Congenital cardiac surgery

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Quality Improvement in a Pediatric Echocardiography Laboratory: A Collaborative Process

Vie, 12/23/2022 - 11:00

Children (Basel). 2022 Nov 28;9(12):1845. doi: 10.3390/children9121845.

ABSTRACT

Transthoracic echocardiography (TTE) is an essential tool for diagnosis and management of congenital heart disease. Pediatric echocardiography presents unique challenges including complex anatomy, variable patient cooperation and provider expertise. Diagnostic errors inevitably occur. We designed a collaborative and stepwise quality improvement (QI) process to address diagnostic errors within our laboratory. We retrospectively reviewed medical records to identify diagnostic TTE errors in 100 consecutive cardiac surgery patients ≤ 5 years old (July 2020-January 2021). We identified 18 diagnostic errors. Most errors had minor impact (14/18), and 13 were preventable or possibly preventable. We presented these results to our sonographers and faculty and requested input on preventing and managing diagnostic errors. Our root cause analysis based on their responses yielded 7 areas for improvement (imaging, reporting, systems, time, environment, people, QI processes). Our faculty and sonographers chose QI processes and imaging as initial areas for intervention. We defined our SMART goal as a 10% reduction in diagnostic errors. We implemented interventions focused on QI processes. On initial follow up in May 2022, we identified 7 errors in 70 patients (44% reduction in error rate). Utilizing a stepwise and team-based approach, we successfully developed QI initiatives in our echocardiography laboratory. This approach can serve as a model for a collaborative QI process in other institutions.

PMID:36553289 | PMC:PMC9776848 | DOI:10.3390/children9121845

Categorías: Cirugía congénitos

The Incidence of Associated Anomalies in Children with Congenital Duodenal Obstruction-A Retrospective Cohort Study of 112 Patients

Vie, 12/23/2022 - 11:00

Children (Basel). 2022 Nov 24;9(12):1814. doi: 10.3390/children9121814.

ABSTRACT

BACKGROUND: Duodenal obstruction (DO) is a congenital anomaly that is highly associated with other anomalies, such as cardiac anomalies and trisomy 21. However, an overview of additional anomalies and patient-specific risk factors for cardiac anomalies is lacking. Potential association with the vertebral, anorectal, cardiac, trachea-esophageal, renal and limb anomalies (VACTERL) spectrum remains unknown. Therefore, we aim to examine the incidence of associated anomalies, a VACTERL-spectrum association and patient-specific risk factors for cardiac anomalies in patients with DO.

METHODS: A retrospective cohort study was performed between 1996 and 2021. Outcomes were the presence of any additional anomalies. Risk factors for cardiac anomalies were analyzed using multivariate logistic regression.

RESULTS: Of 112 neonates with DO, 47% (N = 53/112) had one associated anomaly and 38% (N = 20/53) had multiple anomalies. Cardiac anomalies (N = 35/112) and trisomy 21 (N = 35/112) were present in 31%. In four patients, VACTERL-spectrum was discovered, all with cardiac anomalies. Trisomy 21 was found to be a risk factor for cardiac anomalies (OR:6.5; CI-95%2.6-16.1).

CONCLUSION: Associated anomalies were present in half of patients with DO, of which cardiac anomalies and trisomy 21 occurred most often, and the VACTERL-spectrum was present in four patients. Trisomy 21 was a significant risk factor for cardiac anomalies. Therefore, we recommend a preoperative echocardiogram in patients with DO. In case a cardiac anomaly is found without trisomy 21, VACTERL-screening should be performed.

PMID:36553258 | PMC:PMC9776717 | DOI:10.3390/children9121814

Categorías: Cirugía congénitos

Metabolomics: A New Tool in Our Understanding of Congenital Heart Disease

Vie, 12/23/2022 - 11:00

Children (Basel). 2022 Nov 24;9(12):1803. doi: 10.3390/children9121803.

