Radiofrequency catheter ablation (RFCA) of AF due to sinus node dysfunction

Purpose

1. Background
   - Radiofrequency catheter ablation (RFCA) of AF is more effective in maintaining sinus rhythm (SR)
   - Substantial recurrence rate of AF during long-term follow-up
   - Due to electro-anatomical remodeling
     - Left atrial enlargement
     - Right atrial enlargement
     - Lower endocardial voltage
   - Due to sinus node dysfunction

2. Hypothesis
   - Sinus node dysfunction is related to clinical recurrence of PeAF
   - Post-shock sinus node recovery time (PS-SNRT) could reflect sinus node function.

Methods

1. Study design (Figure 1)
2. Study population
   - Inclusion
     1) Longstanding PeAF
     2) Underwent RFCA
   - Exclusion
     1) AF refractory to CV
     2) Sinus rhythm
     3) LA size > 55mm (by TTE)
     4) Valvular disease
     5) Structural heart disease
     6) Prior RFCA

Results

6. Post-shock sinus node recovery time (PS-SNRT)

3. All patients stopped anti-arrhythmic drugs (AAD), digoxin prior RFCA
4. Calcium channel blocker (n=42, 35.9%), beta blocker (n=26, 22.2%) maintained with associated coronary artery disease or heart failure
5. The 3D spiral CT images
   - Each LA image was divided into 3 portions: the venous LA (posterior LA including the atrium and posterior wall), anterior LA (excluding the LA appendage [LAA] and venous LA), and LAA.
   - The absolute volumes of each portion were calculated adjusted by body surface area (BSA, m²) and compared
7. Radiofrequency catheter ablation (RFCA) (Figure 4)
   - Nax ABL lesion set for 4PVI+CTI+Roof+PostBox
   - Nax CFAE map with additional lesion sets of anterior line and CFAE ablation

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Conclusions

- Increased PS-SNRT
   - Reflects sinus node dysfunction
   - Could be useful tool to predict clinical recurrence in PeAF with electromechanical remodeling of LA