

Intravenous hydromorphone prescribing patterns in a community hospital emergency department: an assessment for opioid stewardship optimization

Purpose:

As of 2017 the US department of Health and Human Services declared the Opioid Crisis a public health emergency, making opioid stewardship the responsibility of all involved in the prescribing process. Acute pain is a common problem encountered in the emergency department (ED) and is treated through the use of non-steroidal anti-inflammatory drugs (NSAIDs), muscle relaxants, anxiolytics and opioids. The purpose of this medication use evaluation (MUE) was to determine prescribing patterns of the opioid hydromorphone ordered intravenously (IV) within a community teaching hospital emergency department.

Methods:

A retrospective, single center electronic medical record review was performed in patients who visited the ED and were prescribed IV hydromorphone between August 1, 2020 and February 28, 2021. Outcomes of interest included when hydromorphone was used (e.g., first line treatment modality, second line for refractory pain), individual prescriber patterns, and observed patient specific variables (e.g., repeat visits, home opioid prescriptions). Patients were excluded if they were admitted, transferred to another hospital, or were given IV hydromorphone for end-of-life or comfort care. Statistical analysis was performed using the chi square test on categorical data.

Results:

Our analysis examined 210 patients for inclusion based on ED visits with IV hydromorphone administration, six of which were excluded. A total of 221 patient encounters were included in our statistical analysis for the remaining 204 patients. Average patient age was 47.9 +/- 11.8 years. Abdominal pain was the chief complaint in the majority of encounters (103/221; 46.6%). IV hydromorphone was used first line in 149/221 (67%) encounters, second line in 60/221 (27%) encounters and neither first nor second line in 12/221 (6%) encounters. Out of 20 providers who prescribed IV hydromorphone during the study period, half prescribed hydromorphone first line >50% of the time. Of those, 8/10 providers prescribed hydromorphone first line ≥75% of the time. There was no difference in prescribing IV hydromorphone between mid-level practitioners and physicians; however, physicians were more likely to send patients home with an opioid prescription upon discharge ($p=0.0025$). Patients with reported allergies to fentanyl or morphine were more likely to have been prescribed hydromorphone first line ($p=0.017$). When comparing patients with multiple encounters during the study period to patients with one encounter, there was no difference in IV hydromorphone use as a first line agent.

Conclusions:

When utilized in the ED for acute pain, IV hydromorphone was chosen as first line treatment in most instances. While this study does not provide immediate explanation as to why this is the case, we identified disparities in prescribing habits among ED providers. This study indicates need for improvement in opioid prescribing habits to help combat the Opioid Crisis. Potential initiatives under consideration to address current utilization patterns include ED physician & nursing education, and order set modifications that emphasize the use of alternative analgesic agents (e.g., ketamine, local anesthetics, NSAIDs).