Transesophageal echocardiogram before cardioversion in properly anticoagulated patients with persistent atrial fibrillation

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Introduction

- In accordance with clinical studies, consent documents, ESC and AHA guidelines, the patient may undergo cardioversion without transesophageal echocardiogram (TEE) before procedure, in event patient who has non-valvular atrial fibrillation (AF) ≥ 3 weeks is properly prepared for sinus rhythm (SR) restoration with oral anticoagulants (INR 2-3).
- However, sometimes for patients properly prepared with oral anticoagulants, TEE is being performed prior cardioversion.

Europace 2010;12: 1360 – 420; J Am Coll Cardiol. 2014;64(21) ; European Heart Journal 2012;33: 2719–2747; Circulation. 2011; 123: 131-136; Eur Heart J 2012;33(Abstract Supplement):686; Eur Heart J (2014) 35 (47): 3313-3314; Europace 2013(15); 625-651; West Essex Guidelines (updated May 2014)

Aim

- To find out the number of patients properly prepared with oral anticoagulants, for whom cardioversion was scheduled and in whom TEE revealed thrombi in the left atrium before procedure.
- To assess criteria for TEE to be performed prior SR restoration for patients properly prepared (INR 2-3) with oral anticoagulants.

Methods

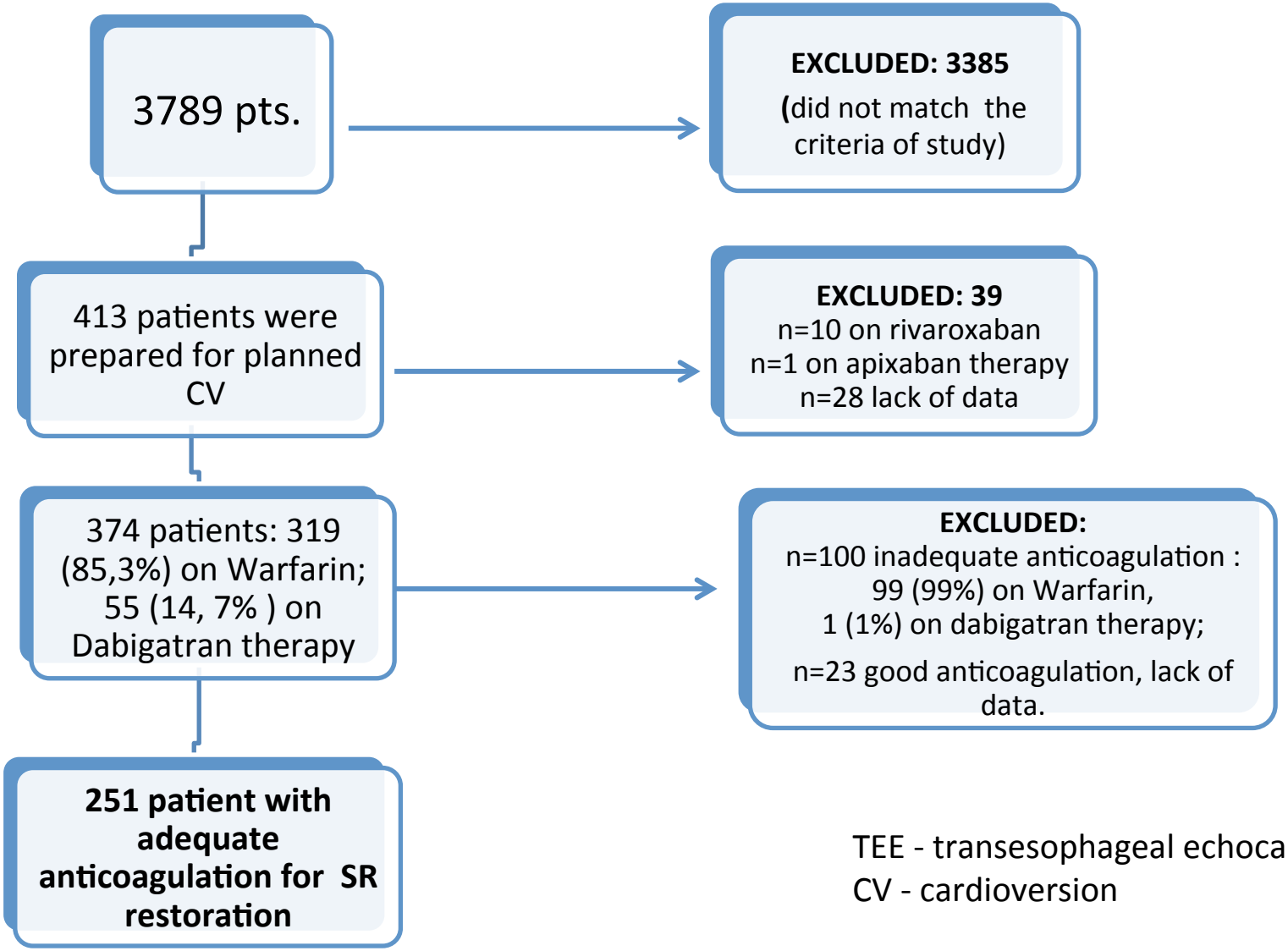
- The study was performed at VUH SK Centre of Cardiology and Angiology and included 3789 patients with non-valvular AF, who were prepared for scheduled cardioversion (using warfarin or dabigatran) since 2012 untill 2014.
- Scheduled cardioversion was performed for 1993 patients.
- TEE prior planned procedure was performed for 1796 patients.

