

## *Background*

It is often difficult to know for certain whether a particular patient needs to be nursed postoperatively in the intensive care unit (ICU), if one exists in your hospital.

The person making the decision, surgeon or anesthetist, has to balance the risk of the patient dying from an avoidable cause in an ordinary ward room against the waste of expensive resources if a patient is admitted to the ICU and it proves to not be clinically indicated later on.

## **Intensive monitoring is generally required in the following cases:**

- Cranial neurosurgery
- Head injuries with airway obstruction
- Intubated patients, including tracheostomy
- Major trauma – post-operatively
- Abdominal surgery for a condition neglected for more than 24 hours
- Chest drain in the first 24 hours
- Ventilation difficulties
- Airway difficulties, potential or established, e.g. post-thyroidectomy, removal of a large goitre
- Unstable pulse or blood pressure, high or low
- Anuria or oliguria
- Severe pre-eclampsia or eclampsia
- Surgical sepsis
- Complications during anesthesia or surgery, especially unexpected hemorrhage
- Hypothermia
- Hypoxia
- Neonates, after any surgery

## Post-Operative Ventilation

Mechanical ventilation, i.e. intermittent positive pressure ventilation (IPPV), may be a planned part of postoperative management for a major operation, or decided on at the end of surgery because circumstances demand it.

### IPPV should be continued postoperatively under the following circumstances:

---

- Respiratory depression or oxygen saturation <80%
- Deteriorating general condition
- Severely distended abdomen
- Severe chest trauma
- Head injury or after intracranial surgery

There are non-surgical reasons for ventilation, including organophosphate poisoning, snakebite, tetanus and some head injuries, but probably only if the patient is breathing on admission.

Usually the decision to ventilate is quite easily made from the above observations.

With no ventilator, a patient in respiratory failure will rapidly die of hypoxia and hypercarbia. Many people die purely from the lack of a short period of ventilation in the postoperative period or after trauma.

Avoid giving long-acting muscle relaxants to facilitate IPPV.

**If the patient is “fighting” the ventilator, ask if he or she is**

- ✓ **hypercarbic?**
- ✓ **in pain?**
- ✓ **hypertensive?**

Treat these first before giving a muscle relaxant

## Discharge from the ICU

The decision to discharge the patient from the ICU depends on the quality of care to be found on the ward to which the patient will be transferred

### **The following conditions should be met before discharging the patient from ICU:**

---

- Conscious
- Good airway, extubated and stable for several hours after extubation
- Breathing comfortably
- Stable blood pressure and urine output
- Hemoglobin >6 g/dl or blood transfusion in progress
- Minimal nasogastric drainage with the presence of bowel sounds; abdomen not distended
- Afebrile
- Looks better, sitting up, not confused

Pressure for beds to treat more urgent cases may mean that these guidelines have to be modified.

If a patient dies after discharge from the ICU, try to find out why the death took place and to learn from it, especially if it appears that the death was avoidable.

Try to put a system in place where patients discharged from ICU are followed up for a week. Find out what happened to them.

## Equipment for the ICU

The ICU does not necessarily need to have ventilators other expensive machines.

An ICU might be a ward where

- Oxygen is available
- IV infusions are kept running overnight
- Measurements and observations are made at least every hour for the following
  - Blood pressure
  - Pulse rate
  - Oxygenation
  - Urine output
  - Level of consciousness
  - Other general observations of the patient

The monitoring of a patient ***all night long*** is the deciding factor in the success or failure of the ICU. Another important feature is whether staff take action when the measurements or observations show that something is wrong.

The provision of one or more simple and reliable electric ventilators (not gas or oxygen dependent) will double the usefulness of a basic ICU. Small, portable mains/battery ventilators with integral compressors are available, although they are relatively expensive.

The **pulse oximeter** should be the minimum standard of monitoring in every operating room where regular, major surgery is carried out