feasibility (e.g., availability in documentation, etc.) and necessity for generating indicators, as well as consistency with current local collection. Revisions were made and the form was generated in the CVHNS Registry, pilot tested by the 2 Cardiovascular Coordinators and subsequently revised. Processes for data collection were standardized and a report written to generate key performance indicators suitable for monitoring/evaluating the impact of local process changes, while also providing more timely information on the province’s performance as a whole. The database went live in December 2017. Data have been collected in near real time for all fibrinolysis cases since January 2018, with cases being identified primarily from pharmacy drug dispensing systems. Cases who did not receive fibrinolysis are obtained quarterly from the Discharge Abstract Database using codes I210, I211, I212 and I213. In 2018, information was captured on 347 fibrinolysis cases, which is consistent with numbers from the long term retrospective database.

CONCLUSION: Local data collection in close to real time is feasible. Our next steps are to compare the accuracy of the data to explore whether it can be used to replace the same information currently collected retrospectively. A timely method of identifying STEMI who did not receive fibrinolysis remains a challenge.

072 WITHDRAWN

073 INDIRECT CORONARY REIMPLANTATION IS ASSOCIATED WITH INCREASED OPERATIVE RISK IN PATIENTS UNDERGOING A BENTALL PROCEDURE AFTER PREVIOUS CARDIAC SURGERY

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BACKGROUND: We sought to evaluate the early outcomes of patients undergoing a Bentall procedure after previous cardiac surgery.

METHODS AND RESULTS: From 1990 to 2014, 473 patients underwent aredo Bentall procedure with a composite valve graft (CVG) at a single institution (CVG with a mechanical prosthesis, n = 256; CVG with a bioprosthesis, n = 217). The primary outcome was 30-day mortality. The secondary outcome was a composite of major morbidity and operative mortality (MMOM): stroke, renal failure, prolonged mechanical ventilation, deep sternal infection or reoperation during the same admission. Median age was 57 (IQR: 44 – 67) years and 349 (74%) patients were male. Median time between index surgery and reoperation was 13 (IQR: 8-21) years. One hundred seventy-eight (38%) patients underwent urgent or emergent intervention, 61 (13%) had active endocarditis, 87 (19%) had an LVEF < 40%, and 262 (55%) patients had undergone more than one previous operation. Previous surgery included CABG (n=58, 12%), aortic valve/root repair (n=36, 8%) or replacement (n=376, 80%), and other surgical interventions (n=245, 52%). Ninety-five (20%) patients had undergone coronary reimplantation during the previous operation, which consisted of a Bentall procedure in 80 patients, a Ross operation in 8, a valve-sparing root replacement in 4, and an arterial switch in 3. At the time of the reoperative Bentall, both coronaries were reimplanted directly in 352 (74%) patients, whereas 72 (15%) patients received at least one interposition graft (saphenous vein in 42, and synthetic in 30). In 32 (7%) patients, at least one of the native coronary arteries was oversewn and a vein graft bypass performed. Thirty-day mortality occurred in 37 patients (7.8%) and 152 (32%) patients suffered MMOM. On multivariable analysis, risk factors associated with increased 30-day mortality included older age (OR per 5-year age increment [95% CI]: 1.20 [1.04-1.38], p = 0.01) and coronary reimplantation by a technique other than direct anastomosis (OR 3.71 [1.76-7.87], p < 0.001). Indirect coronary reimplantation was also associated with a higher incidence of MMOM (OR 1.71 [1.05-2.77], p=0.03), as were older age (OR per 5-year age increment: 1.08 [1.01-1.17], p = 0.03), preoperative NYHA functional class IV (OR 3.44 [1.55-7.62], p=0.002), and more than one previous cardiac operation (OR 1.75 [1.11-2.76], p=0.02).

CONCLUSION: In the largest reported cohort of aortic root replacement after previous cardiac surgery, reoperative Bentall procedure was associated with a significant operative risk. The need for complex coronary reimplantation techniques was an important predictor of adverse perioperative events.

074 METABOLOMICS TO UNVEIL A CHARACTERISTIC SIGNATURE OF HUMAN MYOCARDIAL INFARCTION

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BACKGROUND: The burden associated with myocardial infarction (MI) has major individual and societal consequences. Metabolomics can be used to refine the development of biomarkers for the diagnosis of MI and to monitor the response pharmacological therapy.

