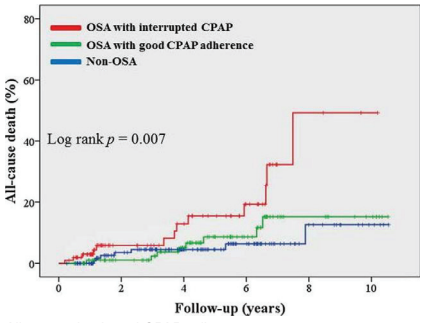
of all-cause death and cardiac death [hazard ratio (HR) = 3.01, 95% confidence interval (CI) 1.18–7.66, p=0.021; HR = 11.2, 95% CI 1.27–98.3, p=0.029].



All-cause death and CPAP adherence

Conclusion: Interrupted CPAP was observed to be a significant risk factor for all-cause death and cardiac death in patients with moderate to severe OSA. Good adherence to CPAP ensured a prognosis comparable to that in controls.

P1249
Obstructive sleep apnea is associated with lower mortality and lower risk of cardiac complications from myocardial infarction: a nationwide analysis using the national inpatient database of 2014

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Background: Obstructive sleep apnea (OSA) is associated with increased risk of cardiovascular diseases (CVD). Yet, outcomes of CVD in patients with OSA are unclear. Some studies have indicated that patients with OSA have less severe cardiac injury with non-fatal myocardial infarction (MI), which has been attributed to cardioprotective role of intermittent episodes of hypoxia via ischemic preconditioning. The association between the diagnosis of OSA and mortality from myocardial infarction has not been studied in a large cohort of patients.
Methods: In a retrospective cohort study, using the 2014 Nationwide Inpatient Sample (NIS), we analyzed adult patients with MI, who had diagnosis of OSA. The goal of our study was to determine if diagnosis of OSA affects primary and secondary outcomes of MI. We adjusted our results for potential confounders including age, sex, race, hospital location, hospital teaching status, insurance type, hospital bed size and the Charlson Comorbidity Index.
Results: We identified 608795 patients with diagnosis of MI, who were further divided into subpopulations with and without OSA. In the OSA group (n=38755) less patients were female (27%) than in non-OSA group (39%) and patients were younger (mean age of 64 and 67 years respectively). OSA was associated with lower mortality (OR=0.66, 95% CI=0.58–0.75) and lower risk of cardiac arrest (OR= 0.79, 95% CI=0.70–0.90). It was also associated with shorter length of stay (Coef.=0.33, 95% CI= 0.21–0.46) as well as lower total charges from length of stay (Coef.=-2252.26, 95% CI= -4248.34- -256.19). As expected, patients with OSA were more likely to use Bilevel Positive Pressure ventilation (OR=3.2, CI=2.86–3.59). OSA was not associated with risk of shock, mechanical ventilation and dialysis due to AKI.
Conclusion: The diagnosis of OSA is associated with lower mortality, lower risk of cardiac arrest, as well as a shorter length and cost of stay in patients with MI.

P1250
Association of obstructive sleep apnea with cardiovascular outcomes in patients with acute coronary syndrome: a landmark analysis from the OSA-ACS project

