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Incidence of Thromboembolic Complications Within 30 Days of Electrical Cardioversion Performed Within 48 Hours of Atrial Fibrillation Onset

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ABSTRACT

OBJECTIVES This study sought to compare the risk of thromboembolism after cardioversion within 48 h of atrial fibrillation (AF) onset in patients therapeutically versus not therapeutically anticoagulated.

BACKGROUND Although guidelines do not mandate anticoagulation for cardioversion within 48 h of AF onset, risk of thromboembolism in this group has been understudied.

METHODS Patients undergoing cardioversion within 48 h after AF onset were identified from a prospectively collected database and retrospectively reviewed to determine anticoagulation status and major thromboembolic events within 30 days of cardioversion.

RESULTS Among 567 cardioversions in 484 patients without therapeutic anticoagulation (mean CHA_2DS_2-VASc score, 2.3 ± 1.7), 6 had neurological events (1.06%), all in patients on aspirin alone. Among 898 cardioversions in 709 patients on therapeutic anticoagulation (mean CHA_2DS_2-VASc score, 2.6 ± 1.7; $p = 0.017$), 2 neurological events occurred (0.22%; OR: 4.8; $p = 0.03$), both off anticoagulation at the time of stroke. No thromboembolic events occurred in patients with CHA_2DS_2-VASc score <2 ($p = 0.06$) or in patients with postoperative AF.

CONCLUSIONS In patients with acute-onset AF, odds of thromboembolic complications were almost 5 times higher in patients without therapeutic anticoagulation at the time of cardioversion. However, no events occurred in post-operative patients and in those with CHA_2DS_2-VASc scores of <2, supporting the utility of accurate assessment of AF onset and risk stratification in determining the need for anticoagulation for cardioversion of AF <48 h in duration. (J Am Coll Cardiol EP 2016;2:487-94) © 2016 by the American College of Cardiology Foundation.

Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia, affecting 1 in every 4 individuals during their lifetime (1). It independently raises stroke risk by 5-fold, which is a major cause of morbidity and mortality in these patients (2,3). This risk was shown to increase further following direct current cardioversion, possibly by stunning of the left atrium and subsequent return of mechanical function leading to clot dislodgement (4-9). This increased stroke risk persists for about a month after the procedure (10).

Patients undergoing cardioversion within 48 h of AF onset were traditionally considered to be at lower risk for thromboembolic complications, because it was thought that there is less time for left atrial thrombus formation (11). The current 2014 American Heart Association/American College of Cardiology/Heart Rhythm Society guidelines for these patients with AF onset of <48 h and with high risk of stroke recommend anticoagulation therapy as soon as possible before or immediately after cardioversion, followed by long-term anticoagulation therapy (12). The duration of this long-term anticoagulation therapy should be based on the thromboembolic risk profile. This is a Class Ia recommendation based on Level of Evidence: C. However, for AF of duration <48 h with low thromboembolic risk, anticoagulation or no antithrombotic therapy may be considered for cardioversion, without the need for post-cardioversion oral anticoagulation (13,14). This is a Class IIb recommendation with Level of Evidence: C (13).

We aimed to assess the risk of thromboembolism in patients undergoing cardioversion within 48 h of AF onset without prior therapeutic anticoagulation and to compare this risk with the risk of thromboembolism in patients who were therapeutically anticoagulated.