directed thrombolysis (CDL) with low dose thrombolytics leads to faster resolution of right ventricular strain in submassive PE; however, the impact of CDL on clinical outcomes remains unclear.
Purpose: We investigated the outcomes of consecutive patients with PE as the primary diagnosis admitted to intensive care units (ICU) who underwent CDL as compared to systemic anticoagulation.
Methods: This was an observational study of all patients with PE admitted to an ICU within our health system between June 2014 and April 2016. Massive PE was defined by need for intravenous vasopressor support, and submassive PE by having right ventricular strain (defined as RV: LV ratio ≥1 on CT angiography) but not on vasopressors. All other PEs were considered low risk. Treatment groups were medical therapy (MT) group (systemic anticoagulation) and CDL group (catheter-based delivery of tPA). Outcomes were 30 day and 1 year mortality, 30 day and one year readmission rates, need for transfusion, and rate of intracerebral hemorrhage. CDL patients were matched to MT controls using a propensity-score matching algorithm based on PE severity index (PESI) score, history of malignancy, and PE risk category. Survival was compared between groups using Kaplan-Meier curves and Cox proportional-hazards models.
Results: Of the 480 patients who were included in the study, 149 (31%) had low risk PE (145 received MT, 4 received CDL), 235 (49%) patients with submassive PE (137 receiving MT, 98 receiving CDL), and 33 (6.9%) patients had massive PE (27 received MT, 6 received CDL). Unadjusted mortality rates were 4.3% for CDL vs 20% for MT at 30 days and 10.3% for CDL vs 31.5% for MT at 1 year (HR 0.27, 95% CI 0.15–0.47, p<0.001). In the propensity-matched cohort (115 CDL patients matched to 115 similar MT controls), mortality rates were 4.3% for CDL vs 7.8% for MT at 30 days and 10.4% for CDL vs 16.7% for MT at 1 year (HR 0.48, 95% CI 0.25–0.91, p=0.025); Figure 1. Length of stay was significantly shorter in the CDL group. The readmission and index admission bleeding rates were not statistically different between both groups.

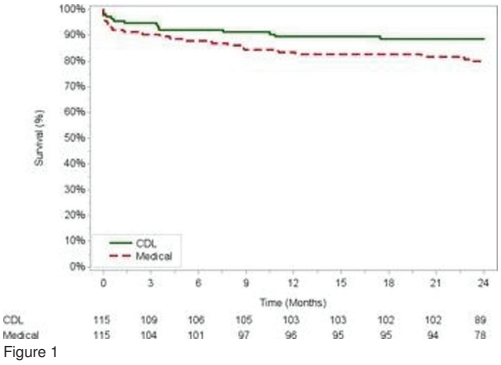

Figure 1

Conclusions: In patients presenting with acute PE, the group treated with CDL experienced reduced mortality at 30 days and 1 year when compared to MT. Further randomized studies are required to confirm the causality of these findings.

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Use of systemic thrombolysis in patients with acute pulmonary embolism in Germany

