**Naloxegol versus alvimopan for prevention of post-operative ileus**

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Background: Post-operative ileus is characterized as prolonged absence of bowel function following a surgical procedure.Symptoms generally include abdominal distension, nausea, vomiting, inability to tolerate an oral diet, and delayed passage of flatus and or/stool.Development of a post-operative ileus has been shown to slow recovery, increase post-operative morbidity and prolong hospital stays.1 A degree of ileus can be expected in the early postoperative time frame as part of the body’s response to the trauma of a surgical procedure. A prolonged post-operative ileus is what concerns clinicians and leads to longer hospital stays. The ambiguity surrounding the definitions of a normal post-operative ileus versus prolonged creates difficulty in diagnosis and estimation of incidence, which is currently reported to be anywhere from 3-32%. Most often, ileus is diagnosed as a result of symptom presentation with or without radiologic imaging.1,2

There is heavy cost burden associated with developing a post-operative ileus. Costs to the patient who develops a post-operative ileus is estimated to be about double the costs to the patient who does not.3 Annual national cost of management in the US is estimated to be about $1.5 billion.1 Factors thought to place patients at increased risk of developing a post-operative ileus include male sex, comorbid conditions, increasing age, and/or abdominal surgery.3

There is limited published data surrounding the management of post-operative ileus. Current medication therapies include peripherally acting mu-opioid receptor antagonists alvimopan and naloxegol. Alvimopan is FDA approved for the prevention of post-operative ileus, while naloxegol is currently only approved for opioid induced constipation. Previously, our institution was utilizing alvimopan for prevention of post-operative ileus. Current data, although limited, indicates that there is no difference between naloxegol and alvimopan for the prevention of post-operative ileus. There does exist a vast difference between the cost of the two agents. By switching formulary from alvimopan to naloxegol projected drug acquisition cost, defined by average wholesale price, would be decreased by about 90%. Following approval from the pharmacy and therapeutics committee in September of 2021, naloxegol officially replaced alvimopan on formulary at CJW on October 11, 2021.

Objectives: The purpose of this study is to compare outcomes of surgical patients treated with naloxegol versus alvimopan to prevent post-operative ileus. The primary objectives were to compare length of stay and development of POI between the two groups. Secondary objectives include days of therapy and cost of therapy.

Methods: This study was a retrospective chart review of adult surgical patients treated with either naloxegol or alvimopan for prevention of post-operative ileus between June 7, 2021 and February 14, 2022 at CJW. Inclusion criteria included surgical patients of ages 18 years or older who received naloxegol or alvimopan for prevention of post-operative ileus. There were no exclusion criteria. A total of 123 patients were reviewed, 60 patients in the alvimopan group and 63 patients in the naloxegol group. De-identified data collected includes: age (ages greater than 90 years collected as “90+”), gender, race, weight, height, serum creatinine, length of stay, comorbid conditions (diabetes, cardiovascular diseases), concomitant bowel regimen, type of surgical intervention, primary surgeon, development of ileus, and number of days of therapy/number of doses received. The differences in length of stay, development of post-operative ileus, days of therapy, and cost of hospitalization will be analyzed for clinical significance using statistical tests. Descriptive statistics were applied between the two cohorts to analyze morbidity and duration of therapy required for prevention of post-operative ileus.

Preliminary Results: The average length of stay for each group was: 3.5 ± 2.9 days in the alvimopan group and   
4.1 ± 3.4 days in the naloxegol group. A total of 7 patients in the alvimopan group (12%) and 4 patients in the naloxegol group (6%) developed a POI. The average number of post-operative doses required between each group was: 2.3 doses in the alvimopan group and 1.9 doses in the naloxegol group. Number of doses correlated to days of therapy based on dosing schedule, alvimopan is twice daily dosing and naloxegol is once daily dosing. Days of therapy between the two groups was: 1.6 days in the alvimopan group and 2.7 naloxegol group.

Conclusion: There was no statistical difference seen in length of stay or development of POI between alvimopan and naloxegol treatment groups. An annual acquisition cost reduction of $114,880.08 was seen in the naloxegol treatment group. Based on these preliminary results, we believe naloxegol is a cost-effective alternative to alvimopan for the prevention of POI in adult surgical patients.

References:

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2. Bragg D, et al. Clin Nutr 2015;34(3):367-376.
3. Asgeirson T, et al. J Am Coll Surg. 2010;210(2):228-231.