cal practice. However, potential of the use of LCZ696 in real life clinical practice is unknown. REALITY HF (Resting Heart Rate and Real Life Treatment Modality in Outpatients with Left Ventricular Systolic Dysfunction) study data were analyzed to evaluate potential clinical application of LCZ696 treatment in real life routine clinical care in patients with chronic HF.
Methods: REALITY HF was a multicenter, prospective, observational, national registry designed to evaluate HF patients' clinical characteristics and current treatment modalities, and enrolled 1196 patients (mean age 61±12 years, 75.7% male) from 16 centers who were admitted to the outpatient clinic with the diagnosis of chronic HF, LVEF ≤40% and >18 years of age. Potential use of LCZ696 was evaluated based on product license indication (in patients with NYHA II-IV HF and reduced LVEF) and also further analysis was performed based on the main PARADIGM HF criteria that included LVEF ≤40%, NYHA II-IV and receiving ACEI (or ARB) and beta blocker therapy.
Results: In overall study population, 269 patients (22.4%) were in NYHA class I, 472 patients (39.5%)- in NYHA class II, 352 patients (29.4%)- in NYHA III and 103 patients (8.6%)- in NYHA IV. 957 patients (80%) were receiving beta blocker, 827 (69.1%) were receiving ACE inhibitor or ARB and 703 (58.8%) were receiving both of therapy. The percentage of patients candidate for LCZ696 according to product license indication (NYHA II-IV) was 77.5% (n=927). Patients who met the main PARADIGM HF criteria was 46.5% (n=556). In patients who have data on systolic blood pressure (SBP) (n=1039), 45.2% of patients (n=470) met both the main PARADIGM HF and SBP criteria (≥95 mm Hg). In patients who have data on potassium levels (n=701), 45.9% of patients (n=322) met both main PARADIGM HF and potassium criteria (≤5.4 mEq/L) and 44.7% of patients met the main PARADIGM HF, potassium and SBP criteria. Of those who were eligible for LCZ696 based on the main PARADIGM HF criteria (n=556), 53.1% (n=295) were in NYHA class II, 37.6% (n=209)- in NYHA class III and 9.4% (n=52)-in NYHA class IV (p=0.0001).
Conclusions: The findings from REALITY HF showed that in real life clinical practice, almost half of the patients would be eligible for LCZ696 based on the main PARADIGM HF criteria, and also suggested that majority of patients eligible for LCZ696 were in NYHA II or III functional class categories.

P4586 | BENCH
Liposome-encapsulated berberine treatment reduces adverse ventricle remodeling after myocardial infarction

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Introduction: Adverse left ventricle remodeling can be measured as a reduction in ejection fraction after myocardial infarction. Left ventricle remodeling leads to congestive heart failure and is a main determinant of mortality and morbidity after myocardial infarction. Berberine is an isoquinoline alkaloid extracted from barberry that has anti-inflammatory and anti-oxidant activities. Pretreatment with long-term administration of high doses of berberine has shown beneficial effects in experimental diabetes and cardiac ischemia reperfusion injury. However, the poor solubility and the short half-life in the circulation have impeded the clinical use of berberine.
Purpose: To examine whether encapsulation of berberine into long-circulating liposomes could improve its therapeutic availability and efficacy to protect cardiac function in vivo.
Methods: Berberine was loaded into liposomes at a concentration of 0.3 mg/ml. Lipopolysaccharide (LPS) activated mouse macrophages RAW 264.7 were treated with free berberine or liposome-encapsulated berberine (Lipo-Berb) and analyzed for cell viability, reactive oxygen species production and cytokine secretion. C57BL/6J male mice (10–12 week old) subjected to myocardial infarction (MI) via permanent ligation of the left anterior descending artery were blindly selected for intravenous injection of empty liposomes, free berberine or lipo-Berb (1.5 mg/kg). Three doses were administered at the onset of MI, and at 3 and 6 days after MI. Ejection fraction was assessed by echocardiography at baseline, 7 and 28 days after MI.
Results: Free berberine improved the viability of LPS-insulted macrophages, reduced production of reactive oxygen species and inhibited the secretion of inflammatory mediators including IL-6 and TNFα. As expected these protective effects of berberine in vitro were diminished upon encapsulation into liposomes. In vivo, however, the liposome-encapsulated berberine significantly preserved ejection fraction after 28 days of MI while free berberine did not show any preservation of ejection fraction (29.5±1.9 for lipo-Berb, 18.2±3.2 for free berberine and 18.0±3.1 for empty liposomes; n=6–10; $p<0.05$).
Conclusion: Liposome-encapsulated berberine reduced adverse ventricle remodeling after MI. This outcome indicates that delivery of berberine via liposomes significantly improves its therapeutic availability and therefore treatment efficacy in vivo.

