate treatment of sepsis improves outcome.

Urine and blood cultures should be obtained whenever there is reason to suspect systemic sepsis.

If the cause of sepsis is unknown, treat with broad spectrum antibiotics, guided by local protocols.

Results from microbiological specimens should be reviewed regularly and antibiotics changed as necessary.

A course of antimicrobial treatment should generally be limited to 5-7 days. Fungi and atypical organisms can contribute to sepsis syndrome, so take cultures and prescribe appropriately.

Systemic inflammatory response syndrome (SIRS) is defined as the presence of 2 or more of the following:
- temperature >38°C or < 36°C
- heart rate > 90 bpm
- respiratory rate > 20 breaths/min or PaCO₂ < 4.3kPa
- white cell count >12,000 cells/mm³, < 4,000 cells/mm³ or >10% immature forms.

When SIRS is present an infective cause should be sought first.

NUTRITION

Oral intake should be commenced as soon as possible after surgery.

Nutritional replacement should be discussed with a dietician and tailored to the patient’s requirements.

Enteral nutrition is the preferred method of postoperative nutritional support and should be used if possible.

Nutritional and metabolic status should be assessed regularly and the nutritional prescription modified as necessary.

Given the lack of a strong evidence base of effective practice for postoperative management this guideline has been developed using a combination of evidenced based and consensus techniques. Initial systematic searches identified any relevant evidence. The critically appraised evidence, together with the clinical experience of the guideline development group, informed the formal consensus methods that were used to develop recommendations. These are presented in the form of “consensus statements”.

Hypothermia is a potential problem and should be managed to maintain normothermia in the postoperative period.

Optimal postoperative care requires:
- clinical assessment and monitoring
- respiratory management
- cardiovascular management
- fluid, electrolyte and renal management
- control of sepsis
- nutrition

Only accept responsibility appropriate to your training and experience. If in doubt ASK FOR HELP.

Anaesthetic and surgical staff should record the following items in the patient’s case notes:
- any anaesthetic, surgical or intraoperative complications
- any specific postoperative instruction concerning possible problems
- any specific treatment or prophylaxis required (eg fluids, nutrition, antibiotics, analgesia, anti-emetics, thromboprophylaxis).

THE FIRST POSTOPERATIVE ASSESSMENT

A postoperative assessment should be carried out when the patient returns from theatre.

Patients at risk of deterioration require frequent assessment.

Patients with the following risk factors for deterioration should be reassessed within two hours of the first postoperative assessment: - ASA grade ≥ 3
- emergency or high risk surgery
- operation out of hours

The doctor completing the initial postoperative assessment should consider the monitoring regimen and appropriate level of care required for the next 24 hours in collaboration with the nursing team.

For more information on this topic, please visit the SIGN website:
www.sign.ac.uk
CHECKLIST FOR FIRST POSTOPERATIVE ASSESSMENT

- Past medical history
- Medications
- Allergies
- Intraoperative complications
- Postoperative instructions
- Recommended treatment & prophylaxis

RESPIRATORY STATUS ASSESSMENT

- Oxygen saturation
- Effort of breathing/use of accessory muscles
- Respiratory rate
- Trachea central or not?
- Symmetry of respiration/expansion
- Breath sounds
- Percussion note

VOLUME STATUS ASSESSMENT

- Hands - warm or cool, pink or pale?
- Capillary return < 2s or not?
- Pulse rate, volume and rhythm
- Blood pressure
- Conjunctival pallor
- Jugular venous pressure
- Urine colour and rate of production
- Drainage from drains, wounds & NG tubes

MENTAL STATUS ASSESSMENT

- Patient conscious and normally responsive? (AVPU; Alert, Verbal, Painful, Unresponsive)
- If abnormal determine:
  - if confusion is present (AMT)
  - GCS, oxygen saturation and blood glucose

RECORD

- Any significant symptoms eg chest pain, breathlessness
- Pain and adequacy of pain control
- Following specialist surgery it may be necessary to assess additional factors.

SAMPLE MONITORING REGIMEN FOR FIRST FEW POSTOPERATIVE HOURS

- Temperature
- Pulse rate
- Blood pressure
- Respiratory rate
- Pain assessment (resting and moving)
- Urine output (postoperative voiding)
- Peripheral oxygen saturation

MONITORING

Patients requiring the frequent monitoring of multiple variables should be considered for care at level 2 or above.

Trends in the physiological data, rather than absolute numbers, should be reported to assist in the detection of deteriorating patients before a severe physiological compromise occurs.

Postoperative monitoring should be continued on a daily basis.

The monitoring regimen should be reviewed daily so as best to provide data for clinical decision making.

Any change in a monitoring regimen should prompt reassessment of the level of care.

RESPIRATORY MANAGEMENT

- Diagnosis of respiratory infection
- Any two of the following on two or more days:
  - Pyrexia > 38°C
  - Positive sputum culture
  - Positive clinical findings
  - Abnormal chest X-ray – Atelectasis/infiltrates

CARDIOVASCULAR MANAGEMENT

ASSESSMENT OF HYPOTENSION

- Observe if:
- Seek further advice if:
  - Awake or easily rousable
  - Drowsy or unrousable
  - Comfortable
  - Distressed
  - Normal preoperative BP
  - Hypertensive preoperatively
  - Warm
  - Cold
  - Well perfused (capillary refill < 2 seconds)
  - Capillary refill > 2 seconds
  - Heart rate 50-100 bpm
  - Heart rate > 100 or < 50 bpm
  - Passing urine (>0.5 ml/kg/hr)
  - Oliguric (<0.5 ml/kg/hr)
  - No obvious bleeding
  - Signs of bleeding (drains, wounds, haematoma)