



# Effect of preoperative narcotics and benzodiazepines on perioperative and postoperative outcome in cancer-related surgeries

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## Abstract

Chronic pain is a burden to the United States that affects approximately 100 million individuals. Opioids, or narcotics, including fentanyl, methadone, and hydrocodone, have been prescribed regularly to help ease these severe pains, which often time accompany cancer diagnoses. More importantly, the need for investigating long term effects of opioid treatment is becoming more necessary as the use of such prescriptions continue to rise. Additionally, many cancer patients are prescribed narcotic treatment with benzodiazepines, and there have been studies showing both risks and benefits of this treatment protocol. The aim of this study was to investigate the effects of preoperative narcotic use and benzodiazepine use on postoperative outcomes after cancer surgery, including hospital stay, readmission rates, complications, and prolonged narcotic use. Data were collected from abdominal cancer patients who underwent complex gastrointestinal surgery. There were no significant differences in length of stay, rate of readmission, or rate of complications in patients who did and did not use narcotics preoperatively. Similar results were found when testing the association between benzodiazepine use. Preoperative narcotic use was a risk factor for short term (30 day) and prolonged (90 day) post operative use of narcotics. These data demonstrate that patients on preoperative narcotics have similar perioperative outcomes to those that are opioid naïve, however they are at an increased risk of prolonged narcotic use.

## Methods

- Patients undergoing complex gastrointestinal surgery at the University of Louisville in the Division of Surgical Oncology from 2012 to 2017 were reviewed.
- Preoperative narcotic and benzodiazepine use were studied in relation to postoperative outcome
- Postoperative outcome measures included length of stay, readmission rate, and presence of complications
- Comparisons were made using chi-squared test of categorical variables and Wilcoxon rank sum test for categorical variables.

## Results

Table 1: Summary of 162 patients undergoing complex gastrointestinal surgery during the study period

	N (%)
Female Gender	55 (34%)
Age, median (IQR)	62.5 (55 – 70)
Diagnosis	
Gastroesophageal Malignancy	79 (49%)
Hepatopancreatobiliary Malignancy	52 (32%)
Colorectal Malignancy	22 (14%)
Benign Diagnosis	6 (4%)
Other Malignancy	4 (2%)
Procedure	
Esophagogastrectomy	55 (34%)
Pancreatectomy	43 (27%)
Gastrectomy	25 (15%)
Hepatectomy	23 (14%)
CRS/HIPEC	14 (9%)
Other	2 (1%)

Preoperative Narcotic Use	59 (36%)
Preoperative Benzodiazepine Use	26 (16%)
Any Complication	76 (47%)
Major Complication	35 (22%)
Length of Stay, median (LOS)	10 (7-14)
Prolonged Length of Stay (>14 days)	46 (28%)
Readmission	20 (12%)

Table 2: Perioperative outcomes according to preoperative narcotic use

	No Preoperative Narcotic Use n = 103 (64%)	Preoperative Narcotic Use n = 59 (36%)	P value
90 day readmission	12 (12%)	8 (14%)	0.72
Any Complication	49 (48%)	27 (46%)	0.82
Major Complication (Grade >=3)	24 (24%)	11 (19%)	0.49
Length of Stay, median (IQR)	9 (7-14)	10 (7-15)	0.81
Prolonged LOS (>14 days)	30 (29%)	16 (27%)	0.79

Table 3: Perioperative outcomes according to preoperative benzo use

	No Preoperative Benzodiazepine Use n = 136 (84%)	Preoperative Benzodiazepine Use n = 26 (19%)	P value
90 day readmission	15 (11.%)	5 (19%)	0.32
Any Complication	65 (48%)	11 (42%)	0.61
Major Complication (Grade >=3)	29 (21%)	6 (23%)	0.84
Length of Stay	10 (7-15)	8 (6-12)	0.61
Prolonged LOS (>14 days)	41 (30%)	5 (19%)	0.26

