Clinical experience of dabigatran and rivaroxaban in electrical cardioversion of atrial fibrillation

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Abstract

Patients scheduled for atrial fibrillation (AF) cardioversion were excluded from clinical trials of novel oral anticoagulants (NOACs). We evaluated efficacy and safety of NOACs in patients undergoing electrical cardioversion for AF. We performed a monocentric study of all patients on NOACs who underwent elective electrical cardioversion for non-valvular AF between January 2012 and December 2014. We analyzed incidence of stroke and bleeding at 30 days. Fifty patients were included, 28 receiving dabigatran, 22 rivaroxaban. Mean age was 65 ± 12 years. Mean CHADS2-VASC and HAS-BLED scores were 3 ± 1.8 and 2.2 ± 1.1 respectively. Transoesophageal echocardiography was performed in 41 (79%) patients, revealing a thrombus in 2 (5%). No clinical evidence of stroke occurred in the 30 days, 1 major gastrointestinal bleeding (2%) in patient on rivaroxaban (led to premature discontinuation) and 3 minor bleedings. NOACs seem to be safe in daily practice of electrical cardioversion in our population.

Key words: Atrial fibrillation, electrical cardioversion, novel oral anticoagulants, stroke


Electrical cardioversion (ECV) can improve quality of life in symptomatic patients with atrial fibrillation (AF). Resumption of sinus rhythm is associated with an increased risk of thromboembolism and anticoagulation is mandatory for at least 3 weeks before (except in case of the alternative transesophageal echocardiography (TEE)-guided strategy) and 4 weeks after cardioversion1-2. Novel oral anticoagulants (NOACs) are an alternative to vitamin K antagonists for reducing thromboembolic risk but data on their use in the setting of ECV is still limited. The goal of this study was to evaluate the efficacy and safety of NOACs in consecutive patients undergoing elective ECV for AF.

We performed a monocentric retrospective study of all patients who underwent ECV on dabigatran or rivaroxaban between January 2012 and December 2014 at our institution. A TEE was performed to exclude left atrial thrombus in patients with less than 3 weeks of anticoagulation before ECV, in case of imperfect drug compliance, or at physician discretion. Clinical follow-up at 30 days was obtained through review of electronic medical records or by telephone interview with the patients.

Fifty-two patients were scheduled for ECV during the study period, including 29 on dabigatran and 23 on rivaroxaban. ECV was performed in 50 patients (41 men and 9 women) including 28 on dabigatran and 22 on rivaroxaban. Mean age of 65 ± 12 years. Twenty-eight patients (56%) had lone AF. Mean CHA2DS2-VASC and HAS-BLED scores were 3.1 ± 1.8 and 2.2 ± 1.2 respectively. Mean left ventricular ejection fraction was 44 ± 14% and left atrial surface was 28 ± 5 cm². Fourteen patients (28%) were also taking antiplatelet therapy. Patients on rivaroxaban tended to have higher CHA2DS2-VASC scores than patients on dabigatran (3.6 ± 1.9 vs 2.6 ± 1.6, p=0.09), with a trend towards a greater history of stroke (23% vs 4%, p=0.10).

No clinical evidence of stroke occurred in the 30 days following cardioversion. One major gastrointestinal bleeding occurred (2%) in a patient on rivaroxaban, leading to transfusion of 3 units of blood and discontinuation of rivaroxaban. This patient was a 71 year-old male with liver cirrhosis and a glomerular filtration rate of 30 ml/min, taking 15mg rivaroxaban and 75mg aspirin therapy daily. Three minor bleedings occurred (6%), including 2 gastrointestinal bleedings in patients on dabigatran and one epistaxis in a patient on rivaroxaban. No other premature interruption of the anticoagulant was observed.

Our study adds to the growing body of evidence that the use of NOACs for cardioversion of AF is safe. Post-hoc analysis of major randomized trials2-3, a dedicated randomized trial [6], and several single-center observational studies4-8 have shown that the rates of thromboembolism following cardioversion were low and comparable to those with warfarin. The latest scientific guidelines9 now indicate that anticoagulation with any of the NOACs is reasonable in the peri-cardioversion period. The question remains as to which patients should undergo TEE.

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prior to cardioversion. In recent observational studies, 20-24% of patients underwent TEE with no thrombus detected, and no thromboembolic events immediately after cardioversion in these TEE-cleared patients. Coleman et al. found that higher CHADS2/CHA2DS2-VASC scores were associated with thromboembolic risk but in our study one patient with thrombus had a score of 0, suggesting that TEE might be reasonable even in supposedly low-risk patients.

Statement of ethical publishing

The authors agree to abide by the requirements of the « Statement of publishing ethics of the International Cardiovascular Forum Journal »10.

Conflict of interest:

There is no conflict of interest for any of the authors.

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Table 1: Patients with intra-atrial thrombus on transesophageal echocardiography

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age/Sex</th>
<th>Drug</th>
<th>CHA2DS2-VASC</th>
<th>Stroke history</th>
<th>Aspirin</th>
<th>LV ejection fraction (%)</th>
<th>LA area (cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>42/M</td>
<td>Dabigatran 110 mg</td>
<td>2</td>
<td>No</td>
<td>No</td>
<td>26</td>
<td>36</td>
</tr>
<tr>
<td>2</td>
<td>57/M</td>
<td>Rivaroxaban 20 mg</td>
<td>0</td>
<td>No</td>
<td>75mg</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

Abbreviations: LA: left atrium; LV: left ventricle.

References

10. Shewan LG, Coats AJS, Henein M. Requirements for ethical publishing in biomedical journals. International Cardiovascular Forum Journal 2015;2:2 DOI: 10.17987/icfj.v2i2.4