

## **Supplement:**

### **3D-LA volumes**

The QLAB™ (PHILIPS B.V Eindhoven The Netherlands) algorithm used for calculation of left ventricular volumes was applied to LA.

The ratios particularly S'/E' are non-dimensional and independent from insonation angle.

### **Rationale of filling time**

The underlying hypothesis was that Tfill reflects matching of residual LA function with after-load primarily determined by diastolic LV relaxation and compliance. The parameter is independent from insonation angle and global strain.

### **Principle of algorithm for determination of filling time**

Start with ECG R-wave-> find (time to) minimum strain (ejection time); calculate maximum strain-> calculate difference (maximum-minimum) and determine 70% trough -> start from minimum strain and determine time until trough is exceeded (=Tfill)-> normalize/divide by cycle length (R-R distance) or ejection time.

### **Model 1**

**P=exp (-0.063\*LA area+0.838\*S'/E'); odds ratio= 2.1| P<0.05**

Confidence intervals (95% validated by bootstrap and bias corrected), Wald statistics and p-values:

LA area: confidence: -0.151- -0.158; Wald: 9.329; p<sub>bootstrap</sub> = 0.02.

S'/E': confidence: 0.167- 1.843; Wald: 3.556; p<sub>bootstrap</sub> = 0.07.

### **Model 2**

**Model: P=exp (0.139\*LA area+0.019\* IVRT- 2.507\*S'/E'-0.12\*BMI); odds ratio= 3.7| P<0.05<sup>1</sup>**

Confidence intervals (95% validated by bootstrap and bias corrected), Wald statistics and p-values:

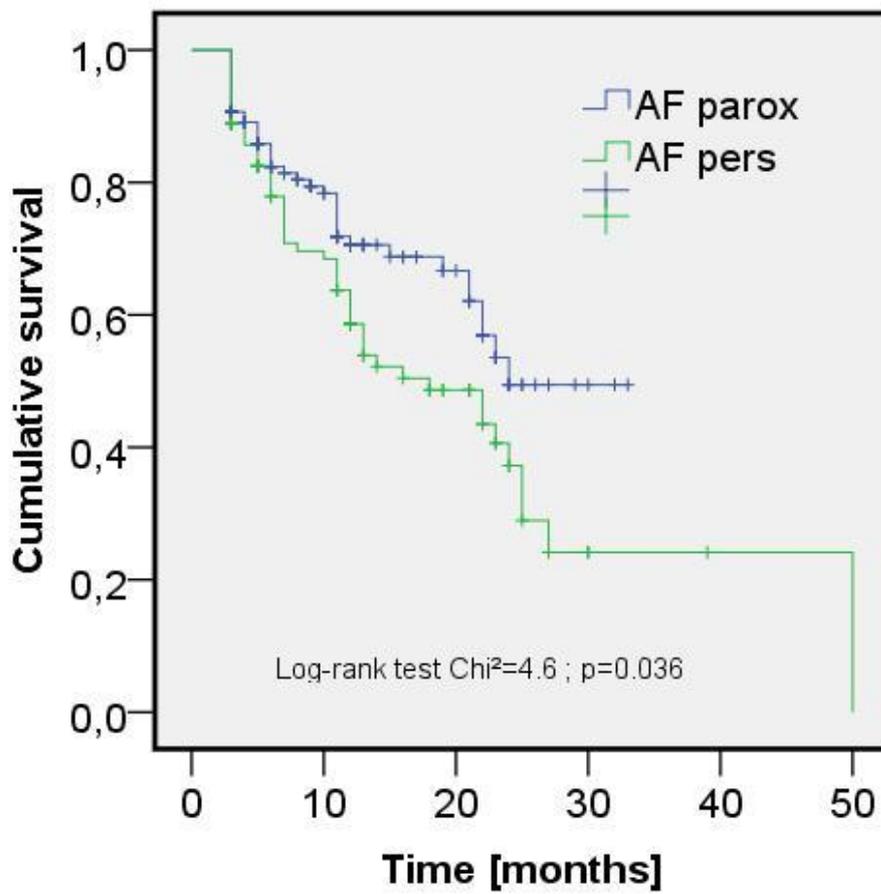
LA area: confidence: 0.0573- 0.2207; Wald: 11.0; p<sub>bootstrap</sub> = 0.01.

IVRT: confidence: 0.005- 0.037; Wald: 6.8; p<sub>bootstrap</sub> = 0.01.

