A Retrospective Study of a Gastroenterology Facility:

Are the Patients Sicker?

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There has been substantial growth in the number of ambulatory surgery centers across the United States. With the advancement in technology for non-invasive procedures, and shorter acting anesthetics, more patients are being seen in the freestanding surgery facility. However, the trend in patient co-morbidities, i.e., obesity, diabetes, cardiac, and respiratory diseases has also risen, increasing the anesthetic risk even though low risk procedures are performed. The most common malpractice claims have been associated with diagnostic procedures performed in ambulatory surgery centers under monitored anesthesia care (MAC) with patient co-morbidities as contributing factors. The morbidity and mortality of ambulatory surgery patients has led to an increased concern for patient safety in freestanding facilities. Of particular concern is sedation, specifically in gastroenterology (GI) centers. Yet, the Journal of the American Medical Association (JAMA) recently reported that two-thirds of the anesthesia procedures provided during colonoscopies and endoscopies (EGDs) were on “low-risk patients;” suggesting the lack of need for professionally administered anesthesia in GI facilities and implying that specialist monitored anesthesia would contribute to the increased cost of these procedures (Liu, Waxman, Main, & Mattke, 2012).

This study represents a retrospective chart review of 3, 252 patients conducted at a GI center over a ten month period in 2011. The patient’s ages were from 18 to 95. Procedures involved were either an EGD and/or a colonoscopy with MAC. The pre-operative assessment and anesthesia record was used to gather the information on each patient. A data analysis table was developed to log the co-morbidities on a monthly basis for total number and percentages.
The co-morbidities of the MAC patients were correlated with the American Society of Anesthesiologist (ASA) risk classification system to stratify the patients based on disease entities. This was then compared to provide evidence of an increased trend in the percentage of high risk patients and associated morbidity and mortality.

In 1983, there were approximately 239 FSFs in the United States (Durant, 1989), by 2003 there were over 3,300 (Casalino, Devers, & Brewster, 2003) (Winter, 2003) and by 2010 the number of FSF’s increased by 61% to 5,316 ("ASC Services," 2012, p. 115). The U.S. Department of Health and Human Services conducted a study in 2006 to determine the number of surgical and non-surgical (diagnostic) procedures performed in outpatient settings and freestanding surgery facilities. They collected the data using the 2006 National Survey of Ambulatory Surgery (NSAS). The sample comprised of 398 FSFs, 295 responded to the survey; 74.1%. NASA estimated that 53.3 million surgical and non-surgical (diagnostic) procedures were performed in ambulatory surgery centers; 14.9 million occurring in FSFs. The most frequently performed procedures were colonoscopies (5.7 million), upper endoscopies (3.5 million), extraction of lens (3.1 million) and insertion of prosthetic lens (2.6 million). General anesthesia was performed in 30.7 percent of the FSFs with greater than 20.8 percent providing monitored anesthesia care (MAC) (Cullen et al., 2009). The Medicare Payment Advisor Commission (MEDPAC) reported that in 2010, 3.3 million Medicare beneficiaries were seen in FSFs ("ASC Services," 2012).

Metzner and Domino performed a closed claim analysis in areas outside the hospital operating rooms; but within the hospital setting, to determine the risk associated with anesthesia being performed in these remote locations. They felt that even though the procedures were relatively non-invasive, serious outcomes could occur. They analyzed claims in the American
Society of Anesthesiologists Closed Claims database (1990-1999) comparing injuries associated with care in remote sites (n=87) set against hospital operating rooms (n=3286). Patients in the remote locations who were greater than 70 years of age (>20%), sicker (69%, ASA 3-5), and underwent more emergent procedures by 36%. The predominant anesthetic in these locations was MAC, which produced eight-times more claims than operating room procedures (50% vs. 6%). The locations most commonly involved in claims were the gastrointestinal (GI) suite (32% of the claims), and the cardiology catheterization laboratory (25% of claims). The severity of injury was greater in remote locations than in the operating rooms, with the proportion of death almost double. Adverse respiratory events; oxygen/ventilation being the most common, was shared by both remote and operating room locations, but remote locations having seven-times the occurrences. Respiratory depression due to over sedation and loss of airway was responsible for 26 remote location claims; more than half in the endoscopy suite. Patient factors attributable to loss of airway and over sedation were obesity, sleep apnea, ASA status III-IV and age being greater than 70 years (Metzner & Domino, 2009).

In February, 2006, closed claims analysis was performed by Bhananker reviewing cases receiving MAC and found that the patients who were older (> 70 years) and sicker (ASA III-IV) had higher claims associated with morbidity and mortality (40%), (Bhananker et al., 2006). Bishop, Ryan and Casalino also examined malpractice claims, comparing outpatient (free standing and hospital-based) and operating room procedures from 2005 to 2009. In the outpatient setting, the most common claim was diagnostic procedures under MAC (45.9%).

