Most bariatric surgery patients are triaged directly to the medical surgical floor postoperatively. However, patients at high risk due to comorbid factors, who have failed postoperative extubation or have suffered intraoperative complication, may require intensive care unit (ICU) or intermediate-level care (IMC). The special needs of the morbidly obese IMC/ICU patient include: triage, mobility, visiting, fluid resuscitation, management of sleep apnea, airway management, transporting for out of ICU procedures, and preventing pressure ulcers. Traditional approaches to nursing care require new thought when dealing with the massively obese. Our experiences with the special needs of these critically ill morbidly obese bariatric surgery patients are described.

Key words: Morbid obesity, bariatric surgery, nursing care, intensive care, pulmonary care

Introduction

Most obesity surgery patients are triaged to the medical surgical floor following recovery from surgery. However, patients at high risk due to comorbid factors, who have failed postoperative extubation or have suffered intraoperative complication, may require intensive care unit (ICU) or intermediate-level care (IMC). Traditional approaches to nursing care require new thought and unique approaches when applied to the morbidly obese. This manuscript reviews the special needs of the IMC/ICU morbidly obese patient.

Triage Considerations/Criteria

The intermediate-level of care (IMC) is used when the patient has a significant history of sleep apnea requiring bi-level positive airway pressure (BiPAP) or continuous positive airway pressure (CPAP) in the home or has a known respiratory disorder index (RDI)>16. The decision to admit to IMC for respiratory monitoring is based upon calculated theoretical risk and not research at this time. By nightfall the effect of the intraoperative anesthetic and marcaine used on the wound-bed have both dissipated. It is anticipated that the patient will require patient controlled analgesia (PCA) to control pain at this time. This is also the time when the patient is most prone to resedation phenomena related to redistribution of lipophilic anesthetic/sedative agents from the fatty tissue back into the bloodstream. Resedation would require pharmacologic reversal and/or reintubation and would be life-threatening if not identified in a timely manner. In cases of sleep apnea, repeated desaturation is an expected event. Desaturation alone is not used as a predictor of resedation. The IMC level nurses, with a 1:3 or 1:4 nurse-to-patient ratio, have the time for repeated visual observation and training to monitor the patient for subtle clues of decompensation which would warrant medical intervention during the night. To make an informed assessment, the nurse needs to know the patient’s baseline O₂ saturation, normal nighttime desaturation and apnea patterns. With this knowledge, the nurse is able to discern a significant change which would signal concern. It is the nurse’s first instinct to awaken a patient who desaturates to perform deep breathing exercises...
and thereby raise the saturation value. However, awakening a sleep apnea patient who desaturates transiently is not advocated unless the desaturation is accompanied by other signs of distress. Awakening a sleep apnea patient during apneic spells decreases the total amount of rapid eye movement (REM) sleep which could worsen the condition over time.¹

ICU monitoring is reserved for the patient with hemodynamic instability or inability to wean from the ventilator postoperatively. Also, ICU nurses are cross-trained to recover surgical patients after normal business hours. The obesity surgery patient in the ICU is classified as an ICU patient until recovered and extubated. All morbidly obese ICU patients are classified as higher acuity than routine ICU patients, because otherwise routine procedures take more time in the morbidly obese. For instance, it takes longer to insert I.V. lines, provide personal care, inspect, assess, and reposition.

### Nursing Compliance with Early Ambulation/Mobility Goals

One of the biggest obstacles in providing appropriate care in the IMC/ICU is to redirect the mindset of the nurses regarding ambulation and mobility. The goal is to ambulate the nonintubated patient within 2 hours of surgery and every 2 hours while awake. The patient is educated by the physician to request assistance with ambulation upon awakening during the night. Early and frequent ambulation is thought to prevent or reduce risk of pressure ulcers, deep vein thrombosis, resedation, pain, pneumonia and atelectasis. The problem in the IMC/ICU is that nurses often have the mindset that if the patient is well enough to walk, they are too well for that environment. IMC/ICU nurses are not in the habit of encouraging ambulation as the medical surgical nurses would. Repeated education and direct physician monitoring of nursing compliance with ambulation goals is necessary for ICU/IMC nurses to develop this new standard of practice. We have also found that competition between the staff to see which nurses ambulate their patients earliest also helps to promote compliance.

Intubated ICU patients are turned side-to-side and all skin-folds are inspected immediately upon arrival in the ICU from surgery or recovery. Vigilant turning schedules are adhered to in these patients to attempt to achieve the same goals as early ambulation. Family members are encouraged to assist in passive range of motion in the critically ill obese patient.²

### Family Visiting in the IMC/ICU

The obesity surgery program at Pomerado Hospital promotes a buddy system to assist in nursing care. A significant other, friend, relative or spouse of the patient agrees preoperatively to come to the hospital and stay throughout the hospital stay. This “buddy” assists with bedside care, ambulation, and emotional support. When the patient is in the IMC/ICU, the buddy is allowed to spend the night and assist in care, but it is not mandatory as it is on the medical surgical floor. This particular IMC/ICU already operates an Open Visiting policy, so the addition of the obesity surgery buddy was not a new concept. However, in units that do not have open visiting, the nurses may find the buddy system welcome assistance to the strenuous physical care needed in caring for the morbidly obese. The buddy system essentially provides the nurse with a personal assistant who knows the patient well and can advocate for personal needs.

### Postoperative Fluid Resuscitation

Another change for nurses in this unit was to understand that with large abdominal surgeries the patient might require up to 6 liters of fluid to restore euvoolemia. Nurses are taught that hypotension postoperatively is best treated with volume rather than inotropic agents. The following calculation helps to demonstrate this principle:

\[
\text{Deficit} + \text{Maintenance} + \text{Blood Loss} = \text{Operative + Postoperative Fluid to Be Replaced}
\]

Deficit = Number of hours NPO x 2 x kg weight; 
Maintenance = 15 cc x kg weight; 
Blood Loss = cc of blood lost during surgery; e.g. if the patient was NPO for 12 hours, weighed 150 kg and lost 500 cc of blood, the calculation would be:

\[
(12 \times 2 \times 150) + (15 \times 150) + 500 = 3600 + 2250 + 500 = 6,400 \text{ cc to be replaced.}
\]