

P5691

Independent assessment if an image-processing service for the treatment of patients with ventricular tachycardias

F. Spies, M. Kuhne, P. Brantner, P. Haaf, I. Zeljkovic, A. Madaffari, T. Reichlin, S. Osswald, C. Sticherling, S. Knecht
 University Hospital Basel, Cardiology, Basel, Switzerland

Background/Introduction: Substrate-based radiofrequency ablation (RFA) in combination with pre-procedural computed tomography (CT) or cardiac Magnetic Resonance Imaging (cMRI) emerged as a promising approach to treat ventricular tachycardias (VT). However, image-processing and 3D reconstruction of the relevant structures to embed them into a 3D electroanatomical mapping (EAM) system is time consuming and requires highly experienced personal and a dedicated software.

Purpose: The aim of the study was to present the first independent experience with a commercially available service of a internet platform in patients referred for RFA of VTs.

Methods: Seven consecutive patients (pts) with ischemic cardiomyopathy (ICM), non- ischemic cardiomyopathy (NICM) and dilated cardiomyopathy (DCM) referred for VT RFA underwent contrast-enhanced dual-energy CT. The anonymized DICOM dataset was uploaded to the internet platform. After processing by the specialists, the dataset was downloaded and exported in a format compatible with the 3D EAM System. The EAM was performed in sinus rhythm using a 3.5mm open-irrigated tip catheter or a magnetic remote 3.5mm open-irrigated tip catheter in combination with

the remote magnetic navigation-system. A multipolar high-density mapping catheter was used in 6 pts. Scar was defined as bipolar voltage <0.5 mV, and scar border zone ≥0.5mV and <1.5 mV.

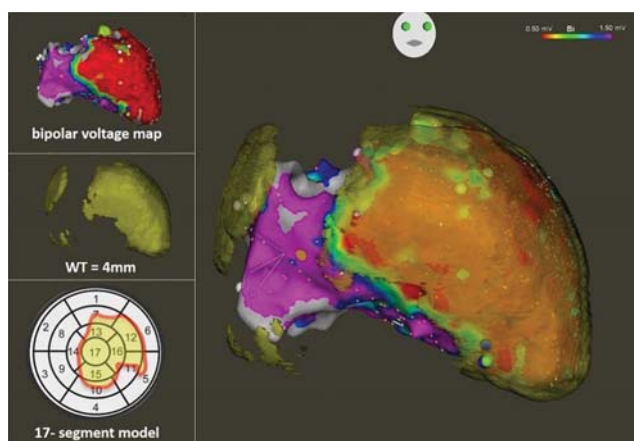
Results of the internet platform-derived wall thinning (WT), scars and the defined substrate based on 3d EAM voltage maps were transferred into a 17-segment model, and the filling of every single segment was rated as 0%, 25%, 50%, 75% and 100%. For analysis, agreement of the filling (percentage) of the individual segments was quantified.

Results: Mean age was 67±8 year, BMI was 28±5 kg/m² and 86% were males. File transfers and image processing was feasible in all patients. Agreement between the defined substrate (<0,5mV) and WT of 4mm was very good (≥90%) in 3 pts, good (≥75% & <90%) in one patient, moderate (≥50% & <75%) in one patient and poor (<50%) in one patient.

Conclusion(s): Integration of substrate-based segmentation using the service of the internet platform is feasible in daily practice. Agreement between voltage-map based substrate definition and internet platform-based WT was satisfactory in the majority of patients.

Patient	#1	#2	#3	#4	#5	#6	#7
Sex	male	male	male	female	male	male	male
Age	63y	56y	71y	65y	60y	69y	81y
BMI	31kg/m ²	32kg/m ²	19kg/m ²	25kg/m ²	28kg/m ²	34kg/m ²	29kg/m ²
LVEF	25%	60%	25%	25%	25%	31%	34%
EDVI	123ml/m ²	184ml/m ²	69ml/m ²	114ml/m ²	142ml/m ²	105ml/m ²	75ml/m ²
Catheter	multipolar high-density + 3.5mm open-irrigated tip	3.5mm open-irrigated tip	multipolar high-density + 3.5mm open-irrigated tip	multipolar high-density + 3.5mm open-irrigated tip	multipolar high-density + magnetic remote 3.5mm open-irrigated tip	multipolar high-density + magnetic remote 3.5mm open-irrigated tip	multipolar high-density + magnetic remote 3.5mm open-irrigated tip
Quality	98%	96%	91%	66%	89%	no match	53%

Quality = Percentage match between defined substrate and WT.



Superimpose – wall thinning and FAM