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Prevention of Postoperative Nausea and Vomiting with Intravenous Fosaprepitant in Patients Undergoing Bariatric Surgery

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INTRODUCTION

Postoperative nausea and vomiting (PONV) is a common complication and source of patient discomfort after surgery. It affects up to 65% of patients undergoing bariatric surgery [1] and is the most common reason for readmission after bariatric surgery [2]. PONV may lead to rupture of the surgical anastomosis, dehydration and electrolyte imbalance, consequently creating increased health burdens, hospital stays and costs.

The purpose of this study was to investigate the efficacy of fosaprepitant as a prophylactic antiemetic in patients undergoing bariatric surgery at a large, tertiary academic center.

STUDY DESIGN

After receiving IRB approval, the electronic medical records of 275 consecutive patients who underwent laparoscopic bariatric surgery between January 1, 2022, and September 30, 2023 at a large tertiary academic center were reviewed. In June 2022, the enhanced recovery after bariatric surgery (ERABS) protocol was updated to include administration of fosaprepitant 150mg 30 minutes before entering the operating room. Patients who underwent surgery before this protocol change did not receive fosaprepitant. We defined PONV as nausea, retching or vomiting within 24 hours of surgery and selected postoperative vomiting events as our primary outcome.

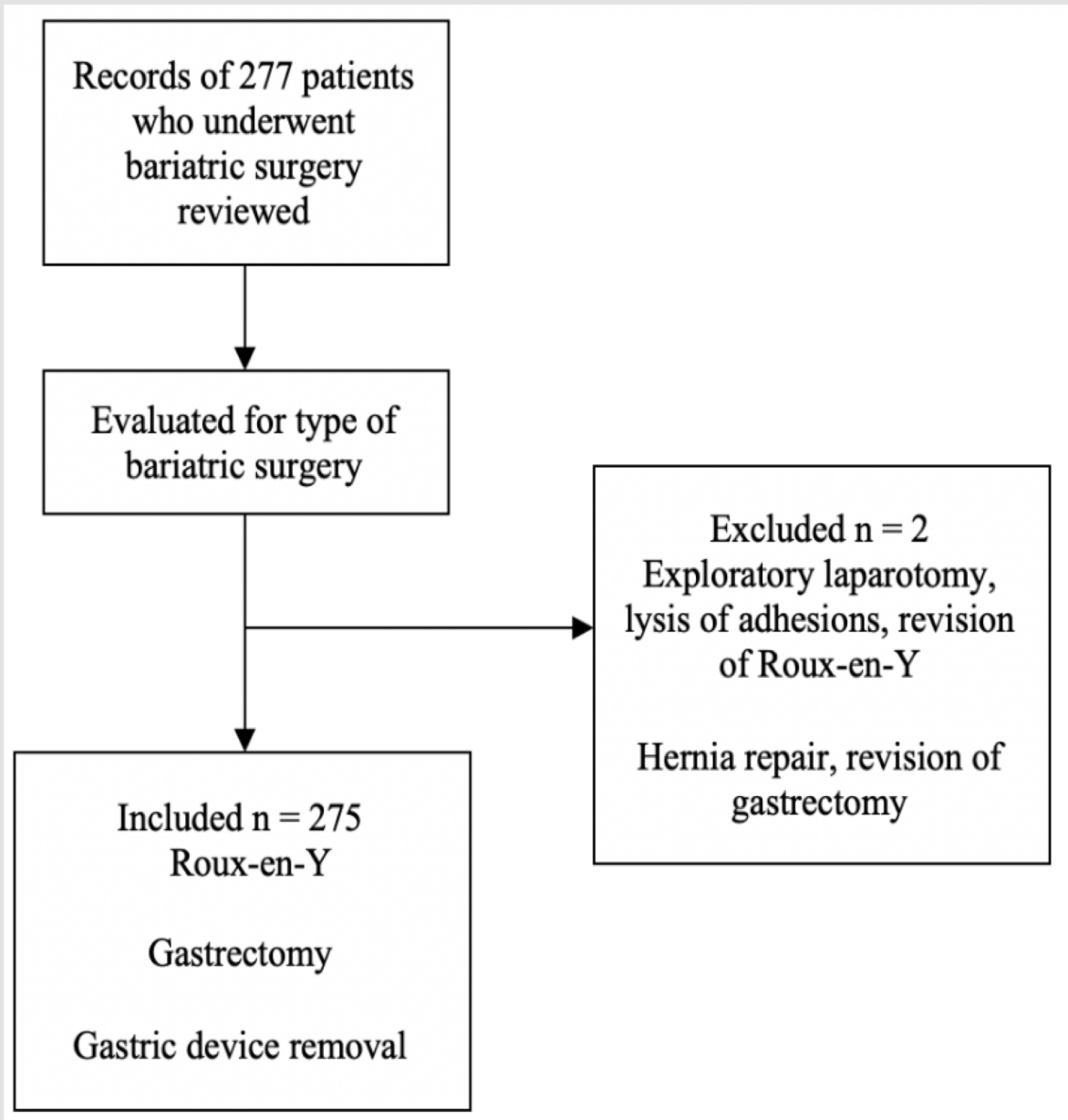


Figure 1. Flow chart demonstrating inclusion and exclusion of cases upon review of patient records.

RESULTS

Out of the 275 records included in the study, 124 patients received fosaprepitant and 151 did not. The incidence of postoperative nausea was significantly lower in the fosaprepitant group than the group who received ondansetron and dexamethasone alone (17.7% vs. 39.7%, $p < 0.0001$). Additionally, postoperative vomiting was significantly lower (0.8% vs. 9.3%, $p < 0.01$), and rescue antiemetic use was significantly lower (25.8% vs. 43.7%, $p < 0.01$) amongst patients who received fosaprepitant than those who did not.

Primary surgery	Additional surgery	Number of patients
Roux-en-Y		33
Gastrectomy	All Gastrectomy Procedures	222
	Gastrectomy with Cholecystectomy	7
	Gastrectomy with Hernia repair	45
Gastric device removal		20

Figure 2. Number of patients who received roux-en-y, gastrectomy, gastric device removal or related procedures.

Characteristic	No Emend	Emend
Gender (Male/Female)	14/46	32/182
Age (mean $\pm$ SD)	47.00 $\pm$ 10.77	42.56 $\pm$ 11.60
Weight (kg)	119.32 $\pm$ 25.12	117.07 $\pm$ 22.67
BMI (mean $\pm$ SD)	43.48 $\pm$ 11.44	42.84 $\pm$ 6.36
ASA Score (mean $\pm$ SD)	2.85 $\pm$ 0.40	2.90 $\pm$ 0.33
Race (White/Black/Other/Native American/Asian PI)	31/19/7/1/1	93/70/41/0/9

Figure 3. Summary of demographics for 275 patients included in the study.

