2013 and February 2016 were enrolled. CB-PVI was performed in 85 pts (age: 64,1±8,6 yrs., AF duration: 5,8±5,9 yrs.) while, LA-RFCA in 74 pts (age: 58,5±9 yrs., AF duration: 4±3,4 yrs.). The procedure time (70±16 min vs. 121±43 p<0,0001) and fluoroscopy time (12±5 min vs 15±9 min p=0.0314) were shorter in the CB-PVI group . No major complication occured in the investigated groups. Transient phrenic nerve injury was observed in 7% of the CB-PVI group. During the follow up (FU) visits, freedom of arrhythmia was defined based on patient reports, ECG, Holter and transtelefonic ECG recordings.

**Results:** After two years of FU 38,8 % of patients in CB-PVI group and 39,2 % of patients in LA-RFCA group remained free of any arrhythmia. Paroxysmal AF with significant improvement in qualitiy of life was observed in 10 % of LA-RFCA and 14 % of CB-PVI group following the ablation procedures. Due to the substantial decrease in arrhythmia burden, these paroxysmal AF patients improved the procedural ,,success rate' to 50 % in LA-RFCA group and to 54 % in CB-PVI group. During the follow-up period 15% of the CB-PVI group and 17,5% of the LA-RFCA group underwent redo ablation. The two-year persistent AF free survival - taking into consideration the paroxysmal AF patients with significant improvement in QoL and patients who underwent successful redo procedures - resulted in a success rate of 60,8 % in the LA-RFCA group and 61,2 % in the CB-PVI group.

**Conclusion:** Pulmonary vein isolation completed with linear and focal ablations did not improve the arrhythmia free survival rate as compared to PVI-alone performed by CB in persistent AF patients. Both methods are equally effective in this patient population based on two years follow up results.

### P1109

**Safety and efficacy of persistent atrial fibrillation ablation using the second generation cryoballoon**

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**Background:** The second generation cryoballoon (CB) is increasingly used for treatment of persistent atrial fibrillation (AF). Data regarding the clinical outcome and mechanism of arrhythmia recurrence following persistent AF ablation using the CB is sparse. In this study, we aimed to assess the efficacy and mechanism of atrial tachyarrhythmia (ATA) recurrence after second-generation cryoballoon in patients with persistent AF.

**Methods and results:** A total of 100 patients (66±10 years, 61% male) with symptomatic persistent AF, who were scheduled for PVI using second generation CB were enrolled. Follow-up included 24 hour Holter recording at at three, six and 12 months. Recurrence was defined as a documented arrhythmia episode of >30 seconds following a three-month blanking period. All targeted veins were isolated (100%). Phrenic nerve palsy occurred in three patients, no patients experienced tamponade or a cerebrovascular event. During 14.7±4.6-months of follow-up, 67% of the study patients were free of ATA recurrences. Independent predictors of arrhythmia recurrence included recurrence within the blanking period (p<0.001), presence of cardiomyopathy (p=0.01) and PV abnormality (p=0.017).

**Conclusion:** In patients with persistent AF, second-generation cryoballoon use is associated with an excellent safety profile and and favourable outcomes. Arrhythmia recurrence during the blanking period, presence of cardiomyopathy and PV abnormality were independent predictors of long-term AF recurrence.

## VENTRICULAR TACHYCARDIA

### P1110

**Within-patient variability in scar channelicity assessed by magnetic resonance imaging in patients with scar-related ventricular tachycardia**

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**Funding Acknowledgements:** MS was supported by the Research Fellowship of the ESC 2017/2018

**Background:** Scar channelicity is a complex index determined from contrast-enhanced magnetic resonance imaging (CE-MRI) which reflects the degree of embedding of a channel of heterogenous scar tissue (scar borderzone [BZ]) in surrounding dense scar tissue (scar core [SC]). It is a novel imaging marker which has been used to evaluate scar arrhythmogenity. However, assessment of scar channelicity depends on highly subjective segmentation of SC/BZ by setting arbitrary signal intensity (SI) thresholds based on the maximum SI of the left ventricular myocardium. This may represent a source of considerable within-patient variability in the assessment.