CRS/HIPEC: cytoreductive surgery and hyperthermic intraperitoneal chemotherapy

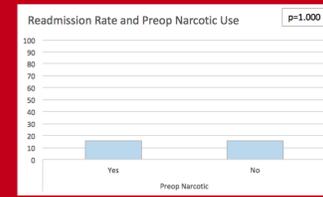


Figure 1: Rate of readmission in patients with preoperative narcotic use

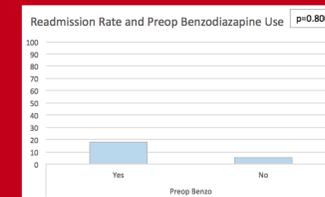


Figure 3: Rate of readmission in patients with preoperative benzo use

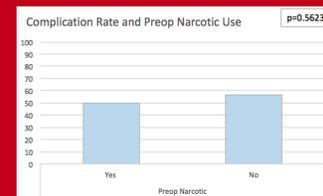


Figure 2: Rate of complication in patients with preoperative narcotic use

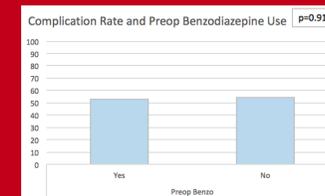


Figure 4: Rate of complication in patients with preoperative benzo use

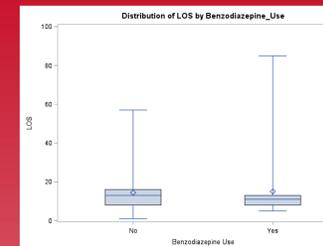


Figure 5: Distribution of length of hospital stay in patients with preoperative narcotic use (Median=11.5 days) and those that did not (Median=11 days) (P=0.65)

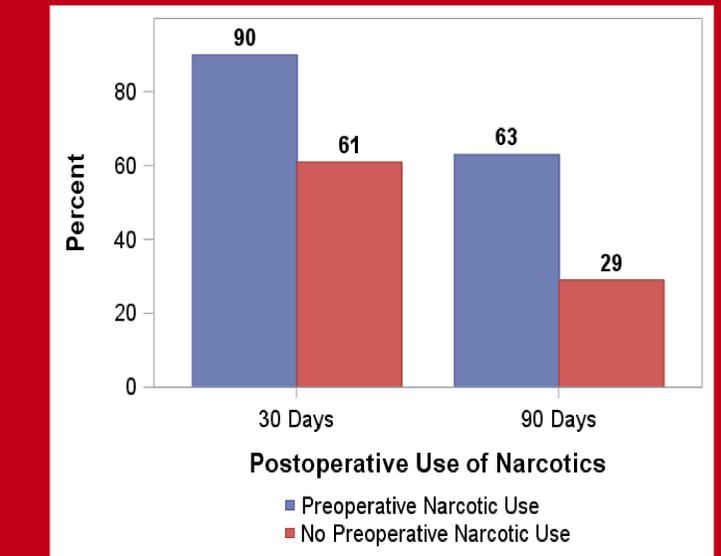


Figure 6: Preoperative use of narcotics is associated with both early (30 day) and prolonged (90 day) postoperative use of narcotics

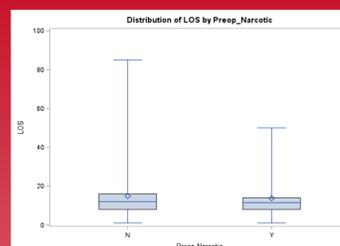


Figure 7: Distribution of length of hospital stay in patients with preoperative benzo use (Median=11 days) and those that did not (Median=13 days) (P=0.20)

## Conclusion

- No differences in postoperative outcomes after HIPEC or esophagectomy were between patients that preoperatively used narcotics versus those that did not in length of stay, rate of readmission, or rate of perioperative complications.
- No differences in postoperative outcomes after HIPEC or esophagectomy were between patients that preoperatively used benzodiazepines versus those that did not in length of stay, rate of readmission, or rate of perioperative complications.
- Nearly 30% of patients who were **narcotic-naïve prior to surgery**, remained on narcotics 90 days after surgery, indicating that preoperative narcotic use leaves patients at risk for **opioid dependency** post-operation.
- Preoperative benzodiazepine use can safely treat anxiety in patients suffering from cancer and chronic pain without fear of adverse postoperative outcome due to the drugs.
- Continuing this research is very important due to the incidence of chronic pain in individuals all over the world, and the use of opioids to treat chronic cancer pains, as well as the ongoing opioid crisis which has a concentration in the Kentucky-Ohio area.

## Future Directions

- Expand analysis to additional cancer operations
- Chronic pain specialists should consider the findings when making a treatment plan for their patients

## Acknowledgements

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