

# RESEARCH - An Opioid-Sparing Protocol Reduces Narcotic Utilization 3-fold in Sleeve Gastrectomy

Sachin S. Kukreja, MD, FACS, FASMB<sup>1</sup>; Christiana Nwogu, OD, MPH<sup>2</sup>; Katherine Odom, BSN, RN, CBN<sup>2,3</sup>; and Elaina Vivian, MPH, CPHQ<sup>2,3</sup>  
<sup>1</sup>. DFW Bariatrics and General Surgery; <sup>2</sup>. Methodist Digestive Institute, Methodist Dallas Medical Center; <sup>3</sup>. Weight Management Program, Methodist Dallas Medical Center  
 Lead Contact Information: Sachin@texasweightlossdocs.com and KatherineOdom@mhd.com

## ABSTRACT

### OBJECTIVES/PURPOSE

The aim of this study is to compare outcomes between an intention-to-treat opioid-sparing (OSP) protocol and the standard opioid-allowing approach.

### INTRODUCTION

Opioid prescribing and management have garnered international attention. Opioid-related deaths in the United States increased exponentially, with 20% of all deaths in adults aged 25–34 years now being considered opioid-related. Patients with obesity have more opioid-related neurochemical responses and are at an increased risk for narcotic associated postoperative complications. Previous studies have found that up to 8% of patients undergoing bariatric surgery may take chronic preoperative opioids, with 77% continuing or increasing opioid use postoperatively.

### METHODS

This is a single center retrospective chart review study.

### ANALYSIS

All analyses were conducted using SAS v. 9.4. Group differences were considered significant at  $p < .05$ .

### RESULTS

Overall, OSP patients reported significantly less pain at various times post-operatively.

### CONCLUSION

In patients undergoing sleeve gastrectomy: those treated with an OSP had sufficiently managed pain post-operatively, while dramatically reducing morphine equivalent administration with comparable outcomes to a standard opioid-allowing protocol.

## INTRODUCTION

### GAP IN KNOWLEDGE

An OSP was developed to attempt to decrease the amount of opioids prescribed both preoperatively and postoperatively. The OSP involves prescription of gabapentin preoperatively, tap block administration preoperatively, scheduled gabapentin at discharge and scheduled multiple non-opioid analgesics in hospital and at discharge.

This study aimed to compare outcomes between an intention-to-treat opioid-sparing protocol and the standard opioid-allowing approach.

### RESEARCH QUESTIONS OR HYPOTHESIS

We hypothesize that an OSP will significantly reduce morphine equivalent administration while sufficiently managing post-operative pain in patients undergoing minimally invasive gastrotomies.

## METHODS

### STUDY DESIGN

Data from 252 patients who underwent minimally invasive sleeve gastrectomies between April 2019 and August 2020 was analyzed retrospectively. Eighty three patients were treated with OSP, while 169 patients were not (N-OSP). The OSP included gabapentin peri-operatively, TAP block administration, and administration of Tylenol and Ibuprofen post-operatively.

## ANALYSIS

All analyses were conducted using SAS v. 9.4. Group differences were considered significant at  $p < .05$ . Continuous variables were evaluated for normality and parametric or non-parametric tests were used as appropriate. The analyses were adjusted for ethnicity, hyperlipidemia, and surgical approach, as they were found to be significantly different between OSP and N-OSP.

## RESULTS

- Age and BMI were comparable between the OSP and N-OSP groups. There were no differences in length of stay, 30-day readmissions, reoperations and interventions (data not shown).
- OSP patients reported significantly less pain at various times post-operatively (Table 1).
- The OSP group received opioids less frequently (28.92% vs. 81.05%,  $p < .0001$ ) during hospital admission, had a 3-fold less mean inpatient morphine equivalent scores (5.17 vs. 17.36,  $p < .0001$ ), had a higher frequency of EXPAREL administration (92.77% vs 82.84%,  $p = .03$ ), and received more scheduled non-opioid analgesics in hospital (2.31 vs 1.76,  $p = .02$ ), compared to N-OSP (Table 1). (Table 2)

## CONCLUSIONS

Treating patients with an OSP sufficiently managed pain post-operatively while dramatically reducing morphine equivalent administration with comparable outcomes to a standard opioid-allowing protocol in patients undergoing sleeve gastrectomy.

## REFERENCES

- Lloret-Linares, C., Lopes, A., Declèves, X., Serrie, A., Mouly, S., Bergmann, J. F., & Perrot, S. (2013). Challenges in the optimisation of post-operative pain management with opioids in obese patients: a literature review. *Obesity surgery*, 23(9), 1458–1475. <https://doi.org/10.1007/s11695-013-0998-8>
- Acevedo, E., Mazzei, M., Zhao, H., Lu, X., & Edwards, M. A. (2020). Outcomes in conventional laparoscopic versus robotic-assisted revisional bariatric surgery: a retrospective, case-controlled study of the MBSAQIP database. *Surgical endoscopy*, 34(4), 1573–1584. <https://doi.org/10.1007/s00464-019-06917-5>
- Friedman, D. T., Ghiassi, S., Hubbard, M. O., & Duffy, A. J. (2019). Postoperative Opioid Prescribing Practices and Evidence-Based Guidelines in Bariatric Surgery. *Obesity surgery*, 29(7), 2030–2036. <https://doi.org/10.1007/s11695-019-03821-8>

