Perioperative Aspirin Use in Patients Undergoing Craniotherapy for Brain Tumor

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Abstract

Many patients are on antiplatelet agents that are withheld prior to elective neurosurgical procedures to reduce bleeding risk. Cessation of aspirin in patients with cardiovascular disease is associated with a known increased risk of thrombotic events, especially in patients with coronary artery disease. The purpose of this study is to evaluate the safety of continuing aspirin in patients undergoing brain tumor resection.

The medical records of patients who underwent surgical resection of a brain tumor at the University of Florida from 2010 to 2014 were evaluated. The patients were assigned into groups based on perioperative aspirin use and whether or not it was stopped prior to surgery. Patients were evaluated for bleeding complications, need for reoperation, postoperative thrombotic complications, length of hospital stay, and discharge whether or not discharged home. Of the 452 patients analyzed, 369 patients were not on chronic aspirin therapy, 55 patients had their aspirin discontinued prior to surgery, and 28 patients were continued on aspirin perioperatively. There were no statistically significant differences between the groups for postoperative hematoma (p = 0.12), need for reoperation (p = 1.0), and discharge disposition (p = 1.0). There was a trend for patients on perioperative aspirin to have increased estimated blood loss (p = 0.12), but these findings did not reach statistical significance.

In this analysis, perioperative low dose aspirin use was not associated with increased risk of perioperative complications although the need to be studied prospectively.

Methods

UF IRB-01 approval obtained

Supra- or infratentorial craniotomy for tumor or meningioma at UF Health from 2010-2014 identified via the Neurosurgery Billing Database

Retroactive chart review conducted using EPIC electronic medical record n = 452

Blood aspirin levels for 77 consecutive patients who underwent craniotomy. "No aspirin" group included patients who were not on chronic aspirin therapy. Patients had aspirin levels drawn 6 weeks postoperatively, or if the patient was on another antiplatelet agent, aspirin was discontinued prior to surgery. No patients were on the combination of aspirin and clopidogrel.

Statistical analysis

References


In this study, continuing aspirin at the time of craniotomy was not associated with increased risk of postoperative complications such as increased EBL, LOS, RTOR, postoperative hematoma, or thrombosis.

Conclusions

In the future, continuing aspirin at the time of craniotomy was not associated with increased risk of postoperative complications such as increased EBL, LOS, RTOR, postoperative hematoma, or thrombosis.

This study provides preliminary data warranting additional investigation in this area in a prospective fashion. As the number of patients chronically medicating with aspirin continues to rise, it will become increasingly necessary for neurosurgeons to manage the risks associated with aspirin management in the perioperative period.

Figure 1: Operative estimated blood loss based on perioperative aspirin management

Figure 2: Hospital length of stay based on perioperative aspirin management

Figure 3: Discharge disposition based on perioperative aspirin management

Supra- or infratentorial craniotomy for tumor or meningioma at UF Health from 2010-2014 identified via the Neurosurgery Billing Database

Perioperative aspirin therapy was not associated with a statistically significant difference in operative estimated blood loss (EBL) (Figure 1) or hospital length of stay (LOS). The median dose of aspirin was 81 mg in all aspirin groups. A small number of patients were also on other antiplatelet agents or anticoagulants. These medications were stopped prior to surgery in all instances. The two groups of patients who had their aspirin discontinued were also not significantly different in demographics or co-morbidities.

The patients were evaluated for incidence of postoperative complications based on perioperative aspirin management. No statistically significant difference was found in estimated blood loss (EBL) (Figure 1) or hospital length of stay (LOS) (Figure 2) between patients who had their aspirin continued or discontinued prior to surgery. The median dose of aspirin was 81 mg in all aspirin groups. A small number of patients were also on other antiplatelet agents or anticoagulants. These medications were stopped prior to surgery in all instances. The two groups of patients who had their aspirin discontinued were also not significantly different in demographics or co-morbidities.

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In this study, continuing aspirin at the time of craniotomy was not associated with increased risk of postoperative complications such as increased EBL, LOS, RTOR, postoperative hematoma, or thrombosis.

Decisions regarding antiplatelet therapy in the perioperative period would be best made in a multi-disciplinary manner, including consultation with a cardiologist. Additionally, tailored therapy with the use of point of care platelet functional assays may help guide these decisions.