Evaluation of Aprepitant for Prevention of Postoperative Nausea and Vomiting


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Introduction

- Postoperative nausea and vomiting (PONV) occurs in approximately 30–70% of patients undergoing anesthesia.
- Identification of patients who are at high risk helps to determine management of PONV.
- Risk factors include:
  1. Female gender
  2. Non-smoker status
  3. Prior history of PONV or motion sickness
  4. Increased opioid use during surgery
- Aprepitant is a novel antiemetic that antagonizes human substance P/neurokinin 1 (NK1) receptors approved by the FDA in 2008 for prevention of postoperative nausea and vomiting.
- In 2013, the indication for aprepitant was expanded to include use in patients with a history of or very high risk for PONV at Beaumont Hospital.

Objectives

- Primary: Characterize the use of aprepitant at Beaumont Hospital, Royal Oak (BH-RO).
- Secondary: Determine appropriate use of aprepitant according to institutional specific guidance.
- Characterize the concomitant use of anti-emetics postoperatively.

Methods

- This study was approved by the Human Investigations Committee prior to data collection.
- This was a retrospective chart review of all surgical patients from April 2012 to December 2013 at BH-RO.
- Inclusion criteria:
  1. ≥ 18 years of age
  2. Received aprepitant postoperatively
- Patients were identified by a medication use review.
- Data collection included:
  1. Patient demographics (including age, height, and weight)
  2. Risk factors for PONV (history of PONV, non-smoker status, female gender, prolonged surgery time, and the use of propofol/opioids)
  3. Aprepitant dose and time of administration
  4. Surgical procedures (including duration of procedure, time of anesthesia, and type of anesthesia used)
  5. Surgical procedure outcome (VOM, nausea, and vomiting)
  6. Aprepitant dose and time of administration

Methods cont.

- Data collected:
  1. Surgical procedure information (including duration of procedure, time of anesthesia, and type of anesthesia used)
  2. Concomitant use during surgery
  3. Concomitant 24-hour use postoperatively
  4. Use of any antiemetic during surgery
  5. Concomitant 24-hour use postoperatively
  6. Prolonged surgery time was defined as a procedure lasting greater than 3 hours.
- Categorization and inclusion criteria:
  1. Having a history of PONV or very high risk for PONV (≤ 5 risk factors)

Results

- 86 patients were evaluated for the criteria of ≥ 3 of which are included criteria.
- According to criteria established for appropriate use, 42 of 62 patients receiving aprepitant were considered to be appropriate.
- Every patient in the review received the medication within an appropriate time period prior to induction of anesthesia.

- Table 1: Patient Demographics and Surgical Characteristics
  
<table>
<thead>
<tr>
<th>Age (mean ± SD; years)</th>
<th>Gender</th>
<th>Height (mean ± SD; inches)</th>
<th>Weight (mean ± SD; inches)</th>
<th>Total risk factors (mean ± SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>55.5 ± 12.5</td>
<td>Female</td>
<td>65.7 ± 3.9</td>
<td>78.9 ± 18.5</td>
<td>5.5 ± 0.9</td>
</tr>
</tbody>
</table>

- Table 2: Postoperative Antiemetic Use

<table>
<thead>
<tr>
<th>Procedure type</th>
<th>NOD-P</th>
<th>PONV</th>
<th>NOD-2D</th>
<th>NOD-2P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conscious sedation</td>
<td>11</td>
<td>12</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>General with isoflurane</td>
<td>28</td>
<td>30</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>General with sevoflurane</td>
<td>24</td>
<td>25</td>
<td>28</td>
<td>24</td>
</tr>
<tr>
<td>Other</td>
<td>44</td>
<td>46</td>
<td>44</td>
<td>40</td>
</tr>
</tbody>
</table>

- Aprepitant use was restricted to the following for prevention of PONV:
  1. Opioids used due to hemodynamic instability
  2. Pre-operative administration
  3. The dosed median is 60 mg to be administered within 3 hours post induction of anesthesia (dose not to exceed 480 mg).

Discussion

- This study of PONV is very complex and multiple factors need to be considered in order to appropriately possible prophylactic therapy.
- Currently, no national prophylactic regimen exists for preventing PONV.
- Institution-specific guidelines are recommended for the use of aprepitant from additional trials due to the use of multidisciplinary and anesthesiological factors for those patients with (or at risk) for factors. However, this medication evaluation demonstration that some patients are receiving more than the recommended agents (up to 6 agents).

Conclusions

- Adherence to Beaumont Health System’s committee-approved guidelines for aprepitant use was approximately 40% of the time.
- The patients who had received aprepitant appropriately were still prescribed various other anxiolytics, including hydroxyzine, dexamethasone, lorazepam, promethazine, scopolamine, diphenhydramine, and lorazepam.

Future Directions

- Small sample size
- Inconsistencies in identifying patients
- Determining how of PONV bias

References


Disclosure

Authors of this presentation have no disclosure concerning personal financial or non-financial relationships with commercial entities that must be disclosed to readers for the disclosure or awareness of potential conflicts of interest.