

## Seven Years Of Cry-Balloon Catheter Ablation. Follow-Up Analysis, Results, Recurrences, Complications And Side Effects In Patients Treated For Paroxysmal Atrial Fibrillation, With A Prospective Protocol Guided By Complete Bidirectional Left Atrium-Pulmonary Veins Disconnection After Adenosine As Main Target End Point. A Single Center Report.

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### Abstract

**Introduction:** Cry-balloon catheter ablation technique (CB) has demonstrated been useful to treat patients with Paroxysmal Atrial Fibrillation (PAF).

We analyzed our seven years follow-up experience of our patients, initially treated with CB for PAF, with demonstration of complete bidirectional electrical isolation (CBEI) of the pulmonary veins (PV) from the left atrium (LA) after Adenosine as the main target end point to achieve, in all cases.

**Methods:** Since Nov.-2008 to May-2015, a cohort of 104 patients (pts.) (81 Male and 23 Female, mean age  $53 \pm 13$  and  $62 \pm 9$  years, respectively), with not structural heart disease, were treated for PAF with CB.

Years evolution of Arrhythmia:  $5 \pm 5$ . Number of episodes / year:  $62 \pm 69$ . Follow-up time:  $1347 \pm 623$  days. All previously treated with antiarrhythmic: 88 (85%), class III (2%), 1C class (89%) 88 + 1C (76%).

Morphological and structural data are shown in Table.

**Results:** A total of 394 PV and 22 common trunks (CT) were treated only with CB and CBEI demonstrated in 353 (89.5%). Acute reconduction post CB showed 41 PV (10.4%): 14 residual conduction (GAP), 12 extrapulmonary muscular connections (EMC) and 15 dormant tissue unmasked by Adenosine, all eliminated with RF.

Side effects and complications: Aphonia: 6 pts (5.7%). Phrenic paresis: 7 (6.7%). Phrenic palsy: 2 (1.9%). Pulmonary infiltrates: 5 (4.8%). Dyspepsia: 2 (1.9%). Bronchospasm: 2 (1.9%). Intra-nodal reentry: 2 (1.9%). In-hospital arrhythmia: 1 (0.9%).

In  $45 \pm 21$  months follow-up, 91 pts (87.5%) remain asymptomatic, in sinus rhythm, free of medication. Thirteen pts. (12.5%) had clinical recurrence: 11 M mean age  $52 \pm 8$  years and 2 F  $63 \pm 13$  years. Early recurrences occurred when medication stopped after three months blanking-period in 9 male. Late recurrences presented two male at 24 and 27 months and 2 female at 7 and 40 months respectively. All recurrences were REDO, and PV-LA reconduction demonstrated in all cases. From these 13 REDO cases, 6 showed reconduction in the basal procedure, in a different segment location unrelated with the acute GAP.

In a follow up of  $30 \pm 17$  months, all 13 REDO pts remained in sinus rhythm without medication.

**Conclusions:** CB technique alone is very effective for the definitive treatment of PAF, with 87.5% of pts, remaining in sinus rhythm, free of arrhythmia, without medication, in a very long-term follow-up, when this CBEI protocol in a prospective manner is applied, being this serie the largest follow-up described, so far.

LA Diameter (mm)	LA/AREA (cm <sup>2</sup> )	PV (mm)	CT	LVEF
AP: 37±6 (21-60)	22±4 (15-26)	AP: 18±5 (8-32)	AP: 26±6 (18-35)	67±9% (59-79)
LA: 47±7 (35-61)		St: 20±4 (10-28)	St: 26±5 (17-31)	
St: 54±7 (40-75)				