

oesophagus was observed in all the cryo-ablation procedures. The lowest temperatures were observed in the LSPV vs. RSPV (32.9 ±4.2 vs. 34.7 ±1.5 °C; p=.02) and in the LIPV vs. RIPV (32.5 ±2.2 vs. 34.2 ±2.2°C; p=.02). Oesophageal temperature decreased less than 30°C in 28% of the pts (25/90) and less than 20°C in 4.5% of the pts (4/90). Oesophageal endoscopy was performed in the 2 pts in whom the temperature dropped to less than 15°C. A superficial parietal lesion associated to a clot was visualized in 1 case which recovered under PPI treatment. In the other case, a 12 h delayed tamponnade needing percutaneous drainage occurred. All the reduction of the oesophageal temperature less than 20°C occurred with a 28 mm diameter balloon.

Conclusions: We observed, mainly in the left PVs, a weak but significant cooling of the oesophagus during cryo-balloon isolation of pulmonary veins. A temperature drop in the oesophagus less than 20°C occurred in 4.5% of the pts and should be avoided.

PO06-37

LOCALIZATION OF MUSCLE SLEEVES AND FOCAL TRIGGERS AROUND SUPERIOR VENA CAVA (SVC) - RIGHT ATRIAL (RA) JUNCTION IN PATIENTS WITH ATRIAL FIBRILLATION (AF)

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Introduction: Non- pulmonary vein triggers were found to play a role in the initiation of AF. Up to 30% of the non-pulmonary vein triggers of AF have been shown to originate in the region surrounding the superior vena cava-right atrial junction (SVC-RA) junction. Details of the distribution of the muscle sleeves (characterized by the presence of double potentials) and the focal triggers in this area are not well understood.

Methods: This study included 211 patients who underwent AF ablation between 2006 - 2008. All patients were assessed for PV and non-PV triggers. All PVs and SVC-RA junction were localized with intracardiac echocardiography and mapped with a circular mapping catheter for the presence of double potentials and triggers. Presence of muscle sleeve connection was defined by the presence of double potentials and the focal trigger as the earliest potential at least 30 msec pre-QRS which occurs spontaneously or on high dose isoproterenol (20mcg/kg/min). The SVC-RA junction was divided into 4 quadrants (anteroseptal- AS/posteroseptal-PS/posterolateral-PL and anterolateral-AL). Clinical and procedural characteristics were obtained.

Results: Double potentials were found at the SVC-RA junction in 156 (75%) patients. Demographic variables included - mean age 59 yrs, males 70% , Caucasian 96%, mean BMI 31.1kg/m², paroxysmal AF 48% , mean AF duration 5.6 years, mean EF 57% and left atrial size 4.14 cm. Double potentials were seen in 261 quadrants in 156 patients. The distribution as follows - AS (44%, n=113), PS (44%, n=115), PL (6%, n=17) and AL (6%, n=16). Only 5% (n=12) of these quadrants had focal triggers distributed as follows - AS (n=5), PS (n=5), PL (n=1) and AL (n=1). Mean EF was 57% and left atrial size was 4.14. RF ablation was performed in all but 16 patients who had diaphragmatic stimulation along the lateral quadrants. Only 1 patient had a trigger in the AL quadrant with diaphragmatic stimulation and no ablation could be performed.

Conclusions: Atrial muscle sleeves seem to be present

predominantly along the septal quadrants of the SVC-RA junction and contribute to majority of the triggers in this region.

PO06-38

EFFICACY OF A NOVEL CIRCULAR MULTIELECTRODE ABLATION CATHETER FOR PULMONARY VEIN ISOLATION: AN ANATOMIC ANALYSIS USING 3-D CT RECONSTRUCTION OF THE LEFT ATRIUM

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Introduction: Aim of the study was to assess the acute efficacy of a new radiofrequency circular multielectrode ablation catheter (Pulmonary Vein Ablation Catheter™ [PVAC], Ablation Frontiers, Carlsbad, CA, USA) in isolating pulmonary veins (PV) and its relation to PV anatomy.

Methods: Fifty patients (pts) (52% males, mean age 61.7 ± 9.8 yrs, LVEF 58 ± 6.9%, LA diameter 39.1 ± 6 mm) with paroxysmal AF referred for catheter ablation were analyzed. Multi-slice CT scan was obtained prior to ablation in order to reconstruct a 3-D left atrial anatomy. Maximum and minimum diameters as well as area of all PV ostia were measured using the dedicated software of a 3-D mapping system. Ratio between the maximum and the minimum PV ostium diameter defined PV shape (round ≤1.2, oval >1.2 and ≤1.4, flat >1.4).

Results: A total number of 197 PV ostia were characterized (Table A). PV were considered isolated by demonstration of entry and exit block also after adenosine challenge. In case of failure to isolate PV with the PVAC, a 4 mm irrigated tip catheter was used. PVI was achieved in 40 pts (80%) and in 185 PVs (94%) with PVAC alone. Distribution of PV not isolated by PVAC was: left superior n=4 (11%), left inferior n=2 (5%), right superior n=2 (4%), and right inferior n=4 (8%) (tables B and C).

Conclusions: PVAC achieved PVI in the majority of PV with different anatomic characteristics. PV ostium diameters, area, and shape do not seem to influence the efficacy of this novel ablation catheter.

	LSPVo (n= 39)	LIPVo (n= 29)	LCPVo (n=7)	LCPVa (n= 5)	RSPVo (n= 50)	RIPVo (n= 50)	RMPVo (n= 9)
Major diameter (mm)	19.1 ± 3.1	16.4 ± 2.2	30.9 ± 4.4	33 ± 3.9	20 ± 3.4	19 ± 3.2	9.6 ± 2.2
Minor diameter (mm)	13.9 ± 3	11.4 ± 2.9	16 ± 2.6	15.8 ± 2.2	16.1 ± 3.1	15.9 ± 2.6	8.3 ± 1.7
Area (cm ²)	2.1 ± 0.7	1.5 ± 0.5	3.8 ± 0.8	3.8 ± 1.3	2.5 ± 0.8	2.3 ± 0.7	0.7 ± 0.3
Diameter Ratio	1.4 ± 0.3	1.5 ± 0.4	2 ± 0.4	2.1 ± 0.2	1.3 ± 0.2	1.1 ± 0.2	1.2 ± 0.2
Shape (round/oval/flat) (%)	26/29/45	24/29/47	0/0/100	0/0/100	53/30/17	72/26/2	71/15/14

Area (cm ²)	Successfully Isolated	Not-Successfully Isolated
LSPVo	2 ± 0.5	3.2 ± 1.3
LIPVo	1.5 ± 0.5	1.5 ± 0.4
RSPVo	2.5 ± 0.8	3.2 ± 0.5
RIPVo	2.2 ± 0.7	2.4 ± 0.8

Diameter Ratio	Successfully Isolated	Not-Successfully Isolated
LSPVo	1.4 ± 0.3	1.5 ± 0.3
LIPVo	1.5 ± 0.3	1.4 ± 0.4
RSPVo	1.2 ± 0.2	1.3 ± 0.2
RIPVo	1.1 ± 0.2	1.2 ± 0.2

LSPVo: left superior pulmonary vein ostium;
 LIPVo: left inferior pulmonary vein ostium;
 LCPVo: left common pulmonary vein ostium;
 RSPVo: right superior pulmonary vein ostium;
 RIPVo: right inferior pulmonary vein ostium;
 RMPVo: right middle pulmonary vein ostium.