

编号: YY004-20190902001

标题: Value of Rotational Thromboelastometry and Impedance Aggregometry for Evaluating Coagulation Disorders in Patients With Cyanotic and Nongenetic Congenital Heart Disease

简介: Adults with cyanotic congenital heart diseases (CCHD) have a higher risk for bleeding, but also for thrombosis. Rotational thromboelastometry (RT), using tissue factor (EXTEM), a contact activator (INTEM) or cytochalasin (FIBTEM), assesses coagulation by determining the time to initiation of clotting (CT) and clot firmness (MCF) including platelet-fibrin-interaction. The aim of this study was to evaluate RT and whole blood impedance aggregometry (IA) in CCHD compared with a control group without chronic cyanosis (NCCHD). These were used to establish normal reference ranges. We prospectively included 124 patients (76 CCHD, 48 NCCHD). Mean oxygen saturation in CCHD was 81.5%, and 98% in NCCHD ($p < 0.001$). Fifty-five CCHD and 1 NCCHD had pulmonary hypertension. Eisenmenger syndrome was present in 39 CCHD (51.3%). Hemoglobin, hematocrit, and reticulocyte levels were significantly higher in CCHD, and they also showed more thrombocytopenia. Platelet aggregation was under normal range in 89.5% of CCHD after triggering with ADP, in 85.5% after triggering with arachidonic acid (ASPI) and in 73.7% after TRAP-6. RT showed significantly longer clotting times and reduced clot firmness in both EXTEM and INTEM tests. FIBTEM-MCF was also significantly reduced. Moderate inverse correlation was found between platelet count and erythrocytes ($r = -0.608$, $p < 0.001$). Significant correlations were found between platelet number and RT-parameters as well as with all IA parameters. In conclusion, according to RT and IA, CCHD present hypocoagulable disorders. No signs of hypercoagulability were found.

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标题: Prenatal Detection, Comorbidities, and Management of Vascular Rings

简介: The 3-vessel and trachea view is now integrated into obstetrical screening and facilitates prenatal detection of vascular rings. We examined trends in prenatal detection, associated cardiac and extracardiac anomalies, and surgical management in this population. We reviewed a population-based cohort of pediatric vascular ring patients diagnosed prenatally and postnatally between 2002 and 2017 in Alberta, Canada. Of 106 cases, 28 (26%) had a prenatal diagnosis. Prenatal detection increased over time: 0/29 from 2002 to 2009, 4/28 (14%) from 2009 to 2011, 7/23 (30%) from 2012 to 2014, and 17/26 (65%) from 2015 to 2017 ($p < 0.01$). The prenatal group more commonly had right aortic arch/left ductus/aberrant left subclavian artery (24/28vs 53/78, $p = 0.04$) and associated cardiac pathology (18/28vs 33/78, $p = 0.05$). The rate of genetic anomalies was overall higher than previously reported (34%) and did not differ between groups (11/28vs 25/78, $p = 0.48$). Those with a prenatal diagnosis were less likely to require cross-sectional imaging (9/28vs 48/78, $p < 0.01$), modifying the vascular ring subtype diagnosis in 2 patients. Surgical intervention was common and did not differ between groups (24/28vs 66/78, $p = 0.89$). In conclusion, prenatal detection of vascular rings has increased. Despite differences in vascular ring subtype and associated cardiac pathology, the incidence of genetic anomalies and need for surgical intervention is not associated with timing of diagnosis. Genetic counseling should be universally offered. The

diagnostic accuracy of echocardiography suggests additional imaging may not be routinely required.

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标题: Evolution of the Fetal Atrioventricular Interval from 6 to 40 Weeks of Gestation

