The Recovery Room…..a safe haven, or a disaster waiting to happen?

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Editor-in-Chief

The measure of a good anaesthetic may well differ, depending on whether you are the patient, the surgeon, the anaesthesiologist, or the postoperative nursing staff. Ultimately, however, the patient should be the judge of whether his or her anaesthetic was a good experience. An essential part of this experience is the recovery process which is continual, and may last for up to a few days. The less serious, non-life-threatening adverse events such as postoperative pain, nausea and vomiting, drowsiness and dizziness have been shown to be predictors for patient satisfaction and level of postoperative functioning.

Marshall and Chung1 divided the recovery process into three phases:

1. Early recovery, which lasts from the discontinuation of anaesthesia until patients have recovered their protective reflexes and motor functions. This usually takes place in the high-dependency atmosphere of a recovery room (PACU).
2. Phase 2, which is when the crucial decision is made to discharge the patient from recovery room to the ward. During this period there is continued clinical recovery, and in day cases home readiness is achieved.
3. Phase 3, which is the phase of full recovery, including psychological recovery.

The early recovery phase is the process of immediate concern, both from the point of view of patient safety, as well as patient satisfaction. Interestingly, “fast-tracking” (bypassing the recovery room) has been studied, particularly in the context of ambulatory surgery. The objective of this is to decrease recovery time and therefore costs, particularly nursing costs. Song et al2 studied these costs, and concluded that bypassing the recovery room decreased recovery time without compromising patient satisfaction, BUT the overall nursing workload and the associated costs were no different.

The South African Society of Anaesthesiologists (SASA) guidelines to safe anaesthetic practice state the following about the recovery of patients:

General principles
The anaesthesiologist should be readily available during the period of recovery from anaesthesia until such time as the patient is deemed fit for transfer from the recovery area.

1. Recovery from anaesthesia must take place under appropriate supervision in an area designed for this purpose.
2. This area should be either in the theatre itself or close to where the anaesthetic was administered.
3. The staff working in this area must be appropriately trained. When the need arises the staff must be able to contact the anaesthesiologist or his/her designate promptly.
4. It is desirable for patients to have regained consciousness and be in a stable state before they are transported any distance.
5. If patients have to be transported within and from the operating suite while not fully recovered, they must be on a suitably designed trolley/bed capable of head-down tilt. The bed or trolley should be provided with oxygen, a means of inflating the patient's lungs, equipment for suctioning and an appropriate monitor. They must be accompanied by staff able to deal with the problems that may occur during transport.

The SASA Guidelines also describe the physical space, equipment and drugs in great detail.

The following recommendation is made on the staffing, management and supervision of recovery rooms:

Staffing
It is the responsibility of the institution to ensure that the staff appointed to the recovery room is trained and competent. The recovery staff must be available at all times.

- A registered or enrolled nurse trained and competent in recovery room care must be present at all times.
- An appropriately trained registered nurse experienced and competent in recovery room work should be in charge.
- The ratio of nursing staff trained in recovery room care to patients needs to be flexible so as to provide no less than 1:2 patients, and one to each patient who has not recovered protective reflexes.

Management and supervision

- Written protocols for safe management should be established.
- A written routine for checking the equipment and drugs must be established.
- Observations should be recorded at appropriate intervals and should include at least: state of consciousness, colour, respiration, oxygen saturation, pulse and blood pressure and level of pain. The record should form part of the patient's clinical notes.
- All patients should remain until the anaesthesiologist considers it safe to discharge them from the recovery room, according to validated criteria, which includes the return of protective airway reflexes, stable cardiovascular and respiratory function, full reversal of neuromuscular blockade, absence of nausea and vomiting and absence of pain.
- The anaesthesiologist is responsible for:
  - Supervising the recovery period and authorising the patient's discharge
  - Accompanying the patient to the recovery room and adequately handing him/her over to the nursing staff who will document the patient's condition on arrival and subsequent course in recovery.
  - Providing appropriate written and verbal instructions and information to the recovery room staff for each case.
  - Specifying the type of apparatus and the flow rate to be used in oxygen therapy.
  - Remaining in the facility until the patient meets the criteria detailed in 4.4, or delegating this responsibility to another anaesthesiologist or intensivist.

