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Low Dose Aspirin: An Effective Chemoprophylaxis for Preventing Venous Thromboembolic Events

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Low Dose Aspirin: An Effective Chemoprophylaxis for Preventing Venous Thromboembolic Events

Javad Parvizi MD, FRCS, Antonia F. Chen MD, MBA, Camilo Restrepo MD, Ronald Huang MD, Jenny Cai BS, William J. Hozack MD, Jess H. Lonner MD.

INTRODUCTION

The available guidelines, endorsed by Surgical Care Improvement Project (SCIP), have advocated that aspirin (ASA) is a safe and effective strategy for venous thromboembolic events (VTE) prophylaxis following total joint arthroplasty (TJA). The optimal dose of aspirin for this purpose is not known. The first guidelines for prevention of VTE that were issued by the American Academy of Orthopedic Surgeons recommended 325 mg "as needed" for the first 30 days, followed by 100 mg/day. Traditionally, ASA 81 mg has been used as a cardio-protective medication. Additionally, all available randomized studies, including the sentinel study on Pulmonary Embolism Prevention (PEP) trial, have used lower doses of ASA. It was our hypothesis that lower dose aspirin is likely to be as effective as higher dose aspirin while reducing the gastrointestinal side effects associated with the higher dose aspirin.

MATERIALS AND METHODS

We analyzed a cohort of 2,880 primary TJA patients. All patients were treated with post-operative intermittent pneumatic compression while hospitalized. Of these, 2,138 patients with an average age of 64.6 years (Standard deviation (SD) ± 10.4) received enteric coated ASA 325 mg by mouth, bid for 4 weeks. In the other group, 742 patients with an average age of 64.6 years (SD ±10.4) received ASA 81 mg by mouth bid for 4 weeks. Gender, body mass index (BMI), and comorbidities assessed by the Charlson comorbidity index (CCI) were recorded (Table 1). There was no difference in age, gender, CCI, or BMI between the patient populations. Patients were evaluated for the development of symptomatic VTE in the post-operative period using International Classification of Diseases version 9 (ICD-9) codes, specifically deep vein thrombosis (DVT) and pulmonary embolism (PE). Statistical analysis was performed using Wilcoxon and Fisher’s tests.

RESULTS

There was no significant difference in the incidence of VTE between the two groups: 0.1% in the 81 mg ASA group (one DVT), compared to 0.2% in the 325 mg ASA group (2 DVT and 2 PE). Two episodes of gastrointestinal (GI) bleeding occurred in the 325 mg ASA group, compared to none in the 81 mg ASA group.

Aspirin Efficacy: Dose and Efficacy

Indirect comparisons of aspirin doses on vascular events in high-risk patients

Aspirin Dose No. of Trials (%) Odds Ratio for Vascular Events

<table>
<thead>
<tr>
<th>Aspirin Dose</th>
<th>No. of Trials</th>
<th>(%)</th>
<th>Odds Ratio for Vascular Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 – 1500 mg</td>
<td>34</td>
<td>19</td>
<td>1.0</td>
</tr>
<tr>
<td>150 – 250 mg</td>
<td>19</td>
<td>26</td>
<td>1.5</td>
</tr>
<tr>
<td>&lt; 75 mg</td>
<td>13</td>
<td>13</td>
<td>3.0</td>
</tr>
<tr>
<td>Any aspirin</td>
<td>65</td>
<td>23</td>
<td>5.0</td>
</tr>
</tbody>
</table>

DISCUSSION

Our ongoing study demonstrates that low dose ASA (81 mg bid for four weeks) is as effective as a prophylactic agent as high dose ASA (325 mg) following TJA. This is not surprising as all available literature, including many publications related to VTE prophylaxis following TJA, demonstrate that low dose aspirin has better antiplatelet aggression properties. Continued evaluation of the safety and efficacy of ASA as a prophylactic agent and the comparison of the doses continues at our in our prospective study.

REFERENCES