简介: Doppler-based methods of estimating the atrioventricular interval are commonly used as a surrogate for the electrical PR in fetuses at risk of conduction abnormalities; however, to date, normal values for the fetal atrioventricular interval and an understanding of the evolution of its components in the late first trimester are lacking. We sought to investigate changes in the fetal atrioventricular interval from the first trimester to 40 weeks gestational age, and to explore functional and electrophysiological events that potentially impact its evolution. We prospectively examined healthy pregnancies by fetal echocardiography from 6 to 40 weeks' gestational age. The atrioventricular interval, heart rate, isovolumic contraction time, and A-wave duration were measured from simultaneous ventricular inflow-outflow Doppler tracings. Regression analysis was used to examine relations with gestational age, and linear relations with heart rate were assessed by Pearson's correlation coefficient. Data were collected in 305 fetuses from 279 pregnancies. Atrioventricular interval demonstrated an inverse relation with heart rate ($r = -0.45$, $p < 0.0001$), dramatically decreasing before 10 weeks and slowly increasing thereafter. Between 6 and 9 weeks, isovolumic contraction time acutely decreased approaching 0, thereafter minimally increasing to term. In contrast, from 6 weeks, the A-wave duration linearly increased through gestation, and negatively correlated with heart rate ($r = -0.62$, $p < 0.0001$). In conclusion, we have established normal measures of the atrioventricular interval from 6 to 40 weeks' gestational age. Before 10 weeks, a prolonged atrioventricular interval in healthy fetuses largely reflects the lengthened isovolumic contraction time which is likely influenced by the evolution of ventricular function and afterload.

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标题: Axillary Artery Access for Mechanical Circulatory Support Devices in Patients With Prohibitive Peripheral Arterial Disease Presenting With Cardiogenic Shock

简介: In patients with severe peripheral vascular disease, the common femoral artery may be so diseased as to not allow for deployment of mechanical circulatory support (MCS) such as in the setting of cardiogenic shock (CS). We sought to study the feasibility of axillary artery as alternative access for MCS in CS patients with severe occlusive peripheral artery disease (PAD). Records of all patients who presented with CS requiring MCS through axillary artery access from January 2016 to October 2017 were examined. Demographics, clinical, procedural, and outcomes data were collected on all patients. A total of 17 patients (mean age 68 ± 14 years, 95% men) were identified. This was due to severe PAD in the iliac and/or common femoral arteries prohibiting large bore sheath access in all cases. Of the 17 patients, 9 required percutaneous coronary

intervention. Time from axillary access to activation of Impella was 14.8 ± 4 minutes. Three patients required concomitant Impella RP for right ventricular support due to biventricular CS. Twelve patients died before Impella was explanted due to multiorgan failure, stroke, and infection. None of the patients who died had vascular complications related to axillary access. All 5 patients who survived to Impella explant were discharged from the hospital without major complication. Axillary artery is a safe and feasible alternative access for large bore devices in patients with prohibitive PAD. The meticulous technique described assures a very low rate of access related complications.

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标题: Comparison of Diagnostic Performance of Quantitative Flow Ratio in Patients With Versus Without Diabetes Mellitus

简介: Quantitative flow ratio (QFR) is a novel technique to calculate fractional flow reserve (FFR), without hyperemia induction or a pressure wire, and has not yet been validated in patients with diabetes mellitus (DM), who are at increased risk of coronary microvascular dysfunction. The purpose of our study was to compare the diagnostic performance of QFR in diabetic and nondiabetic patients. Patients who underwent invasive coronary angiography and subsequent invasive FFR measurement within 6 months were included. QFR was determined in all coronary arteries in which invasive FFR was performed, using a dedicated software package. Diagnostic accuracy and the area under the receiver-operating characteristic curve (AUC) were determined for QFR, using an invasive FFR cut-off value of ≤ 0.80 as the reference standard. In total, 320 coronary arteries from 66 (25%) diabetic and 193 (75%) nondiabetic patients were analyzed. On a vessel-based analysis, diagnostic accuracy, sensitivity, and specificity showed no significant difference between diabetic and nondiabetic patients: 88% versus 85% ($p = 0.47$), 71% versus 69% ($p = 0.72$), and 95% versus 91% ($p = 0.24$). Moreover, the AUC was not significantly different between patients with and without DM, 0.91 versus 0.93 ($p = 0.74$). The per-vessel AUC was significantly higher for QFR compared with percent diameter stenosis in both diabetic and nondiabetic patients, 0.91 versus 0.76 ($p < 0.05$) and 0.93 versus 0.77 ($p < 0.001$), respectively. In conclusion, we showed a good diagnostic performance of QFR which was independent of the presence of DM.

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