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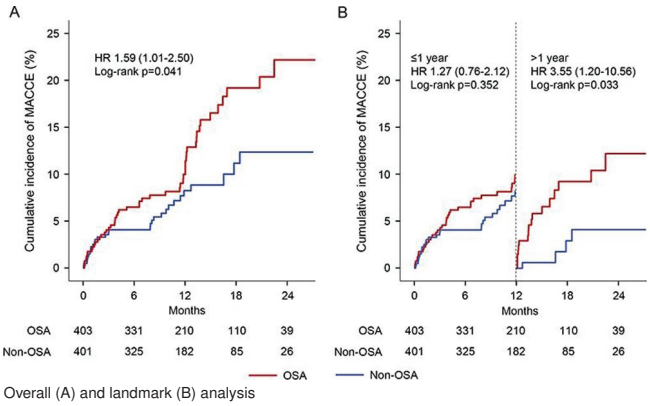
Background: The prognostic significance of obstructive sleep apnea (OSA) in patients with acute coronary syndrome (ACS) in the contemporary era is unclear.
Purpose: As guideline-based optimal medical therapy was administered after ACS onset, especially within 1 year, we hypothesized that the impact of OSA on cardiovascular outcomes would vary across different time periods after ACS presentation. Therefore, we performed a large prospective cohort study and did a landmark analysis to delineate the association of OSA with subsequent cardiovascular events in ACS patients.
Methods: The OSA-ACS project is a large-scale, prospective, observational study to assess the association of OSA with long-term outcomes of patients with ACS in the contemporary era. Between June 2015 and May 2017, consecutive eligible patients admitted for ACS underwent overnight cardiorespiratory polygraphy during hospitalization. OSA was defined as an apnea-hypopnea index ≥15 events h^{-1}. The primary endpoint was major adverse cardiovascular and cerebrovascular event (MACCE), including cardiovascular death, myocardial infarction, stroke, ischemia-driven revascularization, or hospitalization for unstable angina or heart failure. This study conformed to the principles of the Declaration of Helsinki.
Results: OSA was present in 403 of 804 (50.1%) patients. During median follow-up of 1 year (0.7–1.7), 81 (10.1%) patients had MACCE - 51 (12.7%) in the OSA group and 30 (7.5%) in the non-OSA group. The cumulative incidence of MACCE was significantly higher in the OSA group than in the non-OSA group (log-rank P=0.041). Multivariate analysis showed OSA tended to be a predictor of MACCE (HR 1.56, 95% CI 0.94–2.61, P=0.087, Figure). In the landmark analysis, patients with OSA had 3.6 times the risk of incurring a MACCE after 1 year (HR 3.55, 95% CI 1.20–10.56, P=0.023), but no increased risk was found within 1-year follow-up (HR 1.27, 95% CI 0.76–2.12, P=0.353, Figure). No significant differences were found in the incidence of cardiovascular death, myocardial infarction, and ischemia-driven revascularization, except for a higher rate of hospitalization for unstable angina in the OSA group than in the non-OSA group (HR 2.33, 95% CI 1.18–4.58, P=0.014).



Overall (A) and landmark (B) analysis

Conclusion: Patients with OSA had a greater risk of MACCE after ACS, which was driven by a higher incidence of events after 1 year. The efficacy of OSA treatment as secondary prevention of MACCE, and timing of intervention after ACS, require further investigation.
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P1251
Impact of obstructive sleep apnea on circadian variation of infarct size in patients with acute myocardial infarction

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Background: Previous studies have shown that the circadian variation of the sympathetic nerve activity, blood pressure, and platelet activity in patients with obstructive sleep apnea (OSA) is different from that observed in non-OSA patients. However, to our knowledge, the impact of OSA on circadian variation of infarct size has not been investigated.
Purpose: In this study, we aimed to determine whether OSA shows a characteristic circadian variation of the infarct size in patients with ST-segment elevation myocardial infarction.
Methods: We recruited 720 patients who underwent primary percutaneous coronary intervention (PCI) within 12 h of symptom onset and polysomnography at 12 days. Infarct size was estimated on the basis of the peak creatinine kinase (CK) level. OSA was defined as an apnea-hypopnea index (AHI) of ≥15 events/h. The

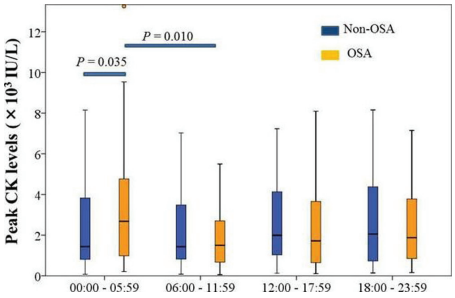

Figure 1

circadian variation of the infarct size was examined at 6-h intervals during a day in patients with and without OSA.
Results: Patients with OSA showed a characteristic circadian variation of the infarct size with highest levels between 0:00 and 05:59 hours and lowest levels between 06:00 and 11:59 hours (3435±3265 IU/L vs. 2218±2347 IU/L vs. 2557±2421 IU/L vs. 2465±2073 IU/L, respectively, p=0.019). In contrast, patients without OSA did not show circadian variation of the infarct size. The infarct size between 0:00 and 05:59 hours was significantly higher in OSA patients than in the non-OSA patients (3435±3265 IU/L vs. 2390±2234 IU/L, p=0.035). The infarct size at other times of onset was not different between the two groups. Multiple regression analyses showed that AHI was positively correlated with the infarct size between 0:00 and 05:59 hours (p=0.034).
Conclusions: The novel findings of this study were that OSA patients showed a clear circadian variation of the infarct size and exhibited a significantly larger infarct size between 00:00 and 05:59 hours than the non-OSA patients.

