P2961 | BEDSIDE
Prevalence and natural history of left ventricular apical aneurysms in hypertrophic cardiomyopathy

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Purpose: To define prevalence and natural history of patients with hypertrophic cardiomyopathy (HCM) and apical aneurysms (AA).

Methods: A single center-cohort consisting of 423 patients (49.3±17.2 years, 66.2% male) was followed up for a median of 84 months (range 6 to 480 months). A left ventricular (LV) AA was defined as a discrete, thin-walled dyskinetic or akinetic apex with a relatively wide communication to the LV cavity recognised both by means of echocardiography and magnetic resonance imaging, Figure 1. Cumulative SD event rates through follow up were estimated by Kaplan-Meier method and differences were assessed by log rank test.

Results: AA were recognized in 11 out of 423 patients in our cohort (2.6%). Nine out of 11 patients (81.8%) with AA presented also with midventricular obstruction (MVO), with apical aneurysm formation identified in more than one fourth of patients with MVO (26.5%). During follow up, 4 out of 11 patients with an AA (36.4%) experienced progression to end stage HCM (burnt out) or death due to heart failure (HF), with the survival rates from HF and associated death being significantly lower in the aneurysm group [5 year survival 74.1% [95% CI (58-90.2)] for the aneurysm group compared to 99% [95% CI (98-99.8)] of the rest of the cohort, log rank p = 0.001]. Marginal non significant differences were recorded concerning the survival from sudden death and surrogate endpoints [5 year survival 97.6% [95% CI (96.8-98.4)] for the non aneurysm group and 80% [95% CI (67.4-92.6)] for the AA group, log rank p = 0.056].

Conclusions: AA is a distinct phenotypic characteristic of HCM associated with an unfavorable prognosis in terms of progression to end stage HCM (burnt out) or death due to HF. Additionally, there is a clear connection between MVO and apical aneurysms.

P2962 | BEDSIDE
Prevalence and natural history of left ventricular apical aneurysms in non-ischemic dilated cardiomyopathy

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Conclusions: AA is a distinct phenotypic characteristic of HCM associated with an unfavorable prognosis in terms of progression to end stage HCM (burnt out) or death due to HF. Additionally, there is a clear connection between MVO and apical aneurysms.

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Prevalence and outcome of cardiogenic shock in patients with tako-tsubo cardiomyopathy

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Methods: From 37 heart centres, 324 pts (296 f, 28 m, age 68 ± 17.2 years, IQR 1-3 days) after symptom onset; 51 of these pts (24%) experienced > 1 and 23 (11%) > 2 complications. Most complications (77%) occurred within 3 days after symptom onset, however, severe complications have been described in a limited number of patients (pts).

Results: Complications developed in 108/209 pts (52%) within 2.6±2.9 days (median 1 [IQR 1-3] days) after symptom onset: 31 of these pts (24%) experienced >1 and 23 (11%) > 2 complications. Most complications (77%) occurred within 3 days after symptom onset, however, 23% developed later (from day 4 to 56). Fourteen of 209 pts (7%) experienced cardiogenic shock which developed on the day of admission in 11 pts (7%) and from day 2 to day 4 after admission in 3 pts (21%). Seven of these patients (50%) were also in pulmonary oedema. The ECG on admission showed a higher heart rate (92±17 vs. 76±17 beats per minute, p<0.001) and more Q waves in pts with cardiogenic shock (54% vs. 27%, p=0.043). Cardiac markers were significantly higher (creatine kinase 4.3±17 vs. 9±51, p<0.001) and troponin 62.1±600 vs. 10.7±119, p<0.001) times the upper limit of normal, and ejection fraction was lower (38.9±9 vs. 51±10%, p<0.005). Intraaortic balloon pumping was applied in 2/4 pts, and catecholamines were administered in 8 pts. Four of 14 TTC pts with cardiogenic shock (29%) died, 2 from myocardial failure and 1 pt each from refractory cardiogenic shock and LV rupture. In the latter pt ST-segment elevation persisted for 3 days when myocardial perforation occurred.

Conclusions: Cardiogenic shock occurs in 7% of pts with TTC. The prevalence of cardiogenic shock is similar to findings in reperfused myocardial infarction (46-82%). However, the mortality of cardiogenic shock in TTC pts appears to be lower (29%) than reported in reperfused patients with ST-elevation myocardial infarction (42-62%). This may be due to the early spontaneous reversibility of LV dysfunction in TTC.