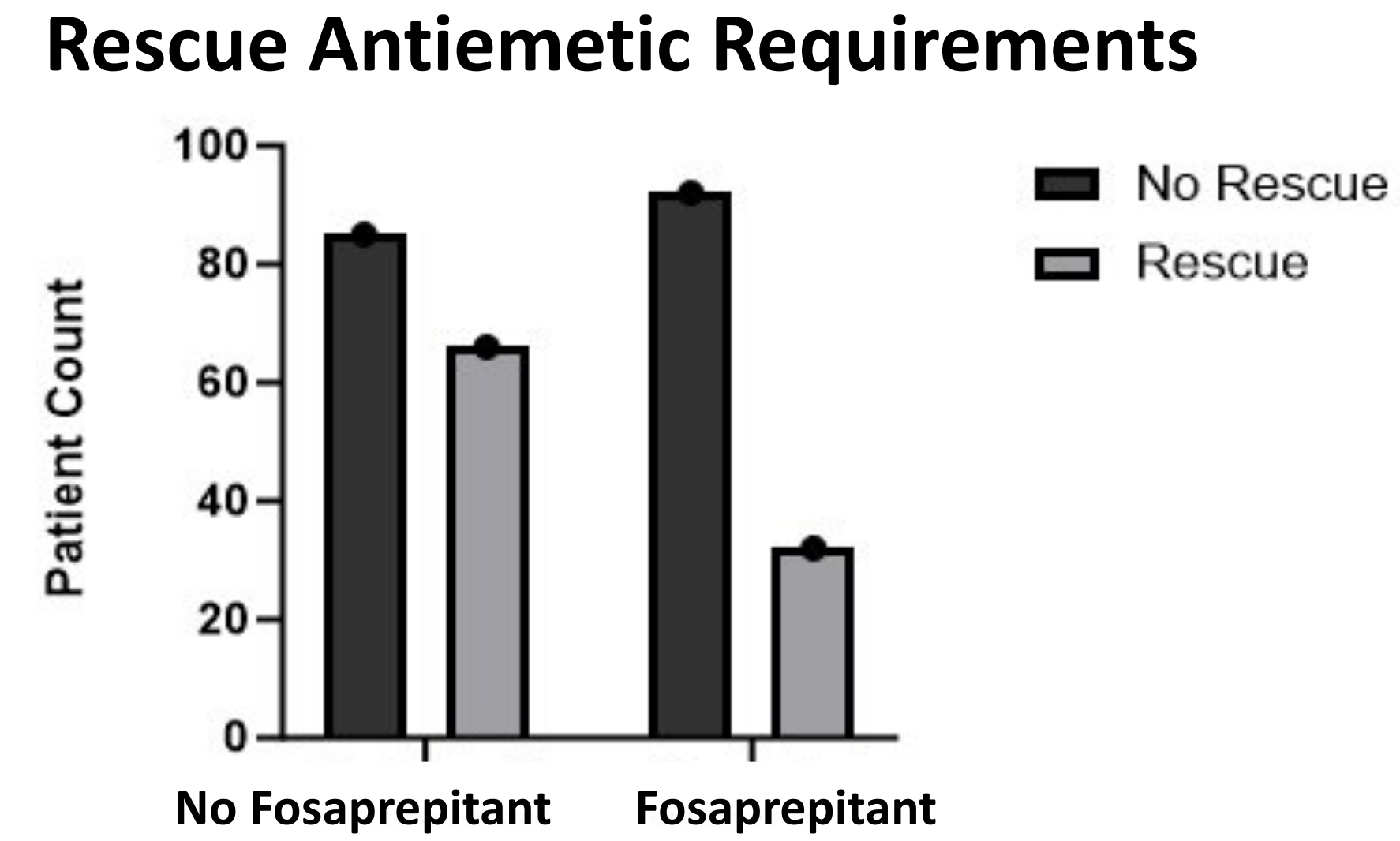
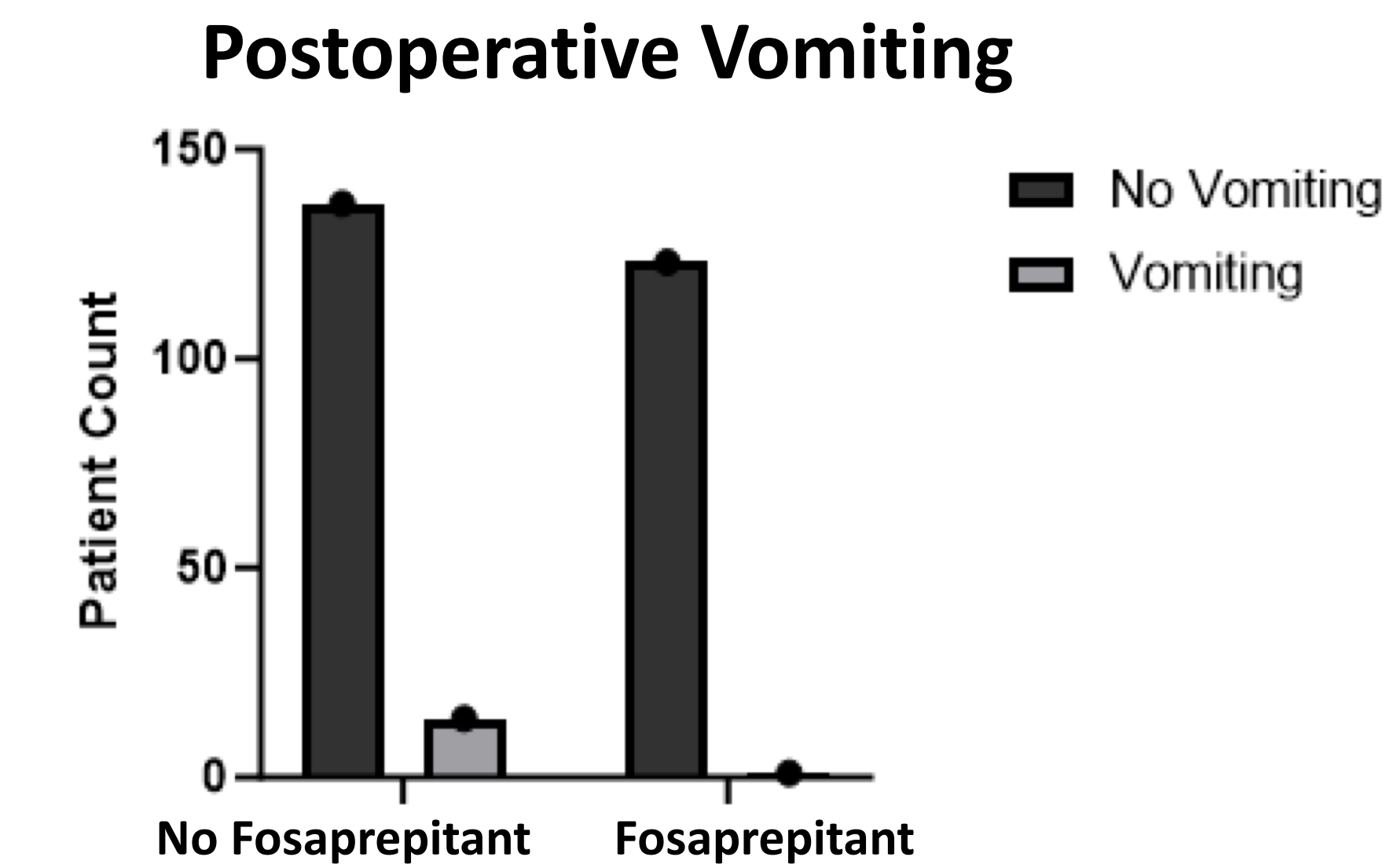
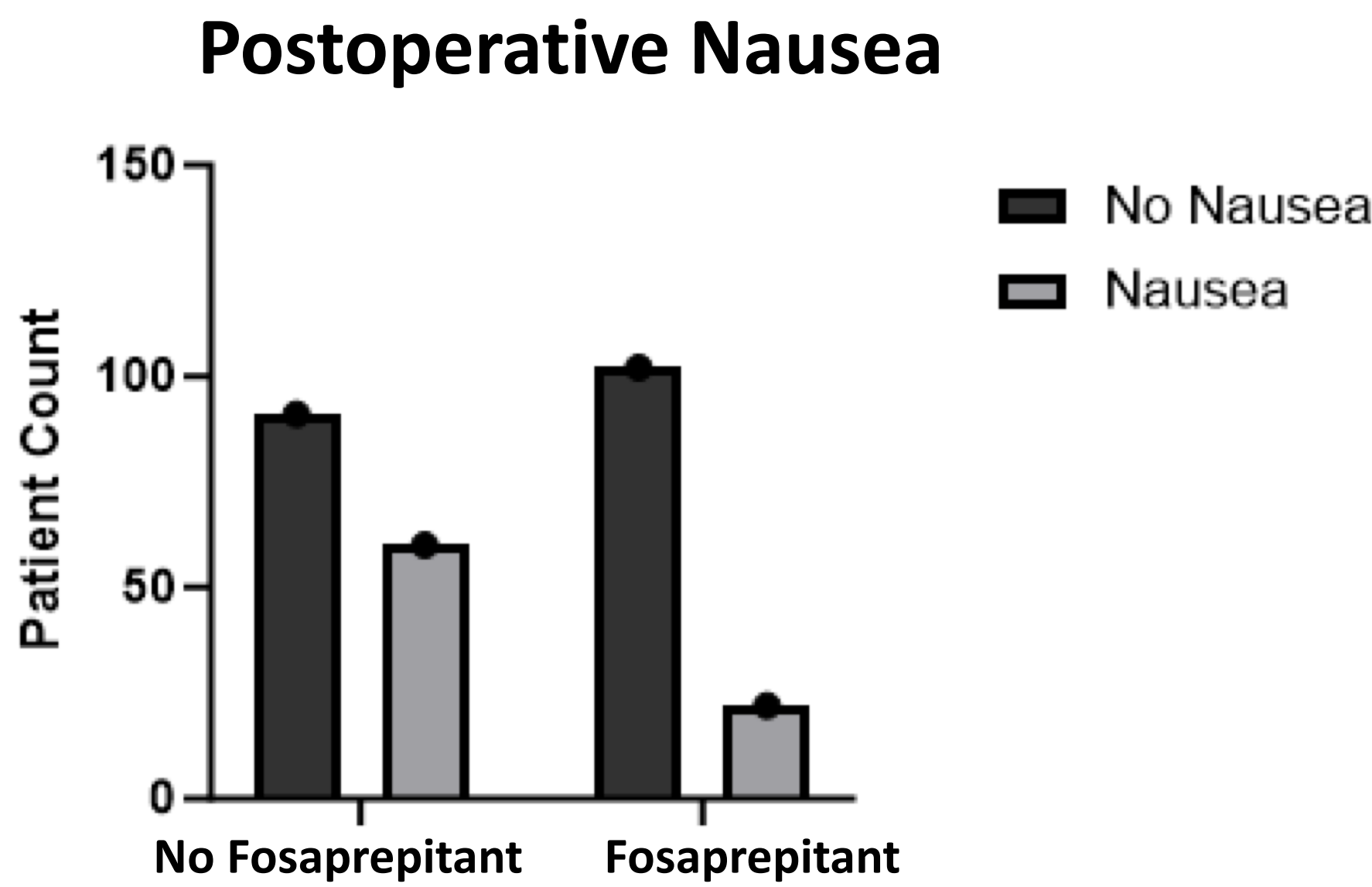


Figure 4. Incidence of postoperative nausea, vomiting, and rescue antiemetic requirements amongst patients receiving fosaprepitant versus no fosaprepitant.

DISCUSSION

Fosaprepitant, when given intravenously and in combination with the current standardized antiemetic regimen, was superior to the current standard alone in decreasing PONV and rescue antiemetic requirements.

Unlike other antiemetics such as ondansetron and droperidol, fosaprepitant does not cause QT prolongation [3]. Since fosaprepitant use was associated with decreased rescue antiemetic requirements, it may indirectly reduce the risk of QT prolongation and related side effects ascribed to the other antiemetics, since patients would no longer require as many rescue doses to treat their PONV.

In addition, it is unclear if the absorption of preoperative aprepitant, given orally, is affected by surgical manipulation of the digestive tract during bariatric surgery. Fosaprepitant, on the other hand, has a rapid onset and more predictable pharmacokinetic profile, which may be particularly useful within the context of bariatric surgery.

Future prospective, randomized controlled trials that further explore the efficacy of fosaprepitant in prevention of PONV and its influence on related factors, such as patient satisfaction and medical costs, are warranted.

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