Methods

- The following risk factors that may contribute to more frequent formation of heart chamber thrombi were evaluated: age, sex, chronic heart failure, primary arterial hypertension, diabetes mellitus, history of stroke, body mass index, vascular disease.
- Were evaluated CHA_2DS_2-VASc , HAS-BLED risk score.
- Thromboembolic complications were evaluated during 4-week period after restoration of SR.

Methods

Patient selection scheme

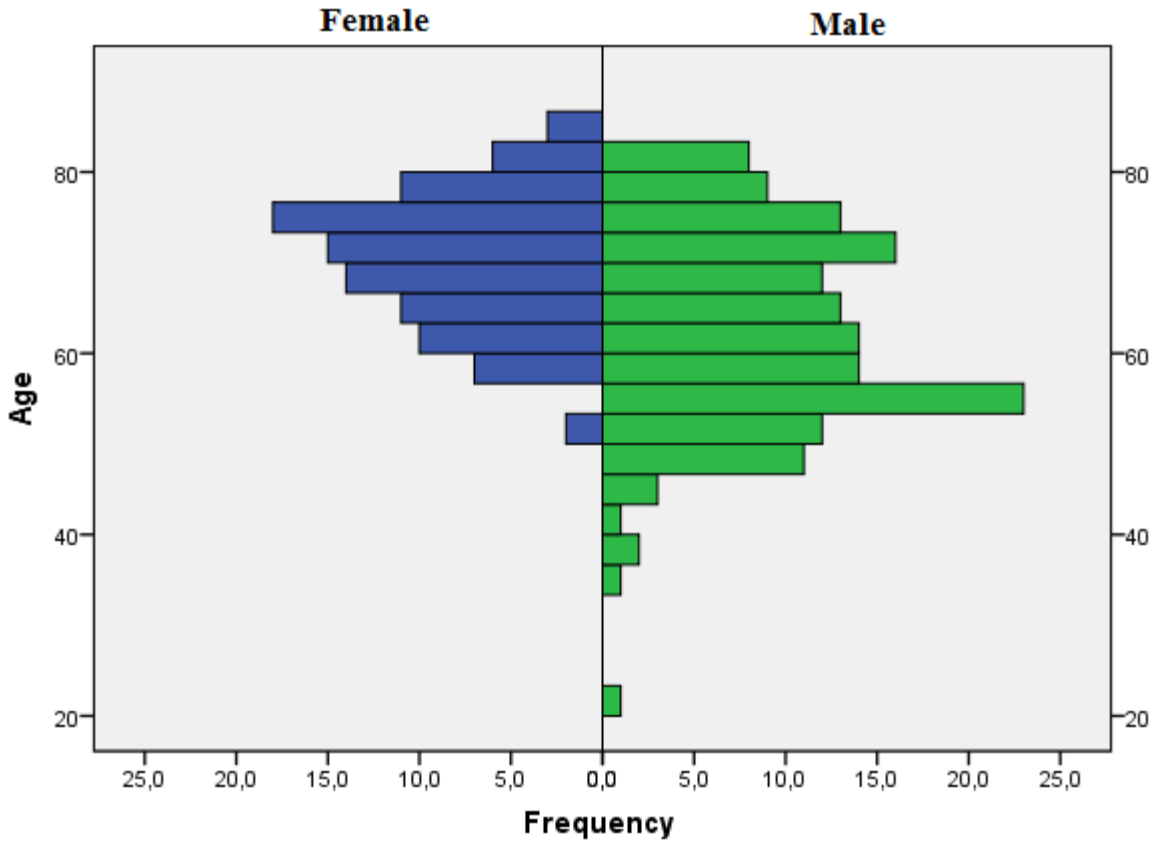


TEE - transesophageal echocardiography
CV - cardioversion

Methods

- 97 (38.6%) females, 154 (61.4%) males.
- Age 22-86 years, mean 65.3 (SD±10.6).