Patient safety issues in the recovery room
The important issues as outlined in the SASA guidelines include the equipment and staffing, and the observations that are recorded. In addition, the patient remains the responsibility of the anaesthesiologist, and must be discharged by the anaesthesiologist from the recovery room. The American Society
of Anaesthetists has emphasised the recovery room process by allocating “standards” to each step of the process, with standard 5 being the “discharge of the patient from the recovery room by a physician”.

The recommended observations (originally proposed by Aldrete) should include:

- Activity – the ability to move voluntarily or on command
- Respiration – the depth and quality of respiration
- Circulation – the blood pressure in relation to the pre-anaesthetic level
- Level of consciousness
- Oxygen saturation, with or without oxygen supplementation

These are largely based on the types of complications that tend to occur in the recovery room. The incidence of complications in numerous studies has been found to be > 20%. The major complications include:

- Nausea and vomiting (incidence of 10%)
- Respiratory (the need for airway support being the commonest)
- Circulatory (hypoperfusion and dysrhythmias)

Chung et al compared adverse events in elderly and young patients coming for ambulatory surgery. On average the elderly patients spent a longer time undergoing surgery, and a shorter time in the recovery room. The rate of intra-operative events was much higher in the older patients, in that they had 5 times more cardiovascular events. However, in the recovery room, the younger patients experienced a 4-fold increase in adverse events compared with their elderly counterparts, with an adjusted odds ratio of 0.43. The commonest adverse events were pain, and nausea and vomiting.

Therefore how do we ensure a safe and satisfactory recovery period for our patients, regardless of whether they are in-patients or being done as ambulatory cases?

1. Recovery rooms need to be properly equipped as per the SASA guidelines.
2. Staffing of recovery rooms MUST be in accordance with SASA guidelines. The staff allocated must be dedicated only to the recovery room, and should not have any other duties.
3. Protocols must be in place, and observations must be recorded.
4. The anaesthesiologist needs to discharge the patient from the recovery room. It is suggested that the Modified Aldrete Scoring system be used for determining when patients are ready for discharge from the recovery room. A score of 9 or > 9 is required for discharge.
5. The patient must also be pain-free, and
6. There must be no nausea and vomiting.

The paediatric patient
Caring for a paediatric patient after anaesthesia has the same requirements as adults, with the following additions:

- Recovery staff experienced in recovering paediatric patients
- An emergency equipment cart with paediatric equipment, including intraosseus lines
- A drug chart with paediatric drug dosages

The controversial issue is whether parental presence should be allowed in the recovery room. In areas which have both paediatric patients and adults, it is not advisable. Occasionally, if a child is inconsolable after emergence and all physiological parameters are stable, then the parents MAY be allowed into the recovery room, provided the nursing staff are comfortable with this.

Modified Aldrete Scoring System

<table>
<thead>
<tr>
<th>Activity: able to move voluntarily or on command</th>
<th>4 extremities</th>
<th>2</th>
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<tbody>
<tr>
<td></td>
<td>2 extremities</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0 extremities</td>
<td>0</td>
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<tr>
<td>Respiration</td>
<td>Cough/deep breathing</td>
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<tr>
<td></td>
<td>Dyspnoea/shallow</td>
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<tr>
<td></td>
<td>Apnoea</td>
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<tr>
<td>Circulation – BP within mmHg of preop level</td>
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<tr>
<td></td>
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<td></td>
<td>50 mmHg</td>
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<td>Arousable on calling</td>
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<td>Not responding</td>
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<td>Oxygen saturation</td>
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<tr>
<td></td>
<td>O2 required for sats &gt; 90%</td>
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<tr>
<td></td>
<td>Sats &lt; 90% despite oxygen</td>
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References:

3. Miller RD. Miller’s Anesthesia, 6th Edition