The American Society of Anesthesiologists (ASA) scoring system (Dripps, 1963) is a valuable tool in evidence-based anesthesia practice; helping to determine intra-operative and post-operative complications for patients based on their overall health status. It is also valuable
in ascertaining quality outcome measures and patient safety indicators based on the co-morbidities presented by patients. The tracking of risk indicators in hospitals has been an important tool to improve quality of patient safety and is now an incentivized program for hospitals (CMS, "Hospital Initiatives," 2011). However, this has not occurred in FSFs. In 2009, a study surveyed diagnosis-based risk-adjustment for surgical and procedural outcomes in ambulatory surgery centers. The seven-day mortality rate for hospital based outpatient surgery (HBOS) and free standing facilities (FSF) were examined based on the co-morbidities reported by the facilities on each patient. The study revealed that HBOS reported patient co-morbidities more frequently than FSFs; 59.64% versus 8.65% in cataract patients, respectively; 90% versus 45% in GI patients, respectively (Chukmaitov, Harless, Menachemi, Saunders, & Brooks, 2009). The requirement of this data from FSFs could be a valuable tool in determining future morbidity and mortality of patients being seen in these facilities.

Studies have demonstrated that FSFs have definitive risks associated with the patient co-morbidities and the type of anesthesia provided; diagnostic centers and endoscopy centers providing MAC sedation having the most associated claims. Yet, in the 2006 NSAS report there was no data on the co-morbidities of the 14.9 million people seen in the FSFs and the risk associated with anesthesia. NSAS stated that procedures in FSFs and outpatient hospital based facilities increased by 300% over a ten year span. If this trend continues, by 2016, 44.7 million people will be seen in FSFs. Six million will be over the age 65 obtaining gastrointestinal procedures (Cullen et al., 2009).

In this study over 50% of the patient population seeking GI procedures were between the ages of 51 and 70 years of age. The co-morbidities of HTN, hyperlipidemia, sleep apnea, GERD, diabetes, smoking, CAD, and COPD were the most frequently exhibited by the patient
population. These co-morbidities increased over time and the increase was statistically significant. However, body mass index did not change over time in a statistically significant manner.

ASA III cases demonstrate an increase in trend over the ten months, as well as the highest percentage of variance explained by time, 52.55%. The ASA II trends were not significant and the ASA I category represented only 2.58% of the population of patients. The AMA states that 66% of anesthesia given in GI facilities is to “low risk” patients (Liu et al., 2012), however this study found that the combination of ASA I and II represented only 43.45% of the patients receiving anesthesia. ASA IV patients were identified initially in the study but a decline in the trend was exhibited for them due to anesthesia improving awareness of the increased morbidity and mortality associated with this classification. Studies have shown the higher the ASA classification the greater the risk odds ratio for developing a postoperative complication. The mortality rates have been reported as 0.3%-1.4% for ASA II, 1.8%-5.4% for ASA III, and 7.8%-25.9% for ASA IV (Wolters, Wolf, Stutzer, & Schroder, 1996). In a more recent study, Bishop, Ryan and Casalino reported that major injury and death occurred in the outpatient setting 36.1% and 30.6% of the time, respectively (Bishop et al., 2011).

As the number of ASA III patients being seen in FSFs continues to increase are the risks associated with these patients acceptable? Unfortunately, as the study indicates, this is the trend for our society, with the largest generation now being between the ages of 50-75. The safety of these patients is determined by their co-morbidities and the assessment performed by the anesthesia clinician and the consultants they deem necessary to determine what is best for each patient. The ASA classification system is subjective in classifying patient risks; however, the anesthesia professional is trained to make this determination with the patient’s safety in mind.
With the continued increase in demand for FSFs, analysis and documentation of a patient’s co-morbidities needs to be tracked to get a better understanding of the type of patients being seen in these isolated locations and how to address associated patient safety issues. Administrators and federal/state agencies need to be aware of the level of risk associated with these diseases to ensure the proper clinician is determining which patients are or are not at risk for a procedure. Bishop et al. (2011) suggested that because of the high percentage of claims linked to diagnostic procedures under MAC anesthesia, safety initiatives should be developed focusing on the outpatient setting. Chukmaitov et al. (2009) recommends that federal and state agencies mandate HBOS and FSFs to provide comprehensive information on all patients related to co-morbidities to help determine patient safety guidelines and risk-adjustment measurers.

A performance measure recommended by MEDPAC states that incentives should not discourage providers from accepting riskier or more complex patients yet the outcome measures that they encouraged CMS to incorporate for ambulatory centers do not require any risk adjustment. Patient falls, burns, wrong site, wrong side, wrong patient, wrong procedure, wrong implant, hospital transfer/admission and surgical site infections are all preventable outcome measurements and are not affected by a patient’s health status ("ASC Services,"2012, p. 131). Quantifying patient co-morbidities and ASA classifications as exemplified in this study would help evaluate risk adjustments as the acuity of the patient population increases.

The advantage of having anesthesia during GI cases has been demonstrated through pre-operative screening, intra-procedural safety, and post-operative satisfaction (Hass, 2013). This study revealed that most of the patients receiving anesthesia were ASA III unlike what the AMA stated. So is cost still an issue knowing that the majority of the patients are sick? According to
Lui by advocating patient safety, anesthesia is helping to decrease the cost of health care by decreasing intra-operative and post-operative complications (Liu et al., 2012). Hass found that examining cost and procedural factors alone only portrays a hindrance to anesthesia. It is through a comprehensive analysis of patient assessments that the societal advantages of patient safety and satisfaction can be found (Hass, 2013). Anesthesia intervention is pivotal in FSFs, including GI centers, to ensure proper evaluation of patient co-morbidities and risk factors ascertaining the appropriate anesthetics are administered and patients remain safe. Regardless of the practice environment patients should be assured they are receiving a safe and quality anesthetic from an anesthesia professional.