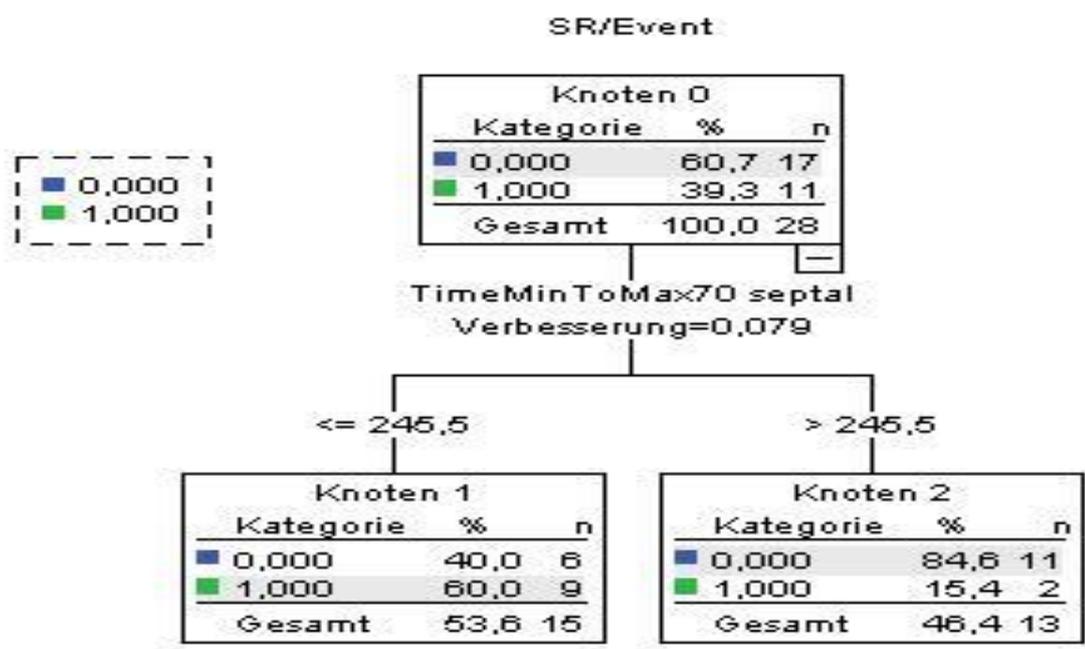
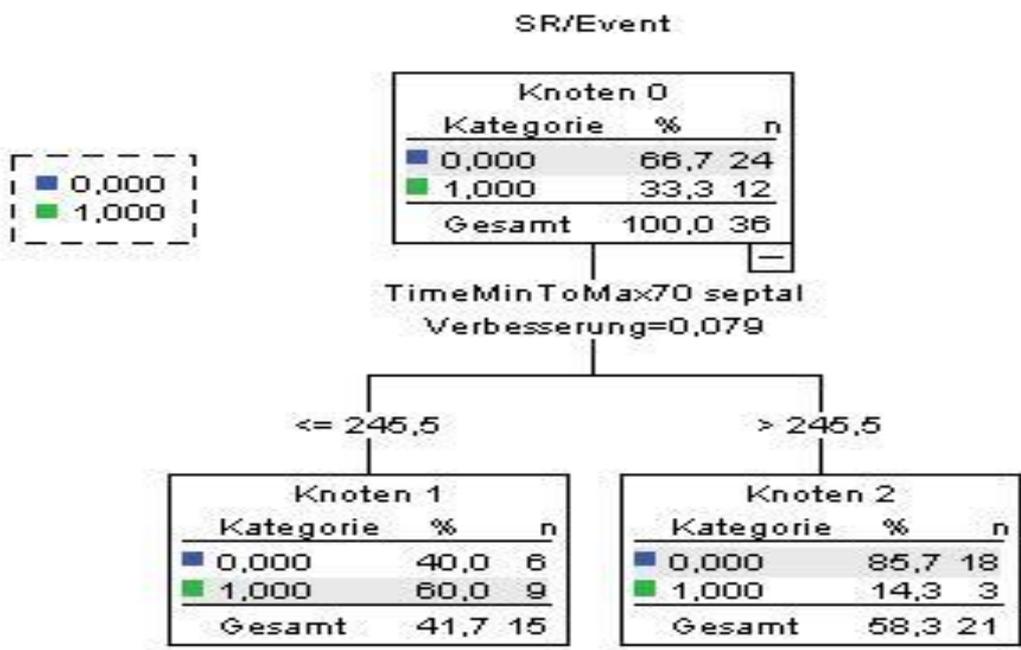
S'/E': confidence: -5.115- -0.627; Wald: 6.7; p<sub>bootstrap</sub> = 0.02.

BMI: confidence: -0.214- -0.063; Wald: 8.6; p<sub>bootstrap</sub> = 0.01.

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**Supplement Figure 1:** Survival free of recurrent atrial fibrillation after PVI in subset of patients stratified with respect to initial diagnosis.



**Supplement Figure 2:** CRT – analysis top: test; bottom: validation

## Results

Follow-up exceeding 3 months was available in 46 (59%) patients (HR: 71±23 b/min) with successful and in 32 (41%) patients (HR: 79±20 b/min) with recurrent AF.

Parameter	Success	rec. AF	t-Test	AUC (95% confidence)
Teject (ms)	428±132	421±196	n.s.	0.539 (0.440-0.638)
TejectN (%)	48±13	53±18	n.s.	0.619 (0.521-0.718)
Tfill (ms)	401±203	247±195	<0.001	0.715 (0.627-0.803)
TfillN (%)	43±17	31±19	<0.001	0.689 (0.597-0.781)
CL (ms)	917±246	810±206	0.008	0.667 (0.573-0.760)

Classification and regression tree analysis (SPSS V20) yielded an odd for recurrence of AF of 0.18 with Tfill>240ms versus 1.5 with Tfill<240. Sensitivity was 0.75 and specificity was 0.74 at this cut-off. In binary regression Tfill was a significant parameter in addition to LA-volumes and deceleration times.