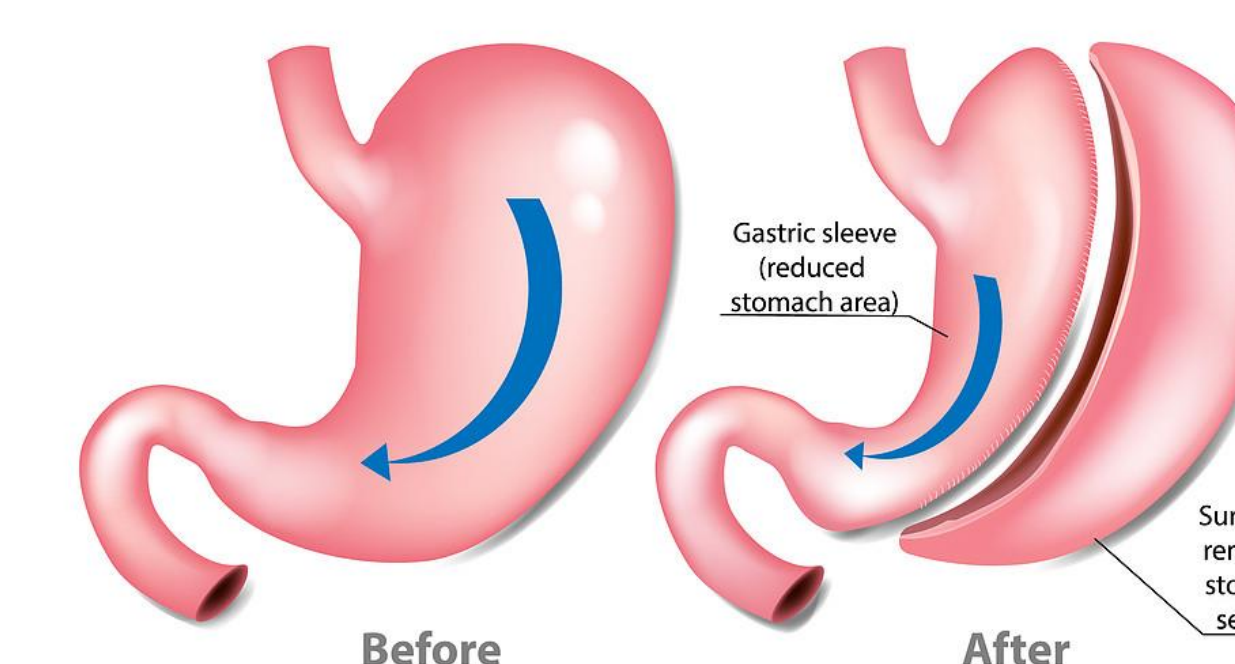
### TABLE 1: OSP AND NON-OSP POST-OPERATIVE PAIN SCORES

	Opioid-Sparing Protocol [n=83]	Non Opioid-Sparing Protocol [n=169]	Unadjusted P-value	Adjusted P-value <sup>e</sup>
<b>Pain Score on Arrival to Floor</b> (Mean ± SD [Range])	2.03 ± 3.22 [10]	3.36 ± 3.32 [10]	<b>&lt;0.0033<sup>c</sup></b>	0.5982
<b>Pain Score 6-12 Hrs. Post Op</b>	2.93 ± 2.73 [9]	4.98 ± 2.63 [10]	<b>&lt;0.0001<sup>c</sup></b>	0.0749
<b>Pain Score at Discharge</b>	1.03 ± 1.79 [7]	2.42 ± 2.31 [8]	<b>&lt;0.0001<sup>c</sup></b>	0.7726
<b>Highest Pain Score</b>	4.79 ± 3.21 [10]	6.64 ± 2.26 [10]	<b>&lt;0.0001<sup>c</sup></b>	0.5333
<b>Mean Pain Score</b>	2.24 ± 1.71 [6.59]	3.40 ± 1.54 [6.33]	<b>&lt;0.0001<sup>c</sup></b>	0.3156

### TABLE 2: OSP AND NON-OSP POST-OPERATIVE PAIN SCORES

	Opioid-Sparing Protocol [n=83]	Non Opioid-Sparing Protocol [n=169]	Unadjusted P-value	Adjusted P-value <sup>e</sup>
<b>Opioid medications given &lt;= 10 days Pre-operation</b> (n (%))	4 (4.82)	27 (16.07)	<b>0.0132<sup>b</sup></b>	0.7590
<b>Inpatient Opioid given in Hospital</b>	24 (28.92)	124 (81.05)	<b>&lt;0.0001<sup>a</sup></b>	<b>0.0404</b>
<b>Non-opioid analgesics given</b> [no]	2 (2.41)	89 (52.66)	<b>&lt;0.0001<sup>b</sup></b>	<b>0.0256</b>
<b>TAP block administered</b>	80 (96.39)	4 (2.37)	<b>&lt;0.0001<sup>a</sup></b>	<b>0.0003</b>
<b>EXPAREL</b> (skin incision/independent of TAP block)	77 (92.77)	140 (82.84)	<b>0.0322</b>	<b>0.0159</b>
<b>Scheduled non-opioid analgesics given in hospital</b>	82 (98.80)	136 (91.28)	<b>0.0212<sup>b</sup></b>	<b>0.0176</b>
<b>Number of Scheduled non-opioid analgesics given in hospital</b> (Mean ± SD [Range])	2.31 ± 0.73 [3.00]	1.76 ± 0.65 [3.00]	<b>&lt;0.0001<sup>c</sup></b>	<b>0.0010</b>
<b>Morphine (MSO4) equivalent</b> (inpatient)	5.17 ± 14.65 [102]	17.36 ± 24.08 [189]	<b>&lt;0.0001<sup>c</sup></b>	0.6203

### SLEEVE GASTRECTOMY



(Nashville Weight Loss, 2021)