

## Recent Trials in Cardiology

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### **Role of anticoagulation in preventing thromboembolic complications after cardioversion of acute atrial fibrillation: The FinCV (Finnish CardioVersion) study**

Juhani Airaksinen KE, Grönberg T, Nuotio I, *et al.*  
*JACC.* 2013;62:1187–92.

#### **Trial Summary**

Anticoagulation for 3 weeks before and 4 weeks postcardioversion for patients with atrial fibrillation (AF) has been the standard of care. AF of <48 hours (acute AF) duration has been traditionally cardioverted without anticoagulation cover. However, as the risk of embolization in this latter setting is real, recent guidelines recommend anticoagulation therapy during and after cardioversion in patients with acute AF and risk factors for stroke. The FinCV (Finnish CardioVersion) study was undertaken to answer these questions regarding anticoagulation in Acute AF.

#### **Aims and objectives**

The aim of this study was to determine the incidence and risk factors of thromboembolic complications after cardioversion of acute AF.

#### **Methods**

A total of 7660 consecutive cardioversions were identified in 3143 patients with acute (<48 h) AF treated in the emergency clinics of three hospitals. Embolic complications were evaluated during the 30 days after 5116 successful cardioversions in 2481 patients

without periprocedural and postcardioversion oral anticoagulation or heparin therapy.

#### **Results**

Cardioversion was successful in 5116 (95.4%) of the total 5362 procedures in 2481 patients who had no periprocedural oral anticoagulation or heparin therapy; 38 definite embolic events occurred (0.7% of successful procedures, 95% confidence interval [CI] 0.5–1.0%) and 31 of these were strokes within 30 days (median 2 days, mean 4.6 days) after cardioversion. One patient suffered both stroke and systemic embolism. Four patients suffered transient ischemic attack after cardioversion (mean 2 days). Two patients suffered from pulmonary embolism, and there were 11 deaths during the 30-day followup (median 3 days, mean 7 days after cardioversion), including 3 patients with fatal stroke. Age (odds ratio [OR] 1.05; 95% CI 1.02–1.08,  $p < 0.0001$ ), female sex (OR 2.1; 95% CI 1.1–4.0,  $p = 0.03$ ), heart failure (OR 2.9; 95% CI 1.1–7.2,  $p = 0.03$ ), and diabetes (OR 2.3; 95% CI 1.1–4.9,  $p = 0.03$ ) were the only independent predictors of definite embolic events. Classification tree analysis showed that the highest risk of thromboembolism (9.8%) was observed among patients with heart failure and diabetes, whereas patients with no heart failure and age <60 years had the lowest risk of thromboembolism (0.2%).

#### **Perspective**

The incidence of embolic events in the absence of perioperative anticoagulation within 30 days after cardioversion in acute AF is low (<1%). However the incidence of such unwanted events is unacceptably high (approximately 10%) in the presence of certain associated risk factors such as increasing age, female sex, heart failure and diabetes. The two recommended stroke risk scores, namely the CHADS 2 (Congestive heart failure, Hypertension, Age > 75, Diabetes mellitus, and prior Stroke or transient ischemic attack

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[doubled] and the CHA<sub>2</sub>DS<sub>2</sub>VASc (Congestive heart failure, Hypertension, Age > 75 [doubled], Diabetes mellitus, and prior Stroke, transient ischemic attack, or thromboembolism [doubled], Vascular disease, Age 65–74, Sex category [female]) were found to be highly predictive for thromboembolism in this acute setting.

Another interesting fact is the occurrence of thromboembolism after short attacks of arrhythmias. It has been shown that up to 4% of the patients with AF of less than 48 hours duration have left atrial thrombi when evaluated using transesophageal echocardiography (TEE). Some have reported the prevalence to be as high as 14%. The incidence of such thrombi is also high in patients who have underlying low ejection fraction. More so, the concept of atrial stunning has also gained acceptance as a possible cause for embolism in the immediate postcardioversion period in acute AF. The term atrial stunning is the paradoxical decrease in left atrial in left atrial appendage (LAA) function after successful cardioversion to sinus rhythm. This may be visualized as decrease in LAA emptying velocity as measured by TEE, which in turn may predispose to stasis, thrombi formation and subsequent embolization. The authors concluded that in the presence of the risk factors, it is highly advisable to give pre- and postcardioversion anticoagulation in the setting of acute AF where cardioversion is being planned within 48 hours.

### **Impact of diabetes on 10-year outcomes of patients with multivessel coronary artery disease in the Medicine, Angioplasty, or Surgery Study II (MASS II) trial**

Eduardo Gomes Lima, Hueb W, Maria Rahmi Garcia R, *et al. Am Heart J.* 2013;166:250–7.

#### **Trial Summary**

Diabetes mellitus is a major cause of coronary artery disease (CAD). Despite improvement in the management of patients with stable CAD, diabetes remains a major cause of increased morbidity and mortality. There is no conclusive evidence that either modality is better than medical therapy alone for the treatment of stable multivessel CAD in patients with diabetes in a very long-term followup. The aim of this study was to compare three therapeutic strategies for stable multivessel CAD in a diabetic population and non-diabetic population.

#### **Methods**

The study compared medical therapy (MT), percutaneous coronary intervention (PCI), and coronary artery bypass graft (CABG) in 232 diabetic patients and 379 non-diabetic patients with multivessel CAD. Endpoints evaluated were overall and cardiac mortality.

#### **Results**

Patients ( $n = 611$ ) were randomized to CABG ( $n = 203$ ), PCI ( $n = 205$ ) or MT ( $n = 203$ ). In a 10-year followup, more deaths occurred among patients with diabetes than among patients without diabetes ( $p = 0.001$ ) for overall mortality. In this followup, 10-year mortality rates were 32.3% and 23.2% for diabetics and non-diabetics respectively ( $p = 0.024$ ). Regarding cardiac mortality, 10-year cardiac mortality rates were 19.4% and 12.7%, respectively ( $p = 0.031$ ). Considering only diabetic patients and stratifying this population by treatment option, we found mortality rates of 31.3% for PCI, 27.5% for CABG and 37.5% for MT ( $p = 0.015$  for CABG vs. MT) and cardiac mortality rates of 18.8%, 12.5% and 26.1%, respectively ( $p = 0.005$  for CABG vs. MT).

#### **Perspective**

Several studies either in entirety or as subgroup analysis, over the years as BARI, BARI 2D and more recently FREEDOM, have tried to assess as to which therapy is best for diabetic patients with stable CAD with multivessel disease. On a whole, CABG has proved superior due to greater degree of complete revascularization. However majority of trails have compared the various interventions (surgery and PCI with BMS and DES). This present study is the longest available followup and also included MT apart from surgery and PCI. They observed that among patients with stable multivessel CAD and preserved left ventricular ejection fraction, the three therapeutic regimens had high rates of overall and cardiac-related deaths among diabetic compared with non-diabetic patients. Moreover, better outcomes were observed in diabetic patients undergoing CABG compared to MT in relation to overall and cardiac mortality in a 10-year followup.