Chart 1. Patient distribution according to gender



Methods

Table 1. Characteristics of the study group.

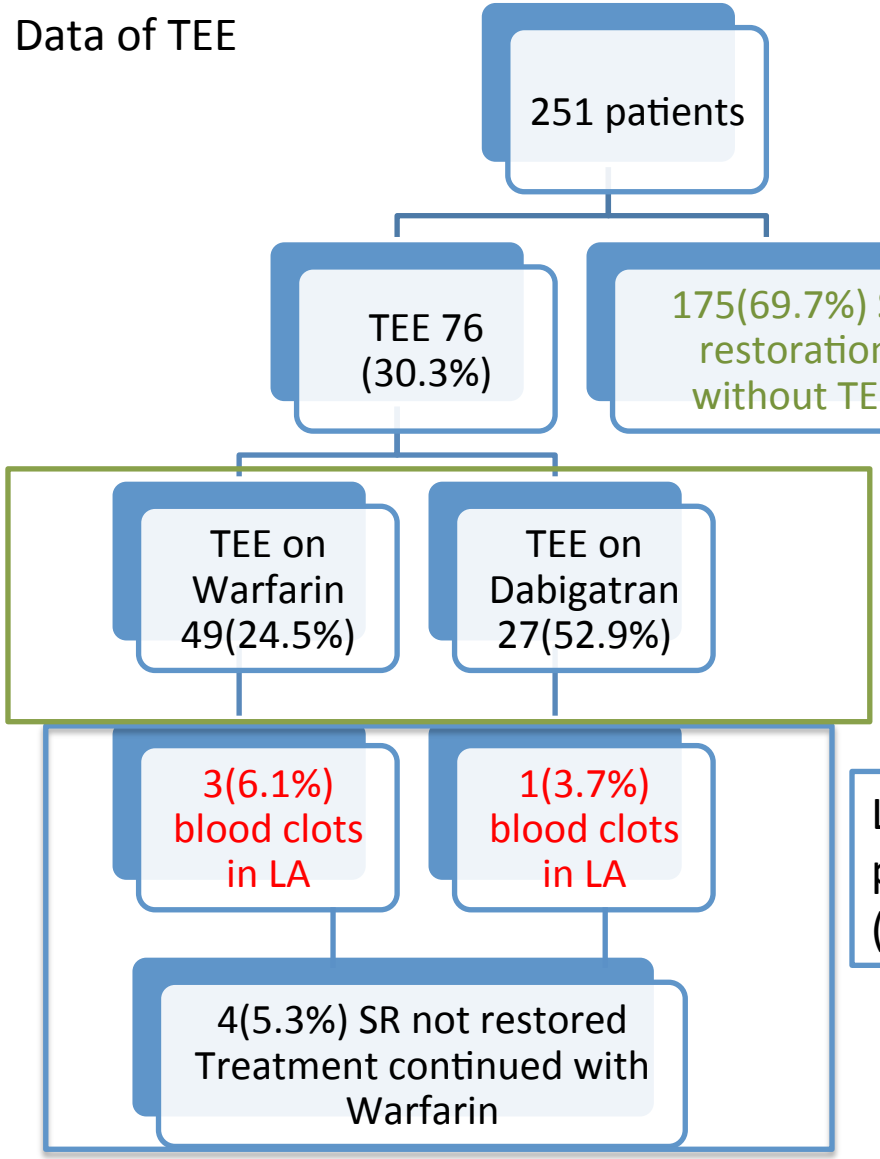
	Number of patients (n)	n (%)
Chronic heart failure	189	75.3 %
Arterial hypertension	233	92.8 %
History of vascular disease	136	54.2 %
History of stroke	9	3.6 %
Diabetes mellitus	31	12.4 %
HAS-BLED ≤ 2	234	93.2%
BMI (≥ 30 kg/m2)	138	54.9 %
I° LA dilatation	93	37.1 %
II° LA dilatation	108	43.0 %
III° LA dilatation	49	19.5 %
IV° LA dilatation	1	0.4 %

Table 2. Distribution of patients in accordance with oral anticoagulation ir TEE

	Number of patients (n)	n (%)
On warfarin	200	79.68 %
On dabigatran	51	20.32 %
TEE on warfarin	49	24.5 %
TEE on dabigatran	27	52.94 %

