Perioperative Antithrombotic Medication Management for Patients with Cardiac Stents

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ABSTRACT

The perioperative management of antithrombotic agents in patients who have a cardiac stent presents a dilemma. Mismangement of these agents in the perioperative period is associated with increased morbidity, mortality, and cost of care. In one incident, a patient suffered from acute stent thrombosis and died on the morning of his elective procedure due to the early discontinuation of their antithrombotic medication. We developed a practical decision-support algorithm based on current guidelines from the American College of Cardiology, Society for Cardiovascular Angiography and Interventions and The American College of Chest Physicians. The goal of the decision-support algorithm was to evaluate baseline performance and to aid providers in the appropriate perioperative management of these agents. To evaluate baseline performance we performed a prospective surveillance study through the surgical preparatory screening phone calls, then hand reviewed medical records of twenty-two patients to determine perioperative management of Aspirin and Plavix. We found that 95% of cases were non-compliant with the recommended guidelines. Further studies are needed to evaluate if baseline performance can be improved.

INTRODUCTION AND BACKGROUND

Coronary artery disease currently affects 16 million people and continues to be the leading cause of death in the U.S. (1). A common method of treatment is through percutaneous coronary artery intervention (PCI) and stenting. In 2005, an estimated 1,265,000 PCI procedures were performed. (1) Of these patients, it is estimated that five percent will undergo non-cardiac surgery within one year of stent placement. (2) As a result, the number of patients with PCI who present for non-cardiac surgery is increasing and management of these patients in the perioperative period is an important and contemporary challenge. (3)

Elective and emergent surgery is associated with increased morbidity and mortality among patients taking antithrombotic agents. Guidelines from the American College of Cardiology, American Heart Association, Society for Cardiovascular Angiography and Interventions, and the American College of Chest Physicians provide recommendations for the management of antithrombotic agents during the perioperative period. Nevertheless, a gap exists in the translation of these guidelines into routine clinical practice. As a result, patients can suffer significant preventable harm.

METHODS

Utilizing the pre-op screening phone calls, we conducted prospective surveillance to identify patients on antithrombotic agents, including Aspirin and Plavix scheduled to undergo elective non-cardiac surgery. We then hand reviewed individual medical records to determine the current approach to the perioperative management of Aspirin and Plavix. We used descriptive statistics to summarize current performance compared to current guideline recommendations.

RESULTS

We collected information on 22 cardiac stent patients who were scheduled to undergo a variety of elective non-cardiac surgeries in a three-month period (May 2011 through July 2012) (Table 1). Of these, 50% (11/22) of patients were evaluated by an anesthesia consult or the JHH preoperative evaluation clinic prior to surgery. The remaining patients had their preoperative evaluation outside of JHH.

Table 1: Types of non-cardiac surgeries

<table>
<thead>
<tr>
<th>Surgical procedures included in our study</th>
<th>Number of cases included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency surgery</td>
<td>4</td>
</tr>
<tr>
<td>Orthopedic surgery</td>
<td>14</td>
</tr>
<tr>
<td>Plastic Surgery</td>
<td>3</td>
</tr>
<tr>
<td>Otolaryngology</td>
<td>1</td>
</tr>
</tbody>
</table>

Overall, 1 out of 22 patients had appropriate perioperative management of their antithrombotic agents. Management of Aspirin and Plavix was not consistent with current guideline recommendations for the vast majority (95%) of patients (Table 2).

Table 2: Perioperative Compliance with Guideline Recommendations

<table>
<thead>
<tr>
<th>Anticoagulant</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>50% (7/14)</td>
</tr>
<tr>
<td>Plavix</td>
<td>50% (7/14)</td>
</tr>
</tbody>
</table>

Current practice regarding the management of antithrombotic agents varied widely (Table 3). In addition, 32% (7/22) of patients were discharged home without resuming their preoperative Aspirin therapy; 50% (5/10) of patients were discharged home without resuming their preoperative Plavix therapy. One patient experienced a myocardial infarction in the postoperative period.

Table 3: Perioperative management at baseline

<table>
<thead>
<tr>
<th>Anticoagulant</th>
<th>Compliant (Yes)</th>
<th>Noncompliant (No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>7/10</td>
<td>3/10</td>
</tr>
<tr>
<td>Plavix</td>
<td>7/10</td>
<td>3/10</td>
</tr>
</tbody>
</table>

FUTURE DIRECTIONS

Our team is in the process of writing a manuscript about our findings that we hope to have published by BMJ Quality & Safety. We look towards this publication and future outreach to change perioperative medication management of patients with cardiac stents.

REFERENCES


REFERENCES FOR DECISION-SUPPORT ALGORITHM

• Gurpel PA, Belden KP, Butler K et al. Randomized Double-Blind Assessment of the ONSET and OFFSET of the Antiplatelet Effects of Ticagrelor versus Clopidogrel in Patients with Stable Coronary Disease: The ONSET/OFFSET Study. Circ 2009:120:2577-2585.

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