EDITORIAL

Factors associated with transesophageal echocardiography–guided elective cardioversion of atrial fibrillation

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RELATED ARTICLE

by Uziębło-Życzkowska et al, see p. 837

Cardioversion is commonly performed as part of the rhythm control strategy for symptom and quality of life improvement in symptomatic patients with atrial fibrillation (AF). Better symptom management with rhythm or rate control is one of the components of the Atrial fibrillation Better Care (ABC) pathway for the integrated holistic management.[1]

Atrial fibrillation increases the risk of stroke 5-fold, and this burden is heterogeneous and affected by specific factors. Oral anticoagulants (OACs) reduce the inherent risk of stroke associated with cardioversion.[2] Thus, it is relevant to evaluate the thromboembolic risk before cardioversion, initiate OACs, and continue life-long anticoagulation in patients at increased risk of stroke. Of note, strict adherence to OACs is of key importance.

What do the guidelines say? According to the guidelines, transesophageal echocardiography (TEE) is recommended to exclude cardiac thrombus as an alternative to 3-week preprocedural anticoagulation before elective cardioversion. For cardioversion of AF lasting longer than 48 hours, effective anticoagulation is recommended for at least 3 weeks before cardioversion in patients who have no indications for long-term anticoagulation.[1] In patients with a high CHA_2DS_2-VASc score (congestive heart failure, hypertension, age ≥75 years, diabetes, stroke / transient ischemic attack, vascular disease, age between 65 and 74 years, sex [female]), this "window of opportunity" might be shorter.[3,4] The recurrence of the sinus rhythm may result in thromboembolism even after short (shorter than 48 hours) episodes of AF.[4,5] Of note, left atrial thrombi occurred in 4% of patients with AF within the first 48 hours of the AF episode.[4,6] Given the presence of numerous stroke risk factors, the risk of thromboembolic complications may be unacceptably high (approximately 10%) as compared with that reported in AF patients with no risk factors.[4,7] Thromboembolic factors such as advanced age, hypertension, diabetes, heart failure, and female sex are associated with an increased risk of left atrial thrombus formation in patients with AF.[8]

The current data support the use of non–vitamin K antagonist oral anticoagulants (NOACs) or anticoagulation with optimally managed vitamin K antagonists (VKAs), provided that the desired therapeutic effect is achieved (international normalized ratio, 2–3).[9] However, left atrial thrombi may also form despite optimal long-term oral anticoagulation with a NOAC or a VKA. Therefore, the decision whether to perform cardioversion preceded by TEE should be made on a case-by-case basis.[10]

Transesophageal echocardiography enables physicians to precisely evaluate left atrial appendage morphology and to exclude thrombus formation in the left atrial appendage or in another cardiac chamber.

In the current issue of *Polish Archives of Internal Medicine* (*Pol Arch Intern Med*), Uziębło-Życzkowska et al[11] report findings regarding factors determining elective cardioversion preceded by TEE. The authors used data from 2 Polish cardiology departments and analyzed partly retrospectively all consecutive patients with AF admitted for elective cardioversion between January 2018 and April 2019. The study patients were previously treated with NOACs. The authors showed that TEE before elective cardioversion was more common in patients with a history of coronary artery disease, thromboembolic events, and bleeding. Individuals with paroxysmal AF and hypertension were more likely to receive cardioversion without prior TEE performance. The study limitations include a small number of patients, a 2-center cohort from a single country, a partly retrospective and nonrandomized design, and the choice of 2 tertiary cardiology centers. Moreover, lack

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of data regarding the reason for administering a reduced NOAC dose and no predefined criteria used by physicians when deciding whether to perform TEE or not also limited the study. Possibly, patients at higher likelihood of thrombus formation in the left atrium may have been stratified to the TEE approach.

Some randomized and observational studies assessing various OACs have demonstrated that TEE-guided cardioversion is as safe as non–TEE-guided cardioversion with at least 3 weeks of OAC pretreatment in terms of thromboembolic events and bleeding.[12,13]

In a single study, Kozieł et al[4] showed that patient selection to particular cardioversion approaches (TEE-guided or non–TEE-guided) represented the country-specific routine standards of care and preferences. The findings of that study revealed that, in some countries, TEE was still preferred, although it would not appear necessary in light of the guidelines. In that study, a history of ischemic stroke / transient ischemic attack, hypertension, and valvular heart disease were independent predictors of TEE use. However, valvular heart diseases associated with AF, except for mitral stenosis, do not seem to increase the risk of thromboembolism beyond the level associated with AF alone.[14]

Data regarding contemporary routine clinical practice revealed a significant use of TEE-guided cardioversion, which reflected a more conservative strategy than that presented in the guidelines.[15]

As long as we consider TEE-guided cardioversion in patients influenced by factors affecting left atrial appendage thrombus formation, the quest for more appropriate risk factor assessment is to be continued. The article by Uziębło-Życzkowska et al[11] points to some directions for future research.

ARTICLE INFORMATION

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