

Background

Since its introduction in clinical practice cryoballoon ablation has been established as an alternative to radiofrequency for pulmonary vein isolation in atrial fibrillation

Troponin elevation after catheter-based procedures for pulmonary vein isolation has been reported in both radiofrequency ablation and cryoballoon ablation and is thought to be related to atrial myocardium injury induced by the technique

The hypothesis of increased injury being related to more extensive damage and increased rates of successful pulmonary vein isolation has been tackled by some studies evaluating cardiac biomarkers for efficacy rates for radiofrequency and to a lesser extent cryoballoon ablation

Objective

We aim to correlate the variation between cardiac injury biomarkers prior to and after ablation to the recurrence of atrial fibrillation in patients undergoing cryoballoon pulmonary vein isolation

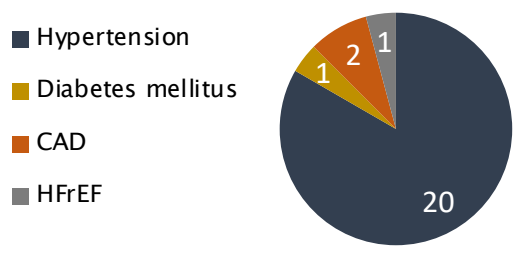
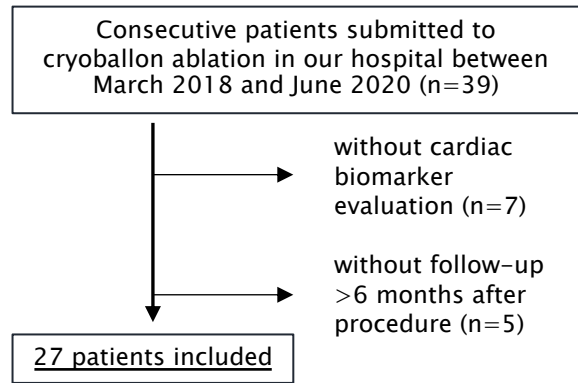


Chart 1. Commonest risk factors

Methods

Single-center retrospective study

Logistic regression was used to identify predictors of recurrence for atrial fibrillation



- Demographic and clinical data collected
- Cardiac biomarkers collected at admission and 18–24h after procedure

Results

27 patients were included:

- 52% (n=14) were female
- Median age of 67 (58–69) years

The commonest risk factors (chart 1) were:

- Hypertension (74%, n=20)
- Diabetes mellitus (4%, n=1)
- Coronary artery disease (7%, n=2)
- Heart failure with reduced ejection fraction (4%, n=1)

Results (cont.)

Atrial fibrillation recurred in 26% (n=7)

- Average variation of high sensitivity troponin T (normal values <14ng/L) 1020 (IQR 721–1562) ng/L
- Average variation of creatine kinase (CK) 131± 107 IU/L

Neither the variation of high sensitivity troponin T (OR 1.00, CI 95% 1.00–1.00, p=0.200) nor the variation of creatine kinase (OR 1.00, CI 95% 0.00–1.01, p=0.412) were predictive of atrial fibrillation recurrence

Conclusion

High sensitivity troponin T suffered a significant variation after pulmonary vein isolation using cryoballoon ablation

In comparison creatine kinase suffered only a marginal variation

Neither cardiac injury biomarkers were predictive of atrial fibrillation recurrence in the reported follow-up period

Discussion

Cardiac troponin was significantly elevated after cryoballoon ablation exceeding the variation threshold for myocardial ischaemia but no correlation was shown to recurrence rates. More studies to elicit the physiopathological pathways for cardiac troponin leakage could help to understand and predict recurrence rates

Disclaimer

- The authors report no conflict of interest