It is no surprise to anyone that America is experiencing an obesity epidemic. Obese patients regularly present, not only for bariatric weight loss procedures but for other types of surgery as well. We are challenged, not only by the obese patient, but by those who present for reconstructive surgery after massive weight loss. This is due to the comorbidities that obesity causes as well as airway and pharmacologic considerations that must be addressed. Organ systems that are affected include the respiratory, cardiac, endocrine and renal systems, as well as unique challenges in airway management.

All patients presenting for bariatric surgery should be evaluated pre-operatively in an anesthesia pre-surgical screening clinic. This will allow an assessment of the patients’ airway as well as vascular access issues that may present due to the presence of excess adipose tissue. In addition, co-morbidities such as hypertension and diabetes must be addressed prior to surgery. For instance, in the morbidly obese patient intravenous access may be difficult at best. These patients may benefit from a PIC line, or a central line, inserted on the day of surgery.

One of the greatest challenges in caring for the morbidly obese patient is that of airway management. A small mouth opening, poor Malampati airway classification, sleep apnea, decreased lung volumes (functional residual capacity, FRC), gastroparesis, and a neck circumference of > 40 cm all add to the difficulty in intubation often encountered. A well thought out plan, an additional set of experienced hands, and specialized airway equipment must be available before attempting the intubation. Pre-oxygenation must take place before attempting intubation. A drying agent such as glycopyrrolate should be administered 20 minutes before intubation and the patient should be properly ‘ramped up’ on the OR table in order to optimize intubating conditions. With the popularity of video laryngoscopes now available fiberoptic intubation is no longer the first line choice for equipment. Although it should be available in cases of failed video-laryngoscopy.

In terms of comorbidities, cardiac disease is frequently found in the obese patient and includes hypertension as well as coronary artery disease. Hypertension should be adequately controlled and critical coronary lesions must be addressed before the patient presents on the day of surgery. The pulmonary system will be altered due to the decrease in chest wall compliance resulting from excess adipose tissue on the chest wall and upward displacement of the diaphragm in the supine position. This results in decreased lung volumes and a faster desaturation during periods of apnea.

Obstructive sleep apnea is found frequently in the obese population and patients that use CPAP at home should have it available for use in the immediate post-operative period. In addition the use of narcotics must be minimized to prevent post operative respiratory depression.

Since both the adipose as well as lean body tissue increase in obesity the pharmacologic behavior of drugs will be impacted. In addition alterations in cardiac output and total blood volume will also have an effect on the kinetics of anesthetics. Equations are available to calculate ideal body weight as well as lean body weight. Since most of the cardiac output is directed to the lean vessel rich tissues administration of a drug based upon total body weight may result in an overdose, but on the other hand administration based upon ideal body weight may result in an under-dosing.

Positioning on the operating room table is of significant importance to avoid nerve injury during these lengthy procedures. The patient is positioned on the table and the table is then manipulated as a test to see if any changes in position need to be made before the induction of anesthesia. The patient is able to express any discomfort due to position before surgery.
Postoperatively, supplemental oxygen should be administered. Elevation of the torso to 45 degrees will allow for greater lung volumes than in the recumbent position. If a patient is CPAP dependent it should be available in the PACU. The use of narcotics should be minimized, and intravenous acetaminophen or other non-steroidal drugs utilized, in their place, to avoid narcotic induced post operative respiratory depression.

As one can see, from this brief overview, bariatric surgery presents the anesthesiologist with challenges not encountered on other types of surgery.