Postoperative Pain After Bariatric Surgery: A Retrospective, Before and After Concurrence Study

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BACKGROUND

The prevalence of clinically severe obesity is increasing at a much faster rate among adults in the US. From 2000 to 2005, the growth rate in the prevalence of morbid obesity (BMI ≥ 40 kg/m^2) and super-morbid obesity (BMI ≥ 50 kg/m^2) had increased by 52% and 75% respectively, compared to the prevalence of moderate obesity (BMI ≥ 30 kg/m^2), which increased by 24% [1]. As a result, the number of bariatric surgical procedures has also increased. The estimated number of bariatric surgical procedures increased from 13,365 in 1998 to 144,000 in 2005 [2, 3,4]. The anticipated volume for 2006 was 170,000-200,000 cases, more than a 10 fold increase in eight years [1,3].

The implications for anesthetic and perioperative care of severely obese patients are considerable, and are believed to escalate in the presence of co-morbidities [5, 6]. Specialized anesthetic management of these patients is necessary and postoperative pain management strategies should focus on adequate pain relief while mitigating the risk of complications. In 2008, we modified our bariatric postoperative pain management strategy. The primary objective of our study was to review consecutive bariatric cases before and after implementation of the modified postoperative analgesia protocol to determine if pain scores were reduced.

METHODS

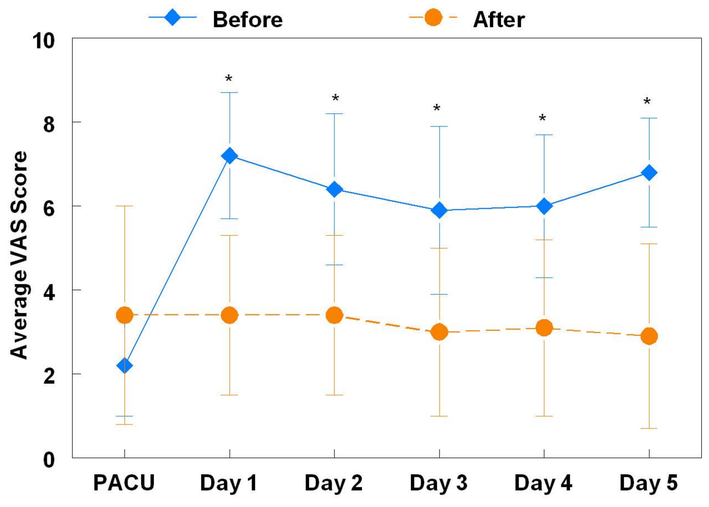
After IRB approval, we performed a retrospective analysis of data from patients admitted to our medical center for bariatric surgery before (January 2006 to January 2007) and after (January 2008 to January 2010) implementation of a modified postoperative pain management regimen. The selected cases were laparoscopic Roux-en-Y and laparoscopic gastric banding, all performed by the same surgeon. The inclusion criterion was a BMI greater than 40 kg/m^2. We compared length of stay, postoperative complications, and visual analog scale (VAS) pain scores before and after implementation.

As a pain management strategy, all patients received preoperative education, counseling and routine postoperative monitoring (consisting of cardiopulmonary monitoring, pain management, wound care, nutritional, and psychological support).

Table 1: Patient Characteristics Before and After Implementation

	Before	After	p-value
Sample Size	85	372	
Gender (male/female)	15/70	70/302	0.8025
Age (yr) mean ± SD	46.5 ± 11.2	46.6 ± 12	0.9584
BMI (kg/m^2) mean ± SD	47.9 ± 7.2	49.2 ± 8.8	0.1976
Length of Hospital Stay mean ± SD	3.6 ± 3.3	3.3 ± 4.2	0.5166
Surgery Type			
Laparoscopic Roux en Y [n (%)]	62 (72.9)	289 (77.7)	0.3495
Laparoscopic Gastric Banding [n (%)]	23 (27.1)	83 (22.3)	

Figure 1. Average Daily VAS Score Before and After Implementation of the Revised Pain Management Strategy



Data are presented as mean ± SD. *P values of <0.05 are considered statistically significant based upon the Wilcoxon sign rank test.

Pain Management Strategy Before and After

Before	After
Ketorolac 30 mg IV in the post anesthesia care unit then 15 mg IV every 6 hours for 24 hours (4-15mg doses total) in combination with patient controlled analgesia (PCA) with IV morphine at a demand dose of 1-2 mg per 10 minutes with a maximum of 6 mg per hour	Ketorolac 60 mg in the post anesthesia care unit (30 mg IV plus 30 mg IM), then 15 mg IV every 6 hours for 24 hours (4-15mg doses total) and IV PCA with Dilaudid® at a demand dose of 0.2 mg per 10 minutes with a maximum of 1.2 mg per hour

RESULTS

Eighty-five patients underwent bariatric operations in the year prior to implementation of the revised postoperative pain management regimen and 372 patients underwent bariatric surgery in the 2 years following implementation. Patient age, gender and BMI were evenly distributed for both groups. The patient population before our modified pain management strategy had a significantly higher daily VAS scores. Total length of hospital stay was not affected by the modified pain regimen. Overall, pain scores were marginally higher for females compared to males (p=0.059) and significantly higher for patients that underwent laparoscopic Roux-en-Y compared to laparoscopic gastric banding (p<0.0001).

CONCLUSION

Weight loss surgery for obese patients presents a great challenge for the physician. Fear of overdosing pain medications may lead to insufficient pain management and longer hospital stays. A more effective analgesic protocol was crafted in the new protocol presented, to increase patient satisfaction and quality of care.

REFERENCES

1. Sturm R: Increases in morbid obesity in the USA: 2000-2005. Public Health 2007; 121: 492-6
2. Santry HP, Gillen DL, Lauderdale DS: Trends in bariatric surgical procedures. Jama 2005; 294: 1909-17
3. Matarasso A, Roslin MS, Kurian M: Bariatric surgery: an overview of obesity surgery. Plast Reconstr Surg 2007; 119: 1357-62
4. Murr MM, Martin T, Haines K, Torrella T, Dragotti R, Kandil A, Gallagher SF, Harmsen S: A state-wide review of contemporary outcomes of gastric bypass in Florida: does provider volume impact outcomes? Ann Surg 2007; 245: 699-706
5. Adams JP, Murphy PG: Obesity in anaesthesia and intensive care. Br J Anaesth 2000; 85: 91-108
6. Ogunnaike BO, Jones SB, Jones DB, Provost D, Whitten CW: Anesthetic considerations for bariatric surgery. Anesth Analg 2002; 95: 1793-805