P2964 | BENCH
BMP7 counteracts TGF betal induced endothelial-to-mesenchymal transition in viral cardiomyopathy and its potential mechanism

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Methods: This study was designed to evaluate whether BMP7 administration could reduce fibrosis induced by CVB3 infection and its potential mechanism. Methods: Viral myocarditis mice model was made and BMP7 was administrated to infected mice. Fourteen days after CVB3 infection, echocardiography, Sirius Red staining and hematoxylin-eosin (HE) were performed to describe the cardiac fibrosis.
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function and histological characteristics. Colocation of endothelial markers and mesenchymal markers were identified using confocal immunofluorescence staining. Western blot was performed to evaluate the TGF-β1/Smad and Wnt/β-catenin signaling pathway.

Results: A mice model of CBB3 myocarditis was made and BMP7 was administered to CBB3-infected mice. Histological data demonstrated that BMP7 administration significantly reduced inflammatory cells accumulation and cardiac fibrosis in response to CBB3 challenge. Echo data described cardiac dysfunction was recovered after BMP7 administration. Double labeling of endothelial and mesenchymal markers showed transmigration of treated mice had significantly reduced the double-positive cells. Western blot described that TGF-β1/Smad and Wnt/β-catenin signaling pathway was involved in this pathogenesis.

Conclusions: BMP7 promotes TGF-β1-induced endothelial-to-mesenchymal transition in viral cardiomyopathy through both TGF-β1/Smad and Wnt/β-catenin signaling pathway. The research is supported by grant from the Health Joint-research Program of China and Canadian Institutes of Health Research (81010007) and National Natural Science Foundation of China (31070786)

P2965 | BEDSIDE
Systematic review of atrial fibrillation and stroke in patients with hypertrophic cardiomyopathy
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P2965 | BEDSIDE
Presence of chronic kidney disease is associated with poor clinical outcomes during hospitalization in patients with Takotsubo cardiomyopathy: multi-center registry from tokyo CCU network
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Background: It is well known that the presence of chronic kidney disease (CKD) increases the risk of the cardiovascular disease. However, whether the presence of CKD adversely affects in-hospital clinical outcomes in patients with Takotsubo cardiomyopathy (TC) remains to be determined.

Methods: We investigated 219 patients of TC from Tokyo CCU Network database, comprising of 67 cardiovascular centers in the metropolitan area during January 1, 2010 to December 31, 2011.We estimated the glomerular filtration rate (eGFR) in patients whom serum creatinine level was measured. We attempted to characterize TC complicated by CKD by comparing patients with eGFR $\leq$0.001 mg/dl (non-CKD group, n=131) with those with eGFR $\geq$0.001 mg/dl (body-surface area (CKD group, n=88).

Results: There were differences in age (76.8±9.6 vs. 69.9±12.0, p=0.001) and male gender (31.8% vs. 15.3%, p=0.004) between CKD group and non-CKD group. There was no difference in preceding physical or emotional stresses (69.3% vs. 65.6%, p=0.058), apical ballooning type (90.9% vs. 88.5%, p=0.577), ejection fraction measured by echocardiography (47.5±15.9% vs. 48.1±13.4%, p=0.087), ST elevation on electrocardiogram (68.2±7.4% vs. 79.4%, p=0.061), brain natriuretic peptide level (222812972pg/ml vs. 2763368 pg/ml, p=0.099), or peak creatinine kinase level (615.1±113 IU/l vs. 418±68 IU/l, p=0.365). Pump failure defined as Killip grade $\geq$3 was more common in CKD group than non-CKD group (17.0% vs. 6.1%, p=0.010). More patients with CKD group received cardiopulmonary supportive therapies including mechanical ventilation or non-invasive positive pressure ventilation (23.9% vs. 11.5%, p=0.015) and intra-aortic balloon pumping (7.8% vs. 2.3%, p=0.049) than non-CKD group. There was no difference in cardiac death (2.3% vs. 1.5%, p=0.686), but hospitalization length was more prolonged in CKD group than non-CKD group (20±25 vs. 13±15 days, p=0.024).

Conclusion: In the database from Tokyo CCU Network, TC complicated by CKD seems to be associated with poor in-hospital clinical outcomes than non-CKD group. Aggressive intervention may be required to prevent further deterioration of clinical course in TC complicated by CKD.

P2968 | BEDSIDE
Improving survival of chemotherapy-induced cardiomyopathy in the modern heart failure therapy era
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Background: Chemotherapy-induced cardiomyopathy (CI-CM) is the most frequent complication of cytotoxic drugs cardiotoxicity and portends a poor progno-