

P1633 Safety and indication of substrate-based catheter ablation of left ventricular tachycardias in patients with ICD shock deliveries. a single centre experience



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Purpose: Catheter ablation of left ventricular tachycardias (VT) in patients with ICD shock deliveries are restrictedly used due to serious risks and uncertain outcome. We report our single centre experience about efficacy and safety of substrate-based VT ablation in patients with structural heart disease in order to discuss the indication for catheter ablation.

Methods: Over a period of 7 years 151 left ventricular substrate-based ablations were performed in 103 patients with ICD shock deliveries due to unstable VTs. Arrhythmogenic areas were identified by pace mapping for documented (12-lead holters) or inducible VTs after endocardial voltage and fractionation mapping during sinus or paced rhythm. Along delineable low voltage areas of less than 1.5 mV bipolar electrograms amplitude linear ablation lines were performed through best pace mapping points otherwise most delayed and fractionated local electrograms were targeted using cooled-tip radiofrequency applications (30-40 Watts, flow: 18 ml/min) with the endpoint of non-inducibility of all clinical VTs. ACT was kept above 250s by intravenous heparin throughout the procedure and anticoagulation with heparin was continued for at least 48 hours after the procedure. Thereafter, anticoagulation was continued in most patients with coumadin for three months depending on left ventricular function and extent of ablation.

Results: Success rate for ICD shock-free survival after one year follow up accounted for 77% in post infarction patients (n=74), however, was only 52% in patients with non-ischemic cardiomyopathy (n=29). Five procedure-related serious complications occurred in 151 catheter interventions accounting for a 3.3% risk per procedure, in detail two pericardial tamponade, one of them was lethal (0.7%) during a bail-out ablation of an electrical storm, two major cerebrovascular events (1.3%) and one pulmonary embolism. All post infarction patients (n=74, with 103 ablation procedures) remained free of new compromising symptoms, since the two patients with cerebrovascular embolic events survived without compromising neurological symptoms due to immediate systemic thrombolytic therapy.

Conclusions: Substrate-based catheter ablation even of unstable VTs in post infarction patients was demonstrated to have a favorable outcome, however, efficacy to risk relation was less favorable in patients with non-ischemic cardiomyopathy. Our results are in favor of an extended indication for catheter ablation of VTs in post infarction patients in case of ICD shock deliveries.

P1634 Patient characteristics and ablation procedures in electrophysiologic centers: first results from the German ablation registry



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Background: The German Ablation Registry is designed as a multi-centric prospective registry for electrophysiologic ablation procedures. Patient (pt) characteristics and ablation procedures are documented by >55 German electrophysiologic centers. This is the first report about preliminary data from the German Ablation Registry.

Methods and Results: From 03/07 to 02/09, 7.356 pts (4509/61.3% male, median age 58y (30-73) were included in the registry. 2808 pts (38.2%) suffered from cardiac diseases, i.e. coronary artery disease in 1433 (51.0%), hypertension in 942 (33.5%), valvular heart disease in 555 (19.8%), and cardiomyopathy in 311 pts (11.1%). LV function was normal in 5593 pts (76.0%). 7044 pts (95.8%) had recurrent palpitations, and 5747 pts (78.1%) > 1 episode/month. 5060 pts (68.9%) were refractory to antiarrhythmic medication. Patients were divided into 5 groups according to their tachycardia: 1. AV nodal reentry tachycardia (AVNRT), 2. AV reentry tachycardia (AVRT)/WPW syndrome, 3. atrial flutter (AFlut), atrial macro-reentry tachycardia (ART), 4. focal atrial tachycardia (FAT), 5. atrial fibrillation (AF). The Table shows the results of the ablation procedures.

Data from the German Ablation Registry

	AVNRT	AVRT/WPW	AFlut/ART	FAT	AF
Number of patients	1659 (22.6%)	454 (6.2%)	2267 (30.8%)	257 (3.5%)	2719 (37.0%)
First ablation	1571 (93.8%)	397 (86.7%)	2056 (88.8%)	209 (77.7%)	2077 (75.6%)
3D mapping	90 (5.4%)	18 (3.9%)	237 (10.2%)	121 (45.0%)	1679 (61.1%)
3D imaging (CT, MRI, ICE)	1 (0.1%)	0 (0%)	8 (0.3%)	2 (0.7%)	78 (2.8%)
Successful ablation	1636 (98.7%)	429 (94.7%)	2171 (95.9%)	212 (82.5%)	2595 (95.5%)
Recurrence before					
discharge	10 (0.6%)	7 (1.6%)	26 (1.2%)	13 (5.1%)	205 (7.6%)
Minor complications	14 (0.9%)	8 (1.9%)	21 (1.0%)	5 (2.1%)	74 (3.6%)
Moderate complications	16 (1.0%)	3 (0.7%)	29 (1.4%)	6 (2.5%)	66 (3.2%)

Minor complications = AV block *1 or 2, or LBBB or RBBB etc. Moderate complications = TIA, reanimation, bleeding, high degree av block, sepsis, surgical interventions, etc.