ABSTRACT

Although the genetic origins underpinning congenital heart disease (CHD) have been extensively studied, genes, by themselves, do not entirely predict phenotypes, which result from the complex interplay between genes and the environment. Consequently, genes merely suggest the potential occurrence of a specific phenotype, but they cannot predict what will happen in reality. This task can be revealed by metabolomics, the most promising of the "omics sciences". Though metabolomics applied to CHD is still in its infant phase, it has already been applied to CHD prenatal diagnosis, as well as to predict outcomes after cardiac surgery. Particular metabolomic fingerprints have been identified for some of the specific CHD subtypes. The hallmarks of CHD-related pulmonary arterial hypertension have also been discovered. This review, which is presented in a narrative format, due to the heterogeneity of the selected papers, aims to provide the readers with a synopsis of the literature on metabolomics in the CHD setting.

PMID:36553246 | PMC:PMC9776621 | DOI:10.3390/children9121803

Categorías: Cirugía congénitos

Ability of the Right Ventricle to Serve as a Systemic Ventricle in Response to the Volume Overload at the Neonatal Stage

Vie, 12/23/2022 - 11:00

Biology (Basel). 2022 Dec 15;11(12):1831. doi: 10.3390/biology11121831.

ABSTRACT

BACKGROUND: In children with hypoplastic left heart syndrome (HLHS), volume overload (VO) is inevitable, and the right ventricle (RV) pumps blood into the systemic circulation. Understanding the molecular differences and their different responses to VO between the RV and left ventricle (LV) at the neonatal and highly plastic stages may improve the long-term management of children with

HLHS.

METHODS AND RESULTS: A neonatal rat ventricular VO model was established by the creation of a fistula between the inferior vena cava and the abdominal aorta on postnatal day 1 (P1) and confirmed by echocardiographic and histopathological analyses. Transcriptomic analysis demonstrated that some of the major differences between a normal neonatal RV and LV were associated with the thyroid hormone and insulin signaling pathways. Under the influence of VO, the levels of insulin receptors and thyroid hormone receptors were significantly increased in the LV but decreased in the RV. The transcriptomic analysis also demonstrated that under the influence of VO, the top two common enriched pathways between the RV and LV were the insulin and thyroid hormone signaling pathways, whereas the RV-specific enriched pathways were primarily associated with lipid metabolism and arrhythmogenic right ventricular cardiomyopathy (ARVC); further, the LV-specific enriched pathways were primarily associated with nucleic acid metabolism and microRNAs in cancer.

CONCLUSIONS: Insulin and thyroid hormones may play critical roles in the differences between a neonatal RV and LV as well as their common responses to VO. Regarding the isolated responses to VO, the RV favors an ARVC change and the LV favors a reduction in microRNAs in cancer. The current study suggests that insulin, thyroid hormone, and cancer-associated microRNAs are potential therapeutic targets that should be explored by basic science studies to improve the function of the RV to match that of the LV.

PMID:36552341 | PMC:PMC9775952 | DOI:10.3390/biology11121831

Categorías: Cirugía congénitos

Ground-glass opacity in a patient with right aortic arch and no left pulmonary artery

Jue, 12/22/2022 - 11:00

J Cardiothorac Surg. 2022 Dec 22;17(1):330. doi: 10.1186/s13019-022-02037-9.

ABSTRACT

BACKGROUND: Here we report a case of patients with mixed ground glass opacity in the left lung combined with congenital right aortic arch, which is only present in 0.01-0.1% of adults.

CASE PRESENTATION: A 60-year-old woman was referred to our department with a mixed ground-glass opacity (GGO) in the upper lobe of her left lung. She had congenital right aortic arch, and the left pulmonary artery was absent. Enhanced chest computed tomography, pulmonary perfusion imaging, and three-dimensional reconstruction were performed to confirm the blood supply in the left lung and the exact location of the GGO. Because of the unusual left pulmonary vascular structure, wedge resection was performed to prevent massive hemorrhage. The final pathological examination revealed that the mixed GGO was a well-differentiated pulmonary adenocarcinoma.

CONCLUSION: The surgical options should be evaluated carefully in view of the complications and the prognosis of the patient, when ground glass opacity is combined with congenital cardiovascular anomalies.

PMