



JAMA Surg. 2018 Mar; 153(3): 284–285.

PMCID: PMC5885929

Published online 2017 Nov 29.

PMID: [29188281](#)

doi: 10.1001/jamasurg.2017.3927: 10.1001/jamasurg.2017.3927

Assessing the Necessity of Stopping Antithrombotic Agents Before Wide-Awake Hand Surgery

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Accepted for Publication: July 2, 2017.

Published Online: November 29, 2017. doi:10.1001/jamasurg.2017.3927

Author Contributions: Drs Sasor and Chu had full access to all of the data in the study and take responsibility for the integrity and accuracy of the data analysis.

Study concept and design: Sasor, Evans, Wooden, Tholpady, Chu.

Acquisition, analysis, or interpretation of data: Sasor, Cook, Lucich, Tholpady.

Drafting of the manuscript: Sasor, Evans, Wooden, Tholpady.

Critical revision of the manuscript for important intellectual content: All authors.

Statistical analysis: Sasor, Cook, Tholpady.

Administrative, technical, or material support: Lucich, Wooden, Chu.

Study supervision: Sasor, Wooden, Chu.

Conflict of Interest Disclosures: None reported.

Meeting Presentation: This paper was presented at the Annual Meeting of the Association of VA Surgeons, May 9, 2017, Houston, Texas.

Received 2017 May 17; Accepted 2017 Jul 2.

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This review of 304 carpal tunnel release procedures examines the necessity of stopping antithrombotic medications prior to carpal tunnel release surgery.

Many patients requiring carpal tunnel release (CTR) surgery are taking long-term antithrombotic (AT)

agents for various medical conditions. This presents a challenge for hand surgeons, who must weigh the risk of bleeding if AT therapy is continued against the risk of thrombosis if AT therapy is temporarily stopped. Previous studies have shown that it is safe to continue AT therapy in patients undergoing dermatologic, cataract, and dental surgery; however, to our knowledge, there is no consensus on the management of oral AT agents in elective hand surgery. The goal of this study is to evaluate the safety of continuing AT use in the perioperative period in wide-awake CTR using an open surgical technique.

Methods

The researchers undertook a retrospective review of wide-awake CTR procedures performed at a single institution from February 2013 to April 2016. The study was granted exempt status by the institutional review board of Indiana University; study design obviated the need for consent procedures. All cases used a standard, open surgical approach (using a longitudinal palmar incision) and an anesthetic of lidocaine, 1% , with 1:100 000 epinephrine. The researchers classified all patients into 1 of 2 groups: patients taking oral AT agents at the time of surgery, and patients who were naive to AT agents. Patients in whom AT therapy had been used but discontinued preoperatively were excluded. Demographics, comorbidities, tobacco use, electromyography findings, tourniquet use, operative time, estimated blood loss (EBL), complications, and outcomes were recorded. Statistical analysis was performed using the *t* test and Fisher exact test in SPSS (SPSS Inc).

Results

During the study period, 304 CTR procedures were performed on 246 patients (for 58 patients, bilateral procedures were required). Most patients were male (88.5%), and the mean age at surgery was 59.9 years (range, 25.3 years to 91.2 years). Ninety-nine patients (32.6%) were taking prescribed AT agents at the time of surgery. Six patients (4 taking warfarin and 2 taking dual antiplatelet therapy) had had AT medication temporarily stopped in preparation for surgery and were therefore excluded from the study. The remaining 93 patients continued their normal AT regimen through surgery. There were 69 patients taking aspirin, 7 taking warfarin, 9 taking clopidogrel, 1 taking dabigatran, 3 taking warfarin plus aspirin, and 4 taking dual antiplatelet therapy. Patients treated with AT agents were older than the control group (mean, 66.1 years vs 56.9 years; $P < .001$). They were also more likely to be male (96.8% vs 84.4%; $P = .002$), diabetic (55.9% vs 22.9%; $P < .001$), and nonsmokers (82.8% vs 71.7%; $P = .04$). Average preoperative median nerve motor latencies at the wrist did not differ significantly between the AT user and non-AT user groups (6.9 milliseconds vs 6.7 milliseconds; $P = .44$), nor did the rate of intraoperative tourniquet use (32% vs 56% for AT user and nonuser groups, respectively; $P = .22$).

Estimated blood loss was higher in the no-tourniquet group for both AT users (4.33 mL vs 3.22 mL; $P = .02$) and non-AT users (4.21 mL vs 3.13 mL; $P = .006$). Mean operating time was shorter in the no-tourniquet group for both those treated with AT agents (20.1 minutes vs 25.7 minutes; $P = .001$) and those not treated with AT agents (22.40 minutes vs 24.52 minutes; $P = .13$). There was no statistical difference in EBL (3.94 mL vs 3.89 mL; $P = .87$) or operative time (22.0 minutes vs 23.0 minutes; $P = .38$) in AT and non-AT patient groups overall.

Rates of postoperative complications were similar between the AT group and the non-AT group (5.4% vs 4.9%; $P > .99$). No hematomas or neurological complications were reported, and no patients required reoperation during the study period. Overall, 91.8% of patients reported improvement of symptoms postoperatively, with a mean follow-up time of 3.3 months ([Table](#)).

Discussion

Oral AT agents are commonly prescribed for patients with atrial fibrillation, mechanical heart valves,

vascular disease, or previous thromboembolism. Interruption of these agents may increase morbidity risk and often necessitates multiple preoperative office visits, which are inconvenient for patients and result in an increased burden on the health care system. Despite this, temporary cessation of AT medications in the perioperative period remains common practice in elective hand surgery. There are few reports on the effects of AT on elective hand surgery, and to our knowledge, this study is the first to provide evidence that AT medications may be safely continued in wide-awake CTR with or without a tourniquet. Complications were few, and there were no major differences in outcomes between groups.

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Figures and Tables

Table:**Demographics, Procedural Data, and Postoperative Outcomes**

Demographics and Procedural Data	AT (n = 93)	No AT (n = 205)	P Value
Male, No. (%)	90 (96.8)	173 (84.4)	.002
Mean age at surgery, y	66.2	56.9	<.001
Tobacco use at time of surgery, No. (%)	16 (17.2)	58 (28.3)	.04
Diabetes, No. (%)	52 (55.9)	47 (22.9)	<.001
Median nerve motor latency at wrist, ms	6.9	6.7	.44
Tourniquet use during surgery, No. (%)	32 (34.4)	56 (27.3)	.22
Outcomes			
Estimated blood loss, mL	3.9	3.9	.87
Operative time, min	22.0	23.0	.38
Complications, No. (%)			
Overall	5 (5.4)	10 (4.9)	>.99
Infection	4 (4.3)	5 (2.4)	.47
Postoperative antibiotics	4 (4.3)	4 (2.0)	.26
Intravenous antibiotics	0 (0)	1 (0.5)	>.99
Admission	0 (0)	1 (0.5)	>.99
Wound dehiscence	1 (1.1)	3 (1.5)	>.99
Delayed wound healing	1 (1.1)	1 (0.5)	.53
Hematoma	0 (0)	0 (0)	>.99
Other	0 (0)	1 (0.5)	>.99
Postoperative outcomes			
Lost to follow-up, No. (%)	16 (17.2)	32 (15.6)	>.99
Improvement of symptoms, No. (%)	75 (90.4)	159 (93.0)	.47
Mean follow-up, mo	3.4	3.3	
Symptoms improved	3.4	3.4	
No improvement in symptoms	2.6	2.2	

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Abbreviation: AT, antithrombotic agents.