CORRELATION OF THE RADIOFREQUENCY ABLATION PARAMETERS ON TWO-YEAR SINUS RHYTHM MAINTENANCE AFTER TOTALLY THORACOSCOPIC EPICARDIAL ABLATION OF PERSISTENT ATRIAL FIBRILLATION.

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Background

Bipolar radiofrequency surgical ablation is one of the most effective methods of the treatment of atrial fibrillation. The time and energy delivery to achieve it differ between patients. During ablation current bipolar radiofrequency devices measure electrical parameters to optimize it and indicate the moment when transmural ablation has been obtained. Those parameters are directly associated with the electrical characteristics of the tissue, thus and they may be a marker for long-term outcomes.

Aim

We sought to determine whether the electrical parameters of bipolar radiofrequency ablation to achieve an acute conduction block during pulmonary vein isolation (PVI) measured by the device have an impact on the long-term outcome.

Matherials and Methods

In 76 consecutive patients undergoing totally thoracoscopic ablation of persistent atrial fibrillation, electrical parameters of radiofrequency ablation were collected. The measured data included

- a number of energy applications and reposition of clamps,
- the total energy of RF in Watts
- and a total time of ablation required for intraoperative conduction block.

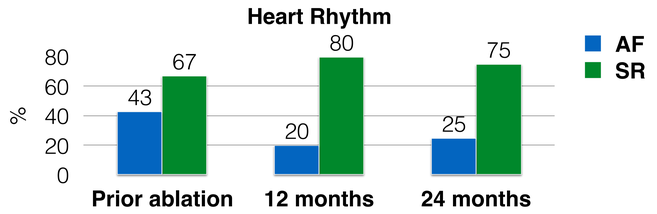
All patients had performed pulmonary vein isolation, connecting lines on the posterior wall of the left atrium and left atrial appendage exclusion. Rhythm was assessed using 24-hour Holter monitoring performed after 6,12 and 24 months.

Results

There were 55 males, the mean age of patients was 59 (+/-9) years. The mean duration of arrhythmia was 92(+/-8) months. 33(43%) patients were in arrhythmia prior to operation.

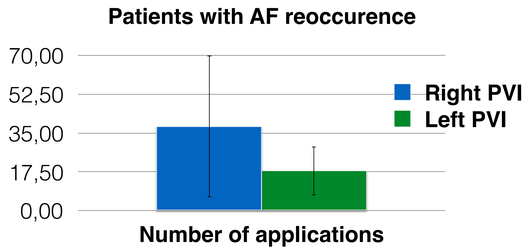
No of patients	76 (100%)
Male	55 (72%)
Age mean years	59(+/-9)
Arrhythmia duration mean years	92(+/-8)

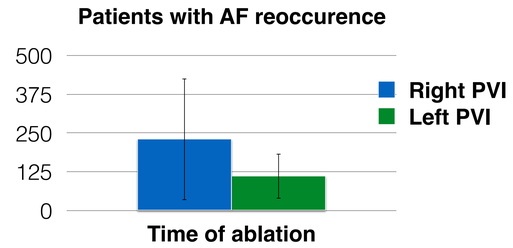
The perioperative period was uneventful. Sinus rhythm was present in 80% and 75% of patients after 12 and 24 months, respectively.

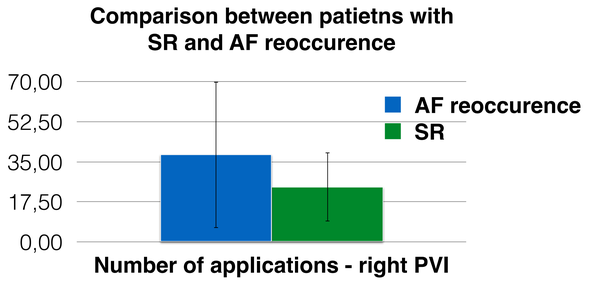


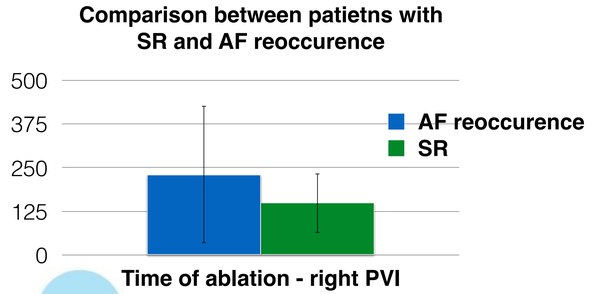
Results

Patients with atrial fibrillation reoccurrence had more energy applications (38(+/-32) vs 18(+/-11);p=0,005) and longer time of ablation (230(+/-197) vs (111(+/-72);p=0,001) during right PVI than during left PVI and also when compared to patients with sinus rhythm (38(+/-32) vs 24(+/-15);p=0,011 and 230(+/-197) vs 149(+/-85);p=0,015 respectively).









Conclusions

Patients in whom more energy applications and longer ablation time were required to achieve acute conduction block across PVI had a higher rate of atrial fibrillation reoccurrence. This may indicate higher fibrosis of the left atrium.