P4587 | BEDSIDE
Atrio-ventricular plane excursion is impaired after ten weeks of anthracycline treatment in breast cancer patients: Data from the PRADA study

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Background: Anthracyclines are well known for their dose-dependent cardiotoxic effect. The effect of low to moderate doses of the anthracycline epirubicin on left ventricular (LV) systolic function in otherwise healthy women remains unclear.
Purpose: To assess changes in various echocardiographic indices of LV systolic function in the early phase of anthracycline therapy in breast cancer patients.
Methods: 126 women without heart disease and other serious co-morbidities scheduled for anthracycline-containing adjuvant treatment with epirubicin, were randomized in a placebo-controlled double blind clinical trial with candesartan and metoprolol (PRADA (NCT01434134)). Human epidermal growth factor receptor 2 (HER2)-positive patients received 4 cycles of epirubicin 100 mg/m^2 (moderate dose), while HER2-negative patients received 4–6 cycles of 60 mg/m^2 (low dose). Mean treatment time was 10 weeks (±2). For this analysis we report the echocardiography data obtained at baseline and after completion of anthracycline therapy in the whole population. The following echocardiographic indices were used: Two-dimensional (2D) strain, 2D and 3D left ventricular ejection fraction (LVEF), tissue Doppler systolic S' and mitral annular plane systolic excursion (MAPSE). Measurements for MAPSE and S' were performed at the base of the LV septum and lateral wall and averaged.
Results: MAPSE and S' were significantly reduced after completion of moderate doses of the anthracycline epirubicin (HER2-positive group), whereas no such effect was observed in patients receiving low-dose (HER2-negative group) (Table 1). Only MAPSE showed a significant difference between HER2-positive and -negative patients (p=0.035).

	n	Mean (SD) value at baseline	Mean (SD) value after anthracycline	Within group p-value
MAPSE, mm				
HER2-negative	91	14.4 (2.2)	14.0 (2.1)	0.11
HER2-positive	26	14.9 (2.2)	13.5 (2.1)	0.001
Tissue Doppler systolic S', cm/s				
HER2-negative	92	9.1 (1.5)	9.0 (1.5)	0.326
HER2-positive	27	9.3 (1.6)	8.6 (1.3)	0.011

MAPSE, mitral annular systolic excursion; HER, human epidermal growth factor receptor; SD, standard deviation.

Conclusion: Moderate dose of epirubicin was associated with a significant reduction in MAPSE and S' but not 2D strain, 2D or 3D LVEF. This suggests that LV longitudinal function is impaired already after 10 weeks of anthracycline treatment in breast cancer patients without prior cardiac disease.
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P4588 | BEDSIDE
Acetazolamide as an add-on diuretic therapy in patients with chronic heart failure exacerbations - a pilot study

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Introduction: Acetazolamide is a carbonic anhydrase inhibitor with diuretic effect. However, there is a limited data about its efficacy in the treatment of heart failure exacerbations.
Purpose: The aim of the study was to determine the diuretic effect of acetazolamide in patients with chronic heart failure (CHF) exacerbations, on top of a current therapy.
Methods: This was a single-centre, non-blinded study. Patients hospitalized with CHF exacerbation with left ventricle ejection fraction (EF) <50% and clinical signs of volume overload (oedema or pulmonary congestion on x-ray scan) were included. Patients were included in the study in a stable phase of CHF exacerbation, allowing a fixed dose of other diuretic regimen for 4 days. On the second and third day patients received either Acetazolamide p.o. q.d. (dose adjusted to body weight) or no treatment (control group) as an add-on diuretic therapy. Diuresis, natriuresis, fluid balance, body weight and symptoms, in each consecutive day, were analysed.
Results: Twenty patients (mean age 72±11.6; 85% male; mean EF 33.8% ± 11.4%; mean NT-proBNP 8064±5593 pg/ml; mean i.v. Furosemide dose – 105±55mg) were included. In patients randomised to no treatment, there was a stable diuresis, natriuresis, fluid balance and symptoms on day 1 to day 4. In patients randomised to acetazolamide an increase in diuresis and natriuresis, greater change in fluid balance and body weight after administration of acetazolamide, most pronounced on day 4 were observed. There was a statistically significant difference on day 4 in fluid balance (-666 ml ± 1194 ml in acetazolamide group vs +332 ml ± 705 ml in the control group; p=0,038). The dyspnoea