Background

• Pain is reported in greater than 50% of all oncology patients and may manifest in an acute, chronic, or intermittent pattern1

• Oncology patients admitted to Beaumont Hospital, Royal Oak (BH-RO) subsequently require management of severe pain with intravenous (IV) opioids

• Intravenous hydromorphone is the opioid predominantly used to manage severe pain in oncology patients at BH-RO

• Once adequate analgesia has been achieved with IV hydromorphone, many patients are transitioned to oral sustained-release morphine or oxycodone

• Opioid equianalgesic tables were originally derived from single-dose solubility potency studies in patients with postoperative or relatively non-oncet cancer2,3

• There is currently no established, unique conversion ratio that can be applied to oncology patients to improve pain control

Objectives

• Primary
• Compare conversion ratios used at BH-RO to published standards

• Secondary
• Determine number of successful conversions

• Determine number of unsuccessful conversions

• Determine whether a correlation exists between conversion ratio used and pain control success

Methods

• The Human Investigations Committee at BH-RO approved this study prior to data collection

• Retrospective chart review of adult oncology patients admitted between January 2011 and July 2012

Results cont.

• Inclusion criteria
• ≥18 years age
• Cancer diagnosis

• Exclusion criteria
• Patients receiving IV hydromorphone for the 24 hours prior to conversion, or conversion ratio was not successfully achieved

• Data collection included age, gender, height, weight, IV hydromorphone dose for the 24 hours prior to conversion to oral agent, and conversion ratio, number of breakthrough doses administered, and pain scores at the following time points: initial conversion, 48 hours post-conversion, and discharge

• Criteria used to define successful conversion
• Average pain score ≤4 for 24-hour period prior to discharge
• No more than 3 breakthrough doses administered in 24-hour period prior to discharge

• A total of 48 oncology patients were identified to have received at least one dose of intravenous hydromorphone and one dose of either extended-release oral morphine or oxycodone during the study period

• 50 patients met all inclusion and exclusion criteria

• Morphine N=16
• Oxycodone N=34

• Initial conversion ratios used for both agents were significantly lower than published standards

• Morphine: actual 9.95:1 ± 6.33:1 vs. standard 20:1 (p<0.05)

• Oxycodone: actual 3.54:1 ± 0.51:1 vs. standard 15:1 (p<0.05)

• Successful conversions

• Morphine: 61.8% (10/16)
• Oxycodone: 15/34 (44%)

• No significant changes in conversion ratios were noted between initial conversion and 48 hours (p=0.398), 48-hours and discharge (p=0.735) or initial conversion and discharge (p=0.227) for either morphine or oxycodone

• No significant correlation was noted between conversion ratio used and conversion success for either morphine or oxycodone

• No significant correlation was noted between conversion ratio used and number of pain scores for either morphine or oxycodone

Future Directions

• Provide education to medical staff on calculations for opioid conversion

• Make additional pain management resources available to staff through various media

• Expand in-house pharmacy services to include assistance with pain medication management

• Evaluate pain assessment and documentation procedures to identify opportunities for process improvement

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References