METHODS AND RESULTS: The present study characterizes a metabolomics signature of MI by exploring plasma-based
samples of patients with ST-elevation MI, comparing samples before and after treatment with P2Y12 inhibitors, namely clopidogrel and ticagrelor. Untargeted plasma metabolomics profiling of 175 patients with STEMI undergoing percutaneous coronary intervention (PCI) were performed at baseline (BL) and repeated at hospital discharge (DC) as part of the PLATO trial (NCT00391872). Analysis was performed through paired individuals, each individual being their own control. Data analysis was done through differential quantification analysis (Principal Component Analysis and ANOVA) and Weighted Gene Co-expression Network Analysis (WGCNA). MI was associated with a characteristic metabolic signature that pointed out to a dysregulated fatty acid and amino acid metabolism. 73.57% of metabolites were differentially quantified at false discovery rate (FDR) below 1%. Data shows increased expression of fatty acid pathways and decreased expression of metabolites associated with amino acid pathways during MI. Stearidonate, 3-hydroxybutyrate and eicosenoate were increased at baseline, with a multitude of other fatty acids that were also significantly modulated. In the amino-acids group, phenylalanylphenylalanine, glycyvaline and taurolithocholate-3-sulfate were decreased, among many others (see figure). Furthermore, ticagrelor modulated specific metabolites, among which alpha-tocopherol and glycerol 3-Phosphate (G3P).

CONCLUSION: Myocardial infarction is associated with a clear metabolic signature, with enhanced expression of fatty acids metabolites and lower expression of amino-acids metabolites. The combined metabolomics and bioinformatics analyses helped us to emphasize a clear metabolomics signature. Our study enabled us to derive a global signature as well as move towards a personalized profiling of each patient.

075 SURGICAL REPAIR OF PERIPHERAL PULMONARY ARTERY STENOSIS

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BACKGROUND: Peripheral pulmonary artery stenosis (PPAS) is a rare form of congenital heart disease and is typically associated with Williams or Alagille syndrome. However, there are patients without either syndrome who present with PPAS. The purpose of this study was to review our surgical experience in those patients.

METHODS AND RESULTS: This is a retrospective review of 30 patients without either Williams or Alagille syndrome who underwent surgical repair of PPAS at a single institution. Median age at surgery was 3.6 years (range 0.3-18.8 years). Seventeen of the 30 patients (57%) had undergone previous cardiac operations and 16 patients (53%) previously underwent peripheral pulmonary artery balloon angioplasty or stent implantation. Concomitant anatomical diagnoses were found in 20 patients (67%) and included: supravalvar aortic stenosis (n=8), tetralogy of Fallot (n=4), d-transposition of the great arteries (n=2), truncus arteriosus (n=2), hypoplastic left heart syndrome (n=2), ventricular septal defect (n=1) and patent ductus arteriosus (n=1). Additional medical diagnoses were found in 15 patients (50%) and included: elastin arteriopathy (n=9), pulmonary artery calcinosis (n=1), arterial tortuosity syndrome (n=1), DiGeorge syndrome (n=1), Noonan syndrome (n=1) and others (n=2). The mean number of peripheral pulmonary stenoses surgically addressed was 19±8. Median duration of cardiopulmonary bypass was 369 minutes (IQR 292 to 515 minutes). With surgical repair, mean right ventricle-to-aortic systolic pressure ratio decreased from 0.95±0.2 pre-operatively to 0.28±0.08 post-operatively (p < 0.0001). Similarly, mean right ventricle systolic pressure decreased from 81±22mmHg to 26±8mmHg (p < 0.0001). Survival to hospital discharge was 100% and there was no mortality at a mean follow-up of 2.3 years. Post-operatively, 4 patients underwent balloon dilation of peripheral pulmonary arteries and no patient required cardiac reoperation. Freedom from pulmonary artery catheter-based reintervention was 95% and 80% at 12 and 36 months, respectively.

CONCLUSION: This cohort of patients with PPAS underwent successful surgical repair with a significant reduction in right ventricle to aortic pressure ratios, achieving absolute right ventricular systolic pressures within the normal range. Various medical and anatomic diagnoses may be associated with PPAS. These results suggest a surgical approach should be considered the first-line treatment for PPAS.