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Background: Systemic thrombolysis is the treatment of choice in haemodynamic unstable high-risk patients with pulmonary embolism (PE) and should be considered in intermediate-high-risk patients. However, real-world data on thrombolysis in acute PE are limited.
Purpose: We aimed to investigate temporal trends of the use of and outcomes after systemic thrombolysis for acute PE in the German nationwide inpatient sample.
Methods: Baseline characteristics, treatment and in-hospital outcomes of patients ≥18 years with PE (ICD-10-GM I26) recorded in the German nationwide inpatient sample (source: RDC of the Federal Statistical Office and the Statistical Offices of the federal states, DRG Statistics 2005–2015, own calculations) were analysed.
Results: The nationwide sample comprised 885,806 PE patients (2005–2015) with an incidence of 98.6/100.000 citizens/year. Annual incidence rates increased from 85.3 (2005) to 108.7 (2015) (β 0.32 [0.26 to 0.38], P<0.001), while in-hospital mortality rates decreased from 20.4% to 13.9% (β -0.51 [-0.52 to -0.49], P<0.001).
Overall, 78,643 (8.9%) PE patients were high-risk patients (defined as cardiopulmonary resuscitation [CPR] or shock), 60,519 (6.8%) underwent CPR, 9,436 (1.1%) presented in shock (without CPR and without mechanical ventilation [MV]) and 147,234 (16.6%) died in-hospital.
Non-survivors were older, had more often cancer (26.1% vs. 18.7%, P<0.001) and heart failure (31.5% vs. 19.1%, P<0.001). The most powerful independent predictors of in-hospital mortality were cancer (OR 1.86 [95% CI 1.84–1.89], P<0.001), heart failure (OR 1.72 [1.70–1.74], P<0.001) and shock (OR 12.26 [11.95–12.57], P<0.001).
Systemic thrombolysis was administered to 23.1% high-risk patients; of those, to 25.6% patients who underwent CPR and to 14.6% with shock. The annual rate of patients treated with systemic thrombolysis increased from 3.1% (2005) to 4.4% (2015) (β 0.28 [0.25to 0.31], P<0.001). While administration of systemic thrombolysis in non-high-risk patients was associated with an elevated risk to die in-hospital (OR 1.79 [1.71–1.87], P<0.001; compared to normotensive patients without thrombolysis), in high-risk patients who underwent CPR, systemic thrombolysis was associated with a lower in-hospital mortality risk (OR 0.92 [0.87–0.97], P=0.002). The most distinct benefit of systemic thrombolysis was observed in high-risk patients with shock (without CPR and MV) (OR 0.42 [0.37–0.48], P<0.001) independently of age, sex and comorbidities.
Conclusion: Although the rate of PE patients treated with systemic thrombolysis increased over a 11-year observation period in Germany, only 23.1% high-risk patients received thrombolysis despite clear guideline recommendations. As systemic thrombolysis was associated with a reduction of in-hospital death (especially in high-risk patients with shock), our data disclose an underuse of thrombolysis in high-risk PE patients with CPR and shock in Germany.
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BEST POSTERS IN CORONARY INTERVENTIONS

P572
Angiographic guided PCI of ACS causing culprit lesions - Just a gamble?

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Aims: Acute coronary syndromes (ACS) are a frequent clinical manifestation of coronary artery disease associated with particular high risk. Therapeutic strategy in interventional ACS therapy is to achieve complete lesion coverage by PCI to stabilize the ACS-causing culprit lesion and to avoid secondary coronary events driven by this vulnerable lesion. However, the success accomplished by angiographic guided PCI-strategy has never been investigated.
Therefore we analyzed “culprit lesion coverage” (CLC), an innovative parameter including “culprit plaque coverage” (CPC) and “culprit thrombus coverage” (CTC) by integrating culprit lesion characterization by optical coherence tomography (OCT) with the coronary culprit segment covered by stent implantation.
Methods and results: 50 consecutive ACS-patients (70.0% STE-ACS, 30.0% NSTE-ACS; 66.0% male, 34.0% female) of the ongoing prospective translational OPTICO-ACS-study program were investigated. All these patients underwent successful OCT imaging of the culprit lesion and angiographic-guided PCI of the ACS-causing culprit lesion. The OCT runs were post-hoc offline co-registered with the post-PCI angiography and CLC after PCI and its localization to the culprit plaque (CPC) and the culprit induced thrombus burden (CTC) was matched.
48% of all ACS-causing lesions show incomplete lesion coverage after angiographic-guided PCI. Importantly insufficient CPC (48%) is a more common finding than CTC (14.6%). The combination between complete CTC and incomplete CPC is frequent (31.2%), whereas complete CPC and incomplete CTC is never (0%) detectable. (p=0.002). The incidence between incomplete CLC, CPC and CTC is comparable upstream and downstream the culprit lesion. There are no risk factors associated with CLC detectable neither regarding culprit vessel blood flow, nor culprit lesion complexity or other clinical ACS-characteristics.
Conclusion: This study using high-resolution intracoronary OCT imaging of the ACS-causing culprit lesion revealed for the first-time insufficient culprit lesion coverage (CLC) as a common finding in nearly 50% of all ACS-causing culprit lesions after angiographic-guided PCI. Culprit plaque coverage was markedly worse than fixation of the ACS- associated intracoronary thrombus by PCI. The mechanism of insufficient CLC should be integrated in the understanding of early target lesion failure after PCI in ACS and its clinical significance needs further investigation. Furthermore, this findings strength OCT use to achieve optimal PCI-results in ACS-patients.

P573
Angiographic late lumen loss revisited: impact on target lesion revascularization and device thrombosis

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Background: In current device trials, the values of angiographic late lumen loss (LLL) have become extremely low and the relationship between LLL and clinical endpoints has not been recently reevaluated.
Objectives: To investigate the impact of LLL on target lesion revascularization