

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.

Hyponatraemia 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.

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 dietitian 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".



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Postoperative management in adults • Quick Reference Guide

PRINCIPLES OF POSTOPERATIVE MANAGEMENT

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**

DISCHARGE FROM THEATRE AND POSTANAESTHETIC RECOVERY

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.

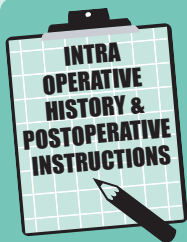
Patients at risk of deterioration require frequent assessment.

Patients with the following risk factors for deterioration should be reassessed within two hours of the first postoperative assessment:

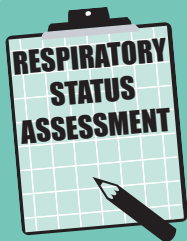
- ASA grade ≥ 3
- emergency or high risk surgery
- operation out of hours

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.

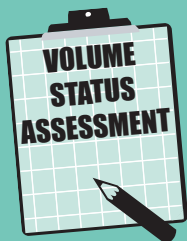
CHECKLIST FOR FIRST POSTOPERATIVE ASSESSMENT



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



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



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



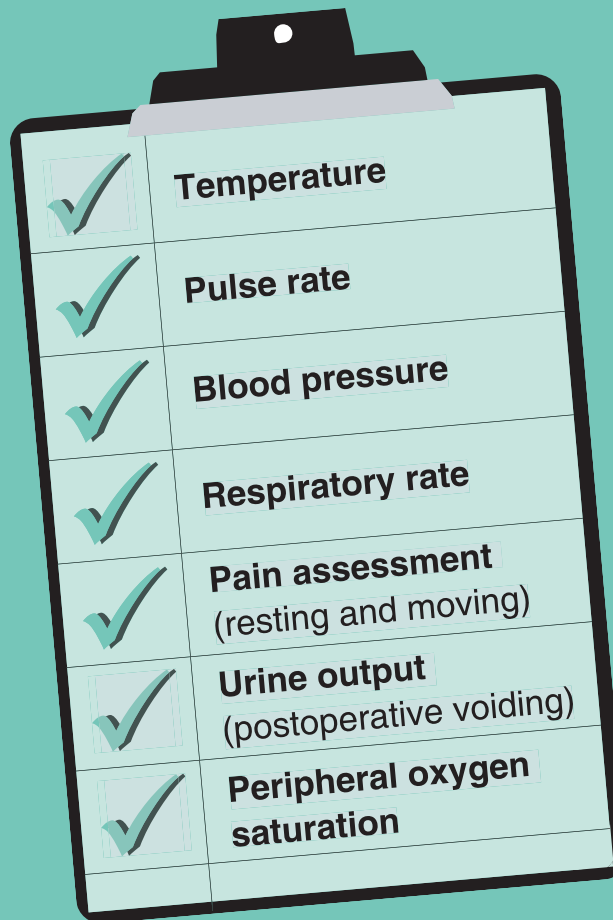
Patient conscious and normally responsive? (AVPU; Alert, Verbal, Painful, Unresponsive)
If abnormal determine:

- if confusion is present (AMT)
- GCS, oxygen saturation and blood glucose



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



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

Patients in whom there is a suspicion of postoperative pulmonary complications should have an arterial blood gas analysis, a sputum culture and ECG.

Chest X-ray should be performed on suspicion of major collapse, effusions, pneumothorax or haemothorax.

Other investigations should be used only if there are specific indications.

Oxygen should be given to patients with hypoxaemia using a device that is best tolerated to achieve the necessary SpO₂.

In normally hydrated patients humidification is unnecessary.

Failure to maintain an SpO₂ > 90% or PaO₂ > 8.0 kPa is an indication to consider assisted ventilation.

Patients developing respiratory failure should be referred to a critical care specialist to be assessed for possible assisted ventilation. The referral should be timely as hypoxia or hypercapnia may lead rapidly to cardiorespiratory arrest.

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 (<i>capillary refill</i> < 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 (<i>drains, wounds, haematoma</i>)