Results

Data of TEE



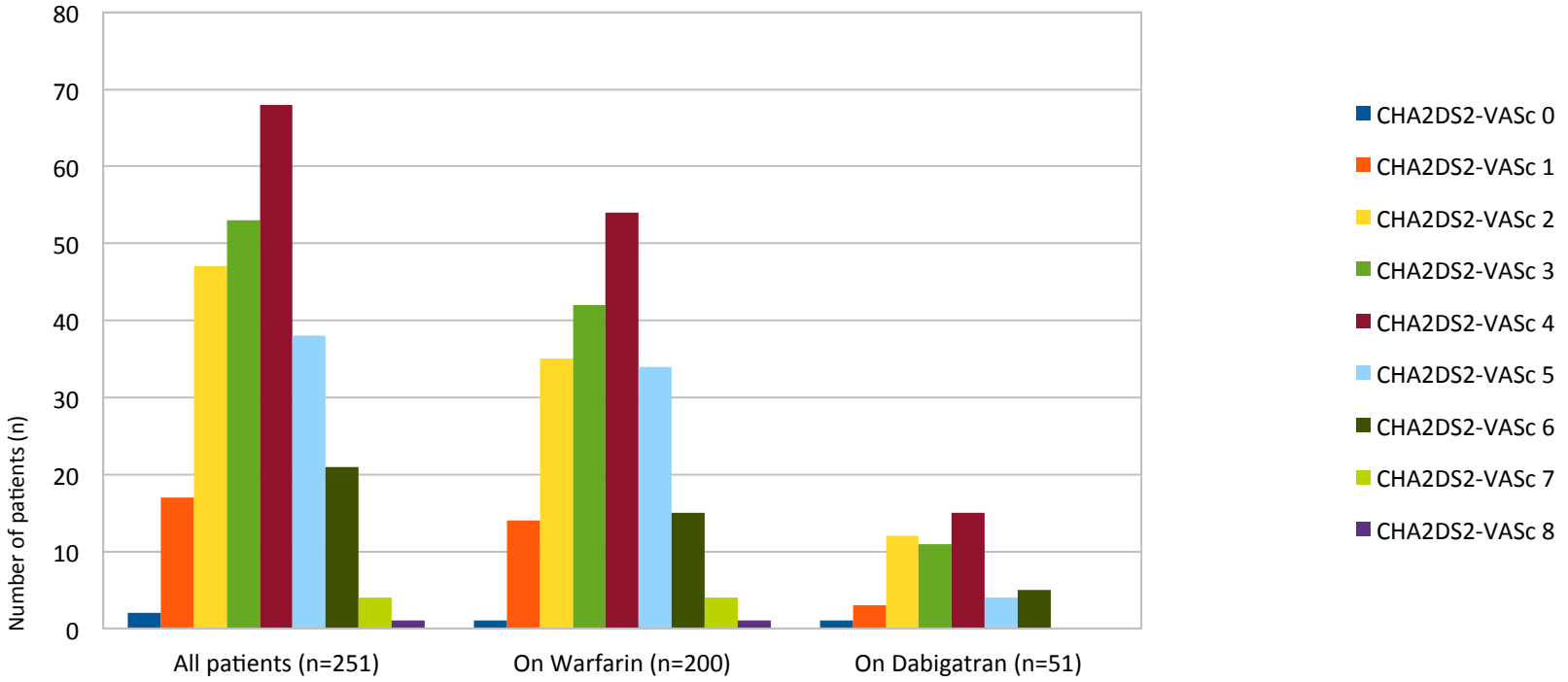
72 (28.7%) SR restored after TEE

LA thrombi were revealed in 4 (5.3%) patients: 3 (6.1%) on Warfarin and 1 (3.7%) on Dabigatran.

TE -thromboembolic
TEE - transesophageal echocardiography
LA – left atrium
SR – sinus rhytm
CV - cardioversion

Results

Chart 2. Distribution of patients according to CHA2DS2-VASc score



>75% of patients with total CHA_2DS_2-VASc score ≤4.

Discussion

- In event CHA_2DS_2-VASc >4, warfarin is administered more frequently (27.0% vs. 17.6%) $p<0.005$.
- The age of patients on dabigatran was higher, in comparison with that on warfarin: 66 (SD±17.5) vs. 50 (SD±8.5) years, respectively; $p<0.005$.
- In patients for whom LA thrombi were detected $CHA_2DS_2VASc = 4$.
- Relationship between risk factors analysed and thrombi was not detected ($p>0.05$).
- There were no embolic complications during CV and 4 weeks afterwards.

Conclusion

- The risk of LA thrombi is present even in properly anticoagulated patients.
- Further studies are required to assess more accurate indications for TEE.