

| | | Total N | N of Events | Censored | | p |
|------------|---------|---------|-------------|----------|---------|------|
| | | | | N | Percent | |
| AFRPS≤2.55 | PVI | 708 | 179 | 529 | 74,7% | .317 |
| | PVI+RL | 41 | 14 | 27 | 65,9% | |
| | Overall | 749 | 193 | 556 | 74,2% | |
| AFRPS>2.55 | PVI | 338 | 178 | 160 | 47,3% | .005 |
| | PVI+RL | 91 | 34 | 57 | 62,6% | |
| | Overall | 429 | 212 | 217 | 50,6% | |

LATE CLINICAL RECURRENCES OF ARRHYTHMIA IN PATIENTS TREATED FOR ATRIAL FIBRILLATION WITH THE CRYO-BALLOON CATHETER ABLATION TECHNIQUE. TEN YEARS EVOLUTIVE ANALYSIS. A SINGLE CENTER REPORT

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INTRODUCTION Cryo-Balloon Catheter Ablation Technique (CB) has been proven in the last decade to be effective and safe to treat patients (pts) with Atrial Fibrillation (AF) by achieving complete circumferential electrical isolation of the pulmonary veins (PV) from the Left Atrium (LA).

However a significant rate of early clinical recurrences has been described mostly because of LA-PV reconnection. We retrospectively analyzed in a large ten years follow-up of our serie of pts treated for Paroxysmal (PAF) or Long Standing Persistent Atrial Fibrillation (LSPAF) with CB, the incidence and characteristics of the late clinical recurrences of the arrhythmia.

METHODS Since November 2008 to April 2019, a total of 371 pts (267 male / 104 female) suffering AF (225 PAF / 146 LSPAF) were referred to our Institution and treated with CB to achieve the electrical Isolation of their PV from the LA in a attempt to cure the arrhythmia.

Late recurrence was defined by the appearance of the clinical arrhythmia one year after the three months “Blanking Period” on medication, and supported by the clinical manifestation of pts, along with full ECG documentation of the arrhythmia, lasting more than 10 minutes on a stable stage.

RESULTS In this ten years of retrospective analysis 23 pts (6.2%) (mean age 56±12; 20 male / 3 female) meet the full criteria previously described to be consider as “Late Clinical Recurrence”.

None pts had structural heart disease. Initial time of the know arrhythmia was 4.5±4 years (1-15). Seventeen pts (7.5%) in the group of PAF (mean age 57±12 (31-75) 14 male /3 female) Versus 6 pts from the group of LSPAF, all man (mean age 64±6 (57-62)) Late recurrence appearance time: 27±14 month (16-50).

All pts were submitted for a new “review” CB procedure (RCB).

In the group of PAF 14 pts (82.5%) out of 17 showed PV reconnection and 50% in the group of LSPAF (3 out of 6 pts).

Six pts with PAF showed Left Common Trunk (LCT) reconnection (42.8%).

Two pts with LSPAF showed LCT reconnection (33.3%).

Gender male incidence was higher in the group of PAF 64.7%, and 100% in the group of LSPAF. Hypertension was a risk common factor associated with clinical recurrences in pts with PAF and complete electrical isolation of their PV demonstrated.

First Generation CB1 was used only in 50% of pts with recurrence PAF. On follow-up of 28±23 months (9-69) after RCB, 7 PAF pts (41.2%) remain in sinus rhythm (SR) with no medication, 3are still on “Blanking Period”, and in the other 4, the arrhythmia

recurred again. In LSPAF group, 3 pts (50%) with clinical recurrence and PV isolated, remain in SR on medication; the other 3 pts, the arrhythmia recurred again with PV isolated, remaining in SR on medication.

Morphological and structural data are show in Table.

CONCLUSIONS

- 1- The most important cause of clinical arrhythmia recurrence after CB is the LA-PV reconnection (82.5%) in pts with PAF.
- 2- Hypertension is associated with a higher rate of recurrence, even in pts with complete electrical isolation of their PV demonstrated.
- 3- LA-PV reconnection and atrial remodeling process play a similar role in the recurrence of the clinical arrhythmia in pts suffering LSPAF.

Table.

Morphological and structural data.

| | | LA | PV | LCT | RCT | LVEF | |
|--------------|----------------|------------------------------------|-----------------|-----------------|-----|-------|---------|
| PAF 17pts | Diameters (mm) | | 62 | 6 | 0 | | |
| | AP | 39±5 (29-47) | 20±3 (14-26) | 25±5 (19-31) | | 68±8% | (55-76) |
| | SI | 51±5 (43-60) | 21±4 (12-27) | 30±3 (28-35) | | | |
| | LAT | 40±5 (31-47) | | | | | |
| | LA/AREA | | | | | | |
| | | (cm ²) 20±3 (15-24) | | | | | |
| PER 6pts | Diameters (mm) | LA | PV | LCT | RCT | LVEF | |
| | AP | 43±4 (40-50) | 22±4 (14-28) | 28±4 (25-31) | 33 | 66±5% | (60-70) |
| | SI | 56±5 (50-62) | 21±3 (14-27) | 35±2 (34-37) | 34 | | |
| | LAT | 43±7 (33-49) | | | | | |
| | LA/AREA | | | | | | |
| | | (cm ²) 24±5 (17-30) | | | | | |

LTC: Left Common Trunk

RCT: Right Common Trunk

LVEF: Left Ventricular Ejection Fraction

LA: Left Atrial

PV: Pulmonary Veins

PAF: Paroxysmal Atrial Fibrillation

PER: Persistent Long Standing Atrial Fibrillation

TEN YEARS OF CRYO-BALLOON CATHETER ABLATION TREATING PATIENTS WITH ATRIAL FIBRILLATION. LONG TERM RESULTS. CLINICAL RECURRENCES AND COMPLICATIONS A SINGLE CENTER REPORT

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INTRODUCTION The electrical disconnection of the pulmonary veins (PV) from the left atrium (LA) by Cryo-Balloon ablation (CB), has proven effective and safe to treat patients (pts) with atrial fibrillation (AF). We