factors (P<0.05). Using multivariate analysis, left ventricular hypertrophy (LVH) was the strongest risk factor of HF (OR=25.4, 95%CI=21-31), followed by the presence of heart valve disease (OR=4.1, 95%CI=2.7-6.3), paroxysmic or permanent atrial fibrillation (OR=4.05, 95%CI=3.1-5.3), renal dysfunction, history of myocardial infarction and coronary artery disease (OR<3 for each of them).

Conclusion: As suspected, LVH is the strongest risk factor for HF in hypertension, while a majority of pts presented with ≥3 risk factors for HF. This study highlights the need for an early management of HF risk factors in hypertensive pts.

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Cardiac resynchronization therapy and left ventricular remodeling in patients with coronary artery disease and dilated cardiomyopathy

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We evaluated left ventricular remodeling (LVR) in patients (pts) with heart failure (HF) of the 2 main aetiologies, coronary artery disease (CAD) and dilated cardiomyopathy (DCM) after 1 year (y) of cardiac resynchronization therapy (CRT). We enrolled 65 HF outpts with CRT indication (mean age 67.5±13.2 ys, 74.6% males, M): 33 had CAD-caused HF (70.2±6.7 ys, 84.4% M) and 32 DCM (64.6±17.3 ys, 64.5% M). All underwent ECG, echocardiography, NYHA evaluation before and after 1 y of CRT. Before CRT, NYHA was similar (CAD 2.7±0.7, DCM 2.7±0.8) and after 1 y it significantly (p<0.05) and equally improved in both (CAD 2.3±0.5, DCM 2.2±0.3). Before CRT left ventricular ejection function (EF,%) was significantly (p=0.04) less in DCM (22.9±7.7) than CAD (26.3±7.3) while end-diastolic (EDV, ml) and end-systolic (ESV, ml) volume, end-diastolic (EDD, mm) and end-systolic (ESD) diameter were significantly greater in DCM than CAD (EDV 239±78 vs 207±62 p=0.04, ESV 192±81 vs 152±57 p=0.03, EDD 72.8±8.1 vs 68.8±6.6 p=0.05, ESD 59.5±10.7 vs 53.8±8.8 p=0.03). After 1 y EF significantly improved in both (DCM 28.8±9.5 p=0.01, CAD 29.5±7.4 p=0.05) with a borderline trend to a greater increase in DCM. After 1 y EDV, ESV, EDD and ESD were reduced in both, with a significant reduction only in DCM. Expressing LVR as the volume parameters variation (Δ), it was significantly greater in DCM than CAD: AEDV ΔCM 44±72 vs CAD 20±34, p=0.04; ΔAESS DCM 47±64 vs CAD 19±35, p=0.04. Before CRT QRS duration (msec) was similar in both (DCM 123±33 CAD 176±28, p=n.s) as well as after (DCM 134±31 CAD 134±31, p=n.s). Pre and post-CRT QRS duration and ΔQRS weren’t related to any modification of the above indicated parameters, both in the overall population and the 2 groups. Thus, CRT determines EF increase and LVR regression in both examined HF aetiologies. Volume reduction is greater in DCM than CAD. No relation exists between the volume and function parameters modifications and QRS duration both before and after CRT.

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Procoralan, an If current inhibitor, improves systolic function and enhances FKBP12 expression after myocardial infarction and 3 weeks of reperfusion in conscious rabbits

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Purpose: It remains unknown whether heart rate reduction by the If current inhibitor ivabradine (IVA) improves left ventricular (LV) function of the infarcted and reperfused myocardium. Accordingly, our goal was to investigate the effect of IVA on global and regional LV function following myocardial infarction and long term reperfusion in rabbits.

Methods: Myocardial systolic function was assessed before a 20 min coronary artery occlusion and during the subsequent 3 weeks of reperfusion by echocardiography and tissue tracking imaging. Throughout reperfusion, rabbits received either IVA (10 mg/kg/day, n=9) or vehicle (Control, n=8) using implanted osmotic pumps. At 3 weeks reperfusion, LV remodeling was investigated by histology and expression of several proteins (SERCA2a, RyR2-P, phosphoarabin, FKBP12) involved in calcium handling.

Results: After 3 weeks, IVA induced a significant decrease in heart rate by ≈20% as compared to Control (214±9 vs 266±14 bpm, respectively). In Control rabbits, ejection fraction and regional systolic displacement were significantly decreased as compared to baseline values (43±6% vs 63±2% and 1.4±0.2 vs 2.6±0.2 mm, respectively) and were associated with LV enlargement and interstitial fibrosis within the reperfused zone (risk zone: 30±2% of LV and infarct size: 8% of LV). Chronic administration of IVA prevented the reduction in ejection fraction (58±3% vs 62±3% in baseline) and the decrease in regional systolic displacement (1.9±0.3 vs 2.6±0.3 mm). This improvement was not related to a difference in infarct size and interstitial fibrosis. Interestingly, this was associated with a significant increase in FKBP12 expression in the reperfused area without any changes in SERCA2a, RyR2-P and phosphoarabin.

Conclusion: Heart rate reduction with IVA significantly improves systolic function after 3 weeks of reperfusion. This beneficial effect might result from an adaptation of calcium handling as suggested by the increase in FKBP12 expression.

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Chemical denervation of sympathetic nervous system induces abnormal myocardial architecture

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The aim of the present work was to investigate changes in heart architecture after chemical sympathetic denervation by 6OH-Dopamine (6OH-DA) in mice.

Two months old mice (n=18) received 3 6OH-DA injections (200 mg/kg, ip) or saline (n=6) at 3 days of interval. 15 and 30 days after first injection, heart rate spectral variability (HRV, FFT) was analyzed in low frequency (LF: 0.15-1.5 Hz) and high frequency (HF: 1.5-5.5 Hz) ranges and LF/HF ratio was calculated. After sacrifice, blood was withdrawn for catecholamine determination (HPLC). Hearts were fixed (formaldehyde 10%) for histology or frozen for western blot analysis (tyrosine hydroxylase, TH).

Results indicate that compared to controls (1410±145 pg/ml) plasma norepinephrine levels were significantly lower at D15 (766±186 pg/ml) and D30 (675±288 pg/ml) after 6OH-DA without change in epinephrine. TH expression was absent at D15 and significantly lower than in controls at D30. When com-