ABSTRACT TITLE: USE OF SCOPOLAMINE IN PATIENTS UNDERGOING SPINAL SURGERY

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Background/Introduction: General anesthesia is utilized for the vast majority of patients undergoing spinal surgery in the United States. Anti-emetic therapies are commonly used as adjunctive treatment to prevent postoperative nausea and vomiting (PONV). Scopolamine is a medication known to help prevent PONV and is increasingly a part of early recovery after surgery (ERAS) pathways. In 2015, the American Geriatric Society revised recommendations regarding medications listed in the Beers Criteria for Potentially Inappropriate Medication Use in Older Adults, including scopolamine, which has been associated with adverse effects in this population including urinary retention. Examining the complication of symptomatic postoperative urinary retention (POUR) was of interest to us, as it has been associated with a longer length of hospital stay and urinary tract infections, and at our institution lends itself to straightforward observation. We hypothesized that there would be a greater incidence of POUR in patients who received scopolamine as compared to patients who did not receive scopolamine perioperatively.

Methods: A retrospective review of scopolamine use and incidence of POUR in patients undergoing spine surgery was conducted. Patient data was extracted from our electronic health record (EHR), EPIC, using specified search criteria and analyzed in Tableau and Microsoft Excel. Selected patients were greater than 60 years of age, on the spine service, and received scopolamine during their admission for spine surgery, with data examined over a 3-month period (August 1, 2017 through October 31, 2017). The scopolamine group was analyzed for indication, date and duration of the scopolamine order, and occurrence of symptomatic POUR as defined by an intervention (re-insertion of catheter, or medication therapy). This group was compared with patients that did not received scopolamine. The non-scopolamine group was selected using the same age and timeframe and included patients in our spinal surgery Pathway 4, which represents the highest level of surgical and medical complexity patients, receiving the longest exposure to general anesthesia with greater perioperative opioid requirements, and have other risk factors associated with higher rates of POUR.

Results: Between August 1, 2017 and October 31, 2017, a total of 537 patients over the age of 60 underwent spinal surgery at the Hospital for Special Surgery. Within this group of patients, 498 did not receive scopolamine, and 39 (7%) patients received scopolamine between postoperative days zero to six. Of the 39 patients received scopolamine, POUR was identified in 4 patients (10.3%), postoperative nausea with or without vomiting was documented in 8 (20%), and 24 (61.5%) were started on this medication on postoperative day zero. The scopolamine group was compared with a non-scopolamine group from our highest surgical and medical complexity spinal surgery population. There were 137 patients this group and POUR was identified in only 6 (4%) patients, compared to POUR 4 (10.3%) of the 39 scopolamine group patients.

Conclusion: A greater percentage of patients in the scopolamine group were treated for POUR as compared to the non-scopolamine group. These findings suggest that there may be an association between scopolamine and POUR in patients undergoing spinal surgery and serves as preliminary data to support the design of a larger prospective controlled study to further examine this relationship. Limitations of this data review are significant. The absolute number of patients developing urinary retention was small in both groups. A larger sample size would perhaps demonstrate a more conclusive association between scopolamine administration and the occurrence of POUR. Additionally, the duration of general anesthesia, ambulation status, other medications and specific contributory medical conditions were not individually assessed or controlled for in this analysis.