Conclusion: Patients with SVT often presented with normal LV function without structural heart diseases. In case of structural heart diseases, coronary artery

disease was most frequent. Ablation for AF has become the most frequent procedure with highest use of 3D mapping and imaging systems. However, this group also showed the highest rate of recurrent procedures and complications.

P1635 Validation of PV isolation of multi-electrode duty cycled radiofrequency ablation in patients with paroxysmal and persistent atrial fibrillation



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Purpose: A novel multi-electrode catheter (PVAC) combining circular mapping and duty cycled multi-electrode radiofrequency energy delivery has been developed to map and isolate the pulmonary veins (PVs). The aim of this study was to validate the isolation of the PVs using a standard circular mapping catheter.

Methods: 102 consecutive patients, age 57.9±9.6 years, with paroxysmal or persistent drug refractory AF were referred for ablation. All pts had documented AF episodes with an AF duration of 9.3±7.5 years (range 1.5-25).

Results: The total procedure time was 117±55 min (65 to 204). In 5 pts additional ablation using conventional RF catheter ablation was necessary. The mean RF ablation time required to achieve complete PV isolation was 31±8 min (range 16-51). Isolation of the PVs was confirmed using a standard circular mapping catheter. In 8 pts with persistent AF additional ablations were performed to defragmentate septal and posterior part of the left atrium. At the latest follow up 73% of the patients were in sinus rhythm.

Conclusions: 1] This novel technique can be used safely for PV isolation and LA ablation, 2] The success rate for PV isolation was 100% using the PVAC alone and confirming isolation with a standard circular mapping catheter and 3] the PVAC is more effective in smaller PVs compared to pulmonary veins with a diameter >25 mm and 4] Larger studies are required to evaluate the whether the PVAC is associated with a different complication rate compared with standard PV isolation.

P1636 Which of the methods to choose for catheter ablation of chronic atrial fibrillation: ostial PV ablation, circumferential PV ablation or GP ablation?



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Purpose: Each of the main approaches to catheter ablation of atrial fibrillation (AF) is associated with limited efficacy in patients with chronic AF. The objective is to report outcomes of ostial PV ablation, circumferential PV ablation and ganglionated plexi (GP) ablation in patients with chronic AF.

Methods: The patient population was composed of 94 patients (age 57±9 years) with chronic AF who underwent catheter ablation. 28 (29.8%) of those patients underwent ostial PV ablation, 32 patients (34%) - circumferential PV ablation and 34 patients (36.2%) - GP - ablation.

Results: After a follow-up of 13±7 months, the single-procedure success rate was 17.9% (n = 5) with an additional 10.7% (n = 4) showing improvement after ostial PV ablation. The procedure was repeated in 57.2% of the cases, the success rate was 39.2% (n = 11) with an additional 17.9% (n = 6) showing improvement. All patients who underwent repeated ablations recovered PV conduction. After circumferential PV ablation the success rate was 59.3% (n = 19) with an additional 12.5% (n = 4) showing improvement. The procedure was repeated in 28.1% of the cases, the success rate was 78.2% (n = 25) with an additional 15.6% (n = 5) showing improvement. After GP - ablation success rate was equal to 67.6% (n = 23) with an additional 8.8% (n = 3) showing improvement. We repeated the procedure for 26.5% of the cases with a success rate of 73.5% (n = 25) with an additional 11.8% (n = 4) showing improvement. There was also a tendency for patients who underwent repeated ablations in combination of different procedures (ostial, circumferential, and/or GP) to have a higher AF-free survival when compared with patients subjected to the same procedure (P-value for log-rank test = 0.032). Independent predictors of later arrhythmia recurrences were longer AF duration (OR 1.1), left atrial volume (OR 1.18), history of hypertension (OR 1.58).

Conclusion: After comparing long-term results, GP ablation demonstrated better results in the maintenance of sinus rhythm in the majority of patients with chronic AF for at least 13-month period.

P1637 Cryoballoon pulmonary vein isolation



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Purpose: Linear pulmonary vein isolation (PVI) with radiofrequency energy is widely used for catheter ablation in symptomatic patients with pharmacologic refractory paroxysmal atrial fibrillation (AF). A novel technology is cryothermal energy applied via a double lumen balloon catheter (ArcticFront).

Methods: We tested this technique in 75 consecutive patients with paroxysmal AF (median age 57; range 31-75; 21 women) who had failed anti-arrhythmic therapy. We used a 23 or 28 mm balloon depending on pulmonary vein diameter.