ventricular block. Therefore, ablation during sinus rhythm is of importance after defining the earliest PPs during ILVT.

**P4930 BENCH**

Alpha blockade potentiates CPVT therapy in calsequestrin-mutant mice

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Introduction: Spontaneous calcium release leads to delayed after-depolarization are believed to be responsible for CPVT, a lethal human arrhythmia provoked by exercise or emotional stress. Beta-adrenergic blockers are the therapy of choice for human CPVT but fail to control the arrhythmia in some of the cases. In the current study we utilized mice with recessively-inherited CPVT caused by CASQ2 knock-out (KO) to optimize the pharmacological therapy of CPVT.

Methods and results: Heart telemetry device was implanted for continuous ECG recording CI of VT during treadmill exercise and after epinephrine injection (last 50 mg/kg i.P). Adult CASQ2 mutant mice suffered from complex ventricular arrhythmia at rest and developed bidirectional and polymorphic ventricular tachycardia (VT) during stress. Previous studies have shown the high efficacy of the Ca+2 channel blockers against CPVT in mice. The β adrenergic blockers propranolol and metoprolol, attenuated the arrhythmia at rest but failed to prevent CPVT on stress. Other drugs, such as reserpine and neostigmine, affect the autonomic nervous system, yet had no efficacy in controlling arrhythmia. Alpha sympathetic blocking agents are highly efficacious against arrhythmia either alone or in combination with β blockade. Phenotamine (50 μg/g) or labetalol (20 μg/g) abolished exercise and epinephrine-induced arrhythmia (reducing VT prevalence from 86% to 0%, n=7 p<0.001). However, in OHCA 17.5% vs. 7.7%, p<0.001). In contrast, phenylephrine, a selective alpha agonist, provoked VT which could be prevented by verapamil. In vitro experiments in isolated cardiomyocytes confirmed these findings: phenotamine abolished the isoproterenol-induced abnormal calcium release in isolated KO cardiomyocytes. RNAseq and protein studies found that alpha adrenergic receptor 1α (ADRA1a) is expressed at higher levels in the KO (either 4 or 14 weeks old) compared to the WT mice (n=5/group, p<0.001). Immunofluorescence imaging in isolated cardiomyocytes verified a low level expression of ADRA1a on the cell surface.

Conclusion: Alpha sympathetic blockade has a potential role in treatment of CPVT. Our findings identify a new mechanism contributing to the severity of the arrhythmia, suggesting a new approach to optimize the pharmacological treatment administered to these patients.

**P4931 BENCH**

Impact of out-of-hospital cardiac arrest on outcome in STEMI patients treated with primary PCI


Purpose: Pre-hospital ventricular arrhythmia is common in the acute phase of ST-elevation myocardial infarction (STEMI). We assessed the prognostic impact of out of hospital cardiac arrest (OHCA) in a non-selected STEMI patient population treated with primary percutaneous coronary intervention (PCI).

Methods: Registry database of all individual STEMI patients admitted to our hospital during 2005-2010. Patients with OHCA were identified from the register, and their medical records were reviewed.

Results: During the study period 4653 patients were admitted with STEMI. Information regarding OHCA was available in 4640 patients (99.7%). A total of 326 patients (7.0%) had OHCA. Patients with OHCA were younger (80.3±11.8 vs. 64.1±12.9, p<0.001), less often had diabetes (5.2% vs. 12.4%, p<0.001) but more often presented with signs of heart failure (Killip class >1) 17.5% vs. 7.7%, p<0.001. Angiography was performed in 97.5% of the patients. PCI was performed equally in both groups. In patients with OHCA LAD was more often the culprit artery (49.2% vs. 41.2%, p=0.003). In-hospital mortality was significantly higher among patients with OHCA (13.8% vs. 3.4%, p<0.001). However, in OHCA patients discharged alive one-year mortality was comparable to patients without OHCA (3.9% vs. 3.7%, p=0.087).

Conclusion: In a large non-selected STEMI patient population treated with primary PCI, OHCA was associated with higher in-hospital mortality but did not affect the long-term prognosis for those discharged alive.

**P4932 BENCH**

The role of aortic valve anatomy in determining the site of origin of ventricular ectopic beats: correlation between echocardiographic and electrophysiologic data

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Purpose: In presence of premature ventricular complexes (PVCs) arising from both Ventricular Outflow Tracts (RVOT and LVOT) it’s often difficult to determine the origin before intracardiac mapping, due to smooth different ECG features for adjacent sites (posterosertal RVOT, anterosertal LVOT, Aortic Cusps). The aim of our study was to determine if the aortic valve anatomy as assessed by transesophageal echocardiography (TEE) is correlated with the origin site of the PVCs in patients without evidence of Structural Heart Disease (SHD) and uncertain ECG features who undergo ablation with Radio-Frequency (RF) of monomorphic PVCs.

Methods and materials: Thirty-one consecutive patients (mean age 52.5±18 yrs, 19 males) with no evidence of SHD who underwent RF ablation of PVCs were enrolled in our study. In all patients the 24 h Holter monitoring showed that at least 20% of the total heart beats was represented by monomorphic PVCs arising from RVOT or LVOT. Ablation was performed using electro-anatomic mapping and image-integration provided by intracardiac echo. The site of origin of the PVCs was determined according to the site of effective ablation. A complete standard TTE was performed before the ablation procedure, including an empha-
sized study of the aortic valve: aortic valve sclerosis (AVS) was defined by the presence of enhanced echogenicity/thickness (>2mm) of the aortic cusps or the presence of focal calcifications.

Results: The systolic left ventricular function expressed as ejection fraction (%) was normal in all patients (58.5±7.2). AVS was found in 11 pts, in 10 being associated with trivial valvar regurgitation. The ablation procedure was acutely successful in all patients. PVCs were originating from the LVOT in 12 pts (38%). All patients with PVCs originating from RVOT had normal aortic valve, instead AVS was present in 92% of patients with PVCs from LVOT and all 3 patients with PVCs from the Aortic Cusps.

Conclusions: The presence of the aortic valve sclerosis assessed by transes-
ophagic echocardiography was correlated with the LVOT origin of the premature ventricular complexes and it could help the preoperative management of the patients without structural heart disease who undergo RF ablation of monomorphic PVCs in presence of ambiguous ECG features.