Utility of “Enhanced Recovery After Surgery” Protocols in Reducing Postoperative Opioid Use Across Different Surgical Specialties – An Analysis of Iowa’s Billion Pill Pledge Program

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INTRODUCTION: The opioid epidemic in the United States poses a major public health challenge, particularly in the context of surgery and perioperative pain management. This study examines the effectiveness of the Billion Pill Pledge Enhanced Recovery After Surgery (ERAS) protocols, implemented across nine Iowa hospitals, in reducing postoperative opioid prescriptions, following Orthopaedic Surgery versus General Surgery. The ERAS protocol consists of pre and post operative interventions. Before surgery, patients receive comprehensive education on pain, oral hydration 2 hours before surgery using ClearFast or Gatorade, and prophylactic medication including Tylenol 1000mg and Celebrex 400 mg for pain and Pregabalin 75mg for nerve sensitivity. During surgery, local and/or regional blocks are used. After surgery, a multi-modal pain management is regiment is prescribed consisting of Tylenol, Celebrex, and Pregabalin. The oral opioid prescription is limited to a maximum of 10 opioid pills. The primary outcome is the percent reduction in mean postoperative opioid prescriptions, while the secondary outcome examines the proportion of prescribed opioids that remain unused.

METHODS: A retrospective analysis was conducted on patients who underwent surgery between November 2022 and November 2023 at nine Iowa hospitals. The cohort included 120 Orthopaedic surgery patients and 60 General Surgery patients. Patients with incomplete postoperative pill count data were excluded. Pre- and post-ERAS opioid prescription quantities were converted to morphine milligram equivalents (MMEs). Statistical analyses included the Shapiro-Wilk test, Wilcoxon-Signed Rank test, Mann-Whitney U test, and chi-squared tests.

RESULTS: Postoperatively, the mean pre-ERAS prescription was 341 MMEs, which decreased to 151 MMEs post-ERAS implementation ($p<.001$). Orthopaedic patients saw a 45% reduction in mean prescription size from 462 to 197 MMEs ($p<.001$), while General Surgery patients experienced a 38% reduction from 100 to 60 MMEs ($p<.001$). Mean percent reduction in prescription size was greater in the Orthopaedic group ($p <.005$). No significant difference was observed in the mean percentage of prescribed MMEs leftover between the two groups (Orthopaedic 47% vs. General Surgery 59%, $p=.07$). A higher incidence of zero opioid consumption postoperatively was noted in the General Surgery group (35%) compared to the Orthopaedic group (18%) ($p<.01$).

DISCUSSION AND CONCLUSION: The Billion Pill Pledge ERAS protocols effectively reduced postoperative opioid prescriptions in both Orthopaedic and General Surgery patients, with a more pronounced reduction in the Orthopaedic surgical group. Despite the significant reduction, a large percentage of prescribed opioids remained unused, highlighting the need for improved disposal strategies. The results underscore the potential for ERAS protocols to be broadly applicable across various surgical specialties, though tailored strategies may enhance effectiveness further.