Utility of routine transthoracic echocardiography following catheter ablation for Atrial Fibrillation

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Introduction: Pericardial effusions are one of the most frequent complications following catheter ablation (CA) for atrial fibrillation (AF). Transthoracic echocardiography (TTE) is routinely performed following CA to exclude pericardial effusions prior to discharge from hospital. However, intra-operative trans-oesophageal echocardiography (TOE) is now used to guide trans-septal puncture in many centres, and to assess for acute pericardial effusions at the end of the procedure. We reviewed the utility of post-procedure TTE following CA in patients where peri-procedural TOE was performed, to guide efficient resource allocation and facilitate early hospital discharge.

Methods: A sample of patients from one year between the dates of October 2017 and October 2018 were assessed. The standards of best practice were defined as: 1. All patients undergoing a RFCA should have a pre-procedure TOE 2. There should be documentation of presence or absence of pericardial fluid at the end of procedure. 3. Images of the TOE should be archived and accessible. 4. It should be documented in the procedure report for the need for a departmental Echo or if this is not necessary. 5. TTE report should be accessible with date, time and findings documented.

Result: We reviewed 277 patients, of these, 3 were excluded as they had significant complications (tamponade, pulmonary oedema, air embolism. This took the final number of patients analysed to 274. 100% of patients had a TOE during the AF ablation procedure. In 60% of TOE performed, the presence or absence of a pericardial effusion was documented. The TOE showed no effusion in 65% of patients, the TTE reported this number as 63%. In 33% of patients the TOE showed trace effusion (<0.5cm), the TTE reported this number as 32%. The number of patients with mild (0.5-1cm) effusions on TOE was 2%, this compared to 6% of effusions reported as mild on TTE. The post procedure TTE did not delay discharge in any patient, with no patients identified as having a significantly increased effusion on the next day TTE.

Conclusion: In patients with uncomplicated catheter ablation for AF, there is good correlation between peri-procedural TOE findings and pre-discharge TTE. In particular, the absence of a significant pericardial effusion on a TOE at the end of the procedure, has a high negative predictive value for excluding acute pericardial effusions complicating CA for AF. Our review suggests that the overall incidence of pericardial effusions following CA for AF is low where trans-septal puncture is performed with TOE guidance. Additionally, where a significant pericardial effusion is excluded by TOE at the end of the procedure and there is no clinical indication for further imaging, routine TTE has limited additive value. These results may guide more efficient utilisation of resources and facilitate early discharge following CA.