

Selective Trans-esophageal Echocardiography Before Electrical Cardioversion; the Role of Risk Stratification

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Atrial fibrillation (AF) is a common rhythm disorder which its incidence increase by increasing age [1]. Electrical cardioversion is the best therapeutic choice in relieving patient symptom and improvement of cardiac output in cases with prolonged atrial fibrillation more than two days [2]. Dislodgement of left atrial appendage (LAA) or atrial clot is speculated mechanism for development of thromboembolic sequelae as devastating complication of cardioversion [3].

Conventional anticoagulation strategy in three weeks before and four weeks after achievement of sinus rhythm by cardioversion is advised to decrease the finite risk of thromboembolism (TE) which is up to 5% [3,4]. Another approach could be trans-esophageal echocardiography (TEE)-guided strategy which brings lower bleeding rate and stroke events [3]. Absence of thrombus in LAA or atrial cavity in TEE means cardioversion in shorter anticoagulation term, but in higher risk individuals with thrombus this therapeutic procedure would be delayed. Thus, TEE-guided approach is widely accepted as a clinically effective and safe approach and advocated in cases with the need for beneficial earlier cardioversion, so, currently, there is a low threshold for advising TEE before cardioversion. Indeed, TEE-guided approach is a routine method in many centers for every candidate patient for cardioversion. The rate of finding clot would be low overall [5], thus like other tests, rational and cogent use of TEE is recommended also cost benefit evaluation of pre-procedural TEE is mandatory before performance and determination of the likelihood of clot finding are also essential.

In patients who determination of TE risk is difficult, performance of TEE is rational. But in patients with low clot yield, TEE could be avoided if possible. These low risk individuals are patients in sinus rhythm and with low CHADS2 score. CHADS2 score of 0 is the only condition without risk of clot formation. Thus some task force members do not advise routine pre-procedural TEE in patients in sinus rhythm with CHADS2 score of 0 and it seems to be sensible that this issue extends to low CHADS2 score (< 2) and normal basic transthoracic echocardiography. Thrombus burden and the rate of need to TEE would be high in advanced aging and in the presence of structural heart disease and valvular AF.

Although TEE is generally a safe technique but it has its own complications as bleeding and perforation of hypopharynx, cervical esophagus and stomach. Therefore, history of gastro-esophageal disorders are determinative factors in patient risk stratification. Patient intolerance and un-cooperation are other limitations of this procedure. Despite of these patient related factors, technical problems as operator skill and procedure cost are also important. The initial cost of TEE-guided strategy would be high but overall patient outcome costs might be lower due to the lower risk of bleeding (specially in patients with tendency to bleeding). Thus, considering the risk of bleeding is very important and in patients with high risk of bleeding TEE-guided strategy is highly recommended. TEE is the gold standard technique for detection of thrombus but if its performance is not indicated, other alternatives as CT scan are advised [3-4].

Finally, routine pre-procedural TEE is not recommended and considering indication limitation and advantage of this procedure is required before cardioversion.

Conclusions

Routine TEE-guided strategy should be avoided and we recommend higher threshold of TEE-guided strategy in patients with low CHADS2 score.

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