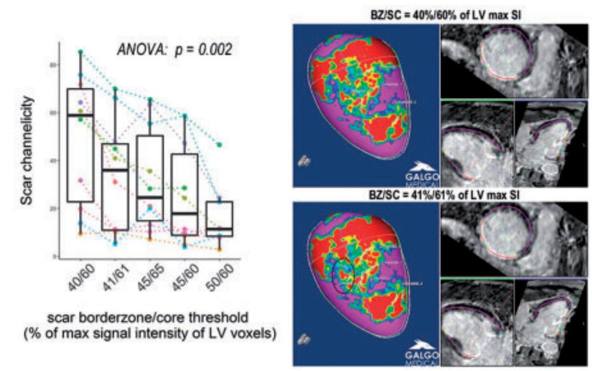
**Purpose:** This study evaluated how application of different threshold definitions of SC and BZ affects assessment of the scar channelicity.

**Methods:** We included 10 patients with ventricular tachycardia ischemic scar-related who underwent high-resolution 3D CE-MRI (3T-Intera, Phillips Medical Systems, The Netherlands) before ablation and who had outstanding quality of the images. Scar channelicity was determined using a dedicated software (ADAS-VT+, Galgo Medical, Barcelona, Spain). Five different thresholds for segmentation of BZ and SC were applied (Figure 1). Statistical comparisons were performed by ANOVA and by paired Wilcoxon test.

**Results:** Different threshold definitions of BZ/SC resulted in significantly different values of scar channelicity (Figure 1). A median of 4 scar channels per patient (IQR 1—5, range 27) were identified using the software's default definition of BZ/SC (voxels brighter than 40%/60% of maximum SI). Changing the thresholds by only 1% (to 41%/61%) generated a median of 1 new channel per patient (IQR 0—2, p = 0.056), increased the scar channelicity by 42% (IQR 23—117%, p = 0.004), and increased the BZ/SC mass ratio by 1.1% (IQR 0.6—1.5%, p = 0.006), although the change in the size of the SC and BZ was visually undetectable (Figure 1) and statistically not significant (-3 ± 1.5 g and -1.5 ± 0.4 g, respectively, both p = 0.1).

**Conclusion:** This study found that subtle changes in threshold definitions of SC and BZ lead to significant changes in scar channelicity. The high sensitivity of the method to the definition of SC a BZ requires searching for a more robust approach to segmentation of SC/BZ before introducing assessment of scar channelicity into routine clinical practice.

Figure 1. Left panel: Within-patient difference in scar channelicity with regard to the applied definition of BZ and SC. Right panel: The extent of scar was visually indiscernible between the 40/60% and 41/61% definition of BZ/SC, but the later generated an additional channel (encircled in black).




Abstract P1110 Figure.

### P1111

**Anatomy relevance to ablation in the pulmonary artery root**

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**Background:** Ablation above pulmonary artery cusp becomes increasingly common in certain ventricular outflow arrhythmia. Understanding of the regional anatomy is intensively concerned to avoid complications.

**Objective:** The purpose of this study was to describe the anatomic relationships of pulmonary artery sinus (PAS) to its adjacent structures using analysis of computed tomographic coronary angiograms (CTCA).

**Methods:** We studied 145 patients (77 males, age 47±18 years) investigated for chest pain with CTCA. The relationships between the PAS and adjacent structures were described by analysis of 2-dimensional images and 3-dimensional reconstructions.

**Results:** The pulmonary left cusp (LC) coursed within 5 mm of the LMCA in 51% (within 2 mm in 9%) and from the LAD in 87% (within 2 mm in 36%). The anterior cusp (AC) was within 5 mm of the LAD in 1% and out of 5 mm from LMCA in all cases. 93% LC was within 5 mm of the left aortic sinus of Valsalva (within 2 mm in 27%), remaining 80% RC within 5 mm from ascending aorta. The RCA was within 5 mm of the right ventricular outflow tract in 80% cases.

**Conclusion:** Both the left and right cusp of PSC is intimately related to the aortic root. The left cusp is more often close to LMCA, LAD, and the upper part of the left aortic sinus of Valsalva. The anterior cusp is rarely close to the LMCA, but intimately related to LAD. This may heighten operator awareness of safety for these increasingly performed complex procedures.

Abstract P1111 Table. Table1 Baseline Characteristics

| Variable | n=28 |
|---|---|
| Age, mean±SD, y | 40.73±17.01 |
| Females, n(%) | 18(64.3) |
| Body mass index, mean±SD (kg/m2) | 23±5 |
| Left ventricular ejection fraction,mean±SD (%) | 64±3 |
| Left ventricular end-diastolic dimension,mean±SD (mm) | 47±2 |
| Right ventricular outflow track dimension,mean±SD (mm) | 16±4 |
| Main pulmonary dimension,mean±SD (mm) | 18±5 |

### P1112

**Morphology of right ventricular outflow tract and the relation to successful ablation site in right ventricular outflow tract arrhythmia**

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