Aspirin Is Noninferior to Other Anticoagulants for VTE Prophylaxis Following Aseptic Revision THA

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INTRODUCTION:

While aspirin has been widely adopted as an effective method for deep venous thrombosis (DVT) prevention following primary total hip arthroplasty (THA), concerns remain regarding its efficacy in the setting of revision THA. However, the risk for thromboembolic events must be weighed against the increased potential for bleeding with more potent anticoagulants. This study aimed to compare venous thromboembolism (VTE) and transfusion rates between patients receiving aspirin (ASA) versus non-aspirin anticoagulation (non-ASA) following aseptic rTHA.

METHODS:

Patients undergoing aseptic rTHA from 2016–2023 were identified in an administrative database. Exclusion criteria included infection, periprosthetic fracture, prior VTE, coagulopathy, or preoperative anticoagulant use. Patients were grouped by postoperative prophylaxis: ASA alone vs. non-ASA anticoagulants. Groups were mutually exclusive, except for patients who started ASA and switched to anticoagulation after a VTE event, who remained in the ASA group. Propensity score matching (1:1) was performed based on demographics, comorbidities (tobacco use, coronary artery disease, pulmonary heart disorders, arrhythmia), insurance, hospital stay ≤1 day, year, and CPT code, yielding 2,031 matched pairs. Logistic regression adjusted for CPT code. Outcomes included 30- and 90-day DVT, PE, VTE, and transfusion rates.

RESULTS:

In the matched cohort, ASA was associated with lower 90-day DVT (0.4% vs. 1.6%, p<0.001), PE (0.5% vs. 1.3%, p=0.012), and VTE (0.6% vs. 2.4%, p<0.001). Transfusion rates were similar at both 30 and 90 days [Table-1]. Notably, DVT ultrasound use within 30 days was significantly higher in the non-ASA group (5.0%) compared to the ASA group (3.2%, p=0.006), which may partially account for the increased VTE detection in the non-ASA group. Regression controlling for either single or both component revision still showed reduced odds of VTE with ASA compared to non-ASA prophylaxis [Table-2].

DISCUSSION AND CONCLUSION:

Aspirin is a safe, effective, and noninferior option for VTE prophylaxis following aseptic rTHA in appropriately selected patients.

Table 1.

	Revision THA		
	Non-ASA (n=2,031) "CONTROL"	**ASA (n=2,031) "TREAT"**	**P-value**
BLEEDING OUTCOMES			
90-day Transfusion, n (%)	53 (2.6%)	46 (2.3%)	0.542
30-day Transfusion, n (%)	45 (2.2%)	38 (1.9%)	0.506
90-day Any Bleeding Complication, n (%)	30 (1.5%)	36 (1.8%)	0.535
30-day Any Bleeding Complication, n (%)	19 (0.9%)	25 (1.2%)	0.4485
90-day Hemorrhagic Stroke, n (%)	2 (0.1%)	0 (0%)	0.479
30-day Hemorrhagic Stroke, n (%)	2 (0.1%)	0 (0%)	0.479
90-day GI Bleed, n (%)	16 (0.8%)	13 (0.6%)	0.709
30-day GI Bleed, n (%)	9 (0.4%)	5 (0.2%)	0.422
90-Day Hematoma, n (%)	6 (0.3%)	12 (0.6%)	0.238
30-Day Hematoma, n (%)	5 (0.2%)	11 (0.5%)	0.210
90-day "Post-op Bleeding", n (%)	8 (0.4%)	20 (1%)	0.037
30-day "Post-op Bleeding", n (%)	5 (0.2%)	17 (0.8%)	0.019
THROMBOEMBOLIC OUTCOMES			
90-day DVT LE, n (%)	33 (1.6%)	9 (0.4%)	**<0.001**
30-day DVT LE, n (%)	27 (1.3%)	3 (0.1%)	**<0.001**
90-day PE, n (%)	26 (1.3%)	10 (0.5%)	**0.012**
30-day PE, n (%)	21 (1%)	6 (0.3%)	**0.007**
90-day VTE, n (%)	48 (2.4%)	13 (0.6%)	**<0.001**
30-day VTE, n (%)	41 (2%)	8 (0.4%)	**<0.001**
DVT US performed within 90d	122 (6%)	96 (4.7%)	0.082
DVT US performed within 30d	102 (5%)	66 (3.2%)	**0.006**

Table 2.

Multivariable regression for VTE events, controlling for Hip CPT Codes		
Outcome: PE	**OR [95% CI]**	**P-value**
ASA (ref = AC)	**0.31 [0.14-0.62]**	**0.002**
CPT-27137 (ref = CPT-27134)	0.75 [0.28-1.70]	0.526
CPT-27138 (ref = CPT-27134)	1.64 [0.82-3.25]	0.156
Outcome: DVT (Lower extremity)		
ASA (ref = AC)	**0.19 [0.08-0.40]**	**<0.001**
CPT-27137 (ref = CPT-27134)	0.39 [0.11-0.97]	0.0719
CPT-27138 (ref = CPT-27134)	1.27 [0.63-2.39]	0.4764
Outcome: VTE		
ASA (ref = AC)	**0.21 [0.11-0.38]**	**<0.001**
CPT-27137 (ref = CPT-27134)	0.66 [0.30-1.30]	0.263
CPT-27138 (ref = CPT-27134)	1.56 [0.88-2.63]	0.11