P1252
Discriminatory ability of GRACE risk score to predict outcomes in patients with Takotsubo syndrome

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Background: The Global Registry of Acute Coronary Events (GRACE) risk score is an established tools for assessing risk in Acute Coronary Syndrome (ACS) patients strongly recommended by European Society of Cardiology guidelines. The Takotsubo syndrome (TTS) is an increasingly recognized cardiac condition that clinically mimics an ACS but with a different pathophysiology. It is currently unknown whether ACS risk scores could be effectively applied to TTS patients.
Purpose: We sought to assess the ability of GRACE risk score to predict adverse events in TTS patients.
Methods: Overall, 537 TTS patients from 22 centers were included in this prospective registry. Patients were divided into 2 groups according to the GRACE risk score in group A (≤140) and group B (>140).
Results: The median GRACE risk score was 139±27 (range 52–228), with 52% of patients included in group B. Patients with higher GRACE risk score were older and with higher rate of left ventricular dysfunction (51% and 73% in Group A and B, respectively; p<0.001). Follow-up rate was 95% and follow-up length was 40±35 months. At long-term follow-up, mortality rate was 8% and 17% in group A and B, respectively (p=0.003) and adverse event rates (all-cause death, cardiac death, myocardial infarction, stroke or any urgent coronary revascularization) were 9% and 18% in group A and B, respectively (p=0.004). No difference in myocardial infarction rate was observed between the 2 study groups.
At multivariable analysis, GRACE risk score resulted as a strong predictor of mortality (OR 1.68, 95% CI 1.28–2.20; p=0.001) and of adverse event rates (OR 1.63, 95% CI 1.26–2.11; p=0.001).

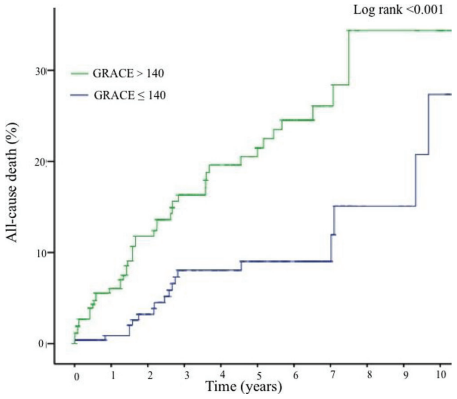

Figure 1

Conclusion: In TTS, the GRACE risk score allows to predict mortality and cardiocerebrovascular events at long-term follow-up.

P1253
Clinical features and outcomes of patients with chemotherapy-induced Takotsubo stress cardiomyopathy

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Introduction: Recent studies suggest a strong link between Takotsubo stress cardiomyopathy (TSC) and cancer. Several chemotherapeutic agents, monoclonal antibodies, and tyrosine kinase inhibitors have been identified consistently as possible sole culprits of TSC. This has prompted the identification of a specific disease entity called chemotherapy-induced TSC (CI-TSC). Due to the novelty and rarity of the condition, data on this subject is scarce.
Purpose: Our objective is to describe the clinical features, cancer therapy regimen, and outcomes of patients with CI-TSC treated at our cancer centre.
Methods: All cancer patients diagnosed with TSC according to the Mayo criteria at our institution between December 2008 and December 2017 were enrolled. CI-TSC was defined as TSC occurring within one week after exposure to anticancer medication, in the absence of significant medical complication, invasive procedures, or emotional stress. Baseline demographics, traditional cardiovascular risk factors, clinical features, anticancer therapy, imaging findings, and survival at 6, 12, and 24 months were retrospectively analysed via descriptive statistics. Univariable Cox proportional hazards regression was used to identify factors that were significantly associated with risk of death.
Results: Out of 40 patients with TSC, 14 (35%) were diagnosed with CI-TSC, of which 13 (92.9%) were female. Mean age at CI-TSC diagnosis was 66.93±10.25. Hypertension was present in 10 (71.4%) CI-TSC cases, dyslipidaemia in 9 (64.3%), diabetes mellitus in 3 (21.4%), and coronary artery disease in 2 (14.3%). 4 (28.6%) patients were smokers. Anticancer drugs most often associated with CI-TSC were paclitaxel (4 cases; 28%) and 5-fluorouracyl (3 cases; 21.4%). T wave inversion was seen on ECG in patients with CI-TSC treated with paclitaxel, nivolumab, ipilimumab, or an MDM2-inhibitor. ST elevation on ECG was found in patients with CI-TSC treated with bevacizumab or ibrutinib. 12 (85.7%) of CI-TSC cases were the apical morphologic variant. 2 midcavitary cases were described in patients on ibrutinib or cyclophosphamide + doxorubicin + cisplatin. CI-TSC was associated with increased risk of death compared to non-CI-TSC at 24 months (hazard ratio [HR] 2.5, 95% CI 1.1–5.7, p=0.0276). Midcavitary morphology (compared with apical) was marginally associated with increased risk of death at 6 months (HR 2.9, 95% CI 0.97–8.67, p=0.0573), but not at 12 or 24 months.
Conclusions: TSC is more prevalent among cancer patients than the general population. To our knowledge, this is the largest population of patients with CI-TSC to date. New-generation anticancer drugs previously unknown to be cardiotoxic seem to cause CI-TSC by an unknown mechanism. Clinicians must consider CI-TSC whenever patients treated with anticancer medications exhibit cardiovascular symptoms with no apparent trigger, as morbidity is high.

P1254
Predictive value of heart failure and inflammatory status biomarkers at admission in diagnosis of Tako-tsubo syndrome

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Background: Tako-tsubo syndrome (TS) and acute myocardial infarction (MI) share numerous similarities in clinical characteristics, ECG patterns and biomarkers elevation. Both conditions show signs of fluid and hemodynamic imbalance (NT-proBNP elevation, BNP), inflammatory activation (C-reactive protein plasma levels elevation, CRP) and rise of myocardial necrosis markers (CK and Troponin I).
Purpose: We sought to evaluate whether association of heart failure and inflammation biomarkers at admission may help in distinguish TS from MI.
Methods: We retrospectively studied 548 consecutive patients admitted to the Coronary Care Unit of San Paolo Hospital (Milan, Italy) for acute coronary syndrome (ACS). 516 patients (70% M, age 64 IQR 52–76) received diagnosis of MI, whereas 32 patients were diagnosed as TS (100% F, age 77 IQR 65–81). We compared ratios between BNP and CRP in TS and MI patients, considering admission data. Receiver operating characteristic (ROC) curve was analyzed to verify the reliability of this ratio as a new diagnostic tool.
Results: In the whole cohort of ACS patients we found increased levels of CRP (median value 10 IQR 5.5–21.4 mg/l). Median CRP values were no statistically different between TS and MI patients (median value 16.6 IQR 6.3–28.1 mg/l in TS patients and 9.8 IQR 5.5–21.3 mg/l in MI patients, P=0.22). Median BNP levels at admission were 5620 pg/ml (IQR 2355–13300 pg/ml) and 1590 pg/ml (IQR 472–4330 pg/ml) in TS and MI patients, respectively (P<0.001). CRP levels showed positive correlation to baseline BNP levels in both subgroups: Pearson's correlation coefficient was 0.749 for TS (p<0.001) and 0.340 for MI (p<0.001). Comparing TS to MI patients at admission, BNP/CRP ratio was significantly higher in TS patients (median 354.3 IQR 17.7–1863.1 vs 119.5 IQR 2.2–9955, p<0.001). Moreover, the derived ROC curve showed good performance in distinguish TS from MI, with a AUC of 0.714 (CI 0.670–0.756, p<0.001).
Conclusions: In our non-selected population of patients admitted at the emer-