

Project generated by: **Contribution 1mission-1million  
an Initiative of Boehringer Ingelheim  
published in <https://www.heartofstroke.com/all-applications>**

Country: **Canada**

Titel of the project: **Optimal Imaging before pulmonary vein isolation for Atrial  
Fibrillation (OPTIMA Trial).**

## Project details

### **Kevin Michael**

Queen`s University, Heart Rhythm Service, Kingston General Hospital

Award amount: €10,000

The pre-pulmonary vein isolation (PVI) evaluation utilises several imaging strategies ie. transthoracic echocardiogram (TTE), contrast enhanced cardiac computerised tomography (CCT) and transoesophageal echocardiography (TEE) . The TEE is an invasive strategy that is potentially redundant if the yield from CCT is optimised.

Introduction: The TEE in patients electively undergoing a PVI is used to exclude the presence of an intra-atrial thrombus (IAT). It allows a detailed resolution and visualization of the left atrial appendage which is frequent site for clot formation and persistence given its low flow characteristics particularly if the patient is in AF. The danger at the time of a PVI procedure is mechanical dislodgement of the clot and risk of a thrombo-embolic complications which includes stroke during the procedure. The CCT scan is done primarily to assess the anatomy of the left atrium and pulmonary veins. These images allow three dimensional reconstruction of the left atrium (LA) during a PVI increasing the safety and success of the procedure. Occasionally, IAT have been discovered serendipitously at the time of the CT scan. Furthermore it provides additional information regarding the distance between the left atrium and the oesophagus. This separation may represent the width of a protective layer of fat interposed between the LA and oesophagus. The oesophagus position is a concern during a PVI ablation as there is a small (0.05%) but fatal risk of atrio-oesophageal fistula formation as a delayed complication. Increased left atrial size has been observed to reduce the effectiveness of the PVI. The conventional antero-posterior diameter measurement from transthoracic echocardiogram underestimates the left atrium assessment. A volume calculation of the LA using CT scan and TEE potentially is a better marker. Method: A group of 100 patients electively undergoing a PVI procedure for persistent (n=50) and paroxysmal atrial fibrillation (n=50) will be enrolled into this study (figure). All patients will receive a TTE, CCT and TEE pre-procedure. The following parameters will be analyzed: 1. The diagnostic yield of IAT detection between each group will be analyzed. 2. The separation between the oesophagus and LA will be compared using TEE and CCT. The degree of discomfort to the patient will be measured using a quantifiable scale intra-procedurally as well the intra-oesophageal temperature using an indwelling probe. This will be correlated against oesophageal-LA separation to assess for association. 3. A volume assessment from TEE, CCT will be compared to AP diameter assessment by TTE to assess correlation between modalities and procedural duration and success. Conclusion: The trial proposes a rationalised approach to pre-PVI imaging. The TEE increases patient discomfort and may be redundant given the diagnostic yield from CCT and should therefore be selectively applied. The above mentioned trial serves to show that CCT may be a useful replacement modality to exclude IAT and has additional application in assessing LA-oesophageal separation and LA size.

## **Audience**

### **Type**

- AF Patients
- Healthcare professionals

### **Location**

Canada, North America