3-26-2015

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

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**Recommended Citation**

Parvizi, MD, FRCS, Javad; Chen, MD, MBA, Antonia F.; Restrepo, MD, Camilo; Huang, MD, Ronald; Cal, BS, Jenny; Hozack, MD, William J.; and Lonner, MD, Jess H., "Low Dose Aspirin: An Effective Chemoprophylaxis for Preventing Venous Thromboembolic Events" (2015). Rothman Institute Conference Posters. Paper 10.

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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 Orthopaedic Surgeons recommended 325 mg twice a day (bid) for this purpose with the recommendation having a 1C grade (little evidence to support the recommendation) is known that platelet aggregation inhibition occurs at lower doses. Traditionally, ASA 81 mg has been used as a cardioprotective medication. Additionally, all available randomized studies, including the sentinel study on Pulmonary Embolism Prevention (PEP) trial1-4 have used lower doses of ASA. It was our hypothesis that lower dose aspirin is likely to be as effective as high dose aspirin while reducing the gastrointestinal side effects associated with the higher dose aspirin.

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 Orthopaedic Surgeons recommended 325 mg twice a day (Bid) for this purpose with the recommendation having a 1C grade (little evidence to support the recommendation) is known that platelet aggregation inhibition occurs at lower doses. Traditionally, ASA 81 mg has been used as a cardioprotective medication. Additionally, all available randomized studies, including the sentinel study on Pulmonary Embolism Prevention (PEP) trial1-4 have used lower doses of ASA. It was our hypothesis that lower dose aspirin is likely to be as effective as high 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 325mg by mouth, bid for 4 weeks. In the other group, 742 patients with an average age of 64.1 years (SD±12.0) received plain ASA 81mg 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 81mg ASA group (one DVT), compared to 0.2% in the 325mg ASA group (2 DVT and 2 PE). Two episodes of gastrointestinal (GI) bleeding occurred in the 325mg ASA group, compared to none in the 81mg ASA group.

DISCUSSION

Our ongoing study demonstrates that low dose ASA (81 mg bid for four weeks) is as effective of a prophylaxis agent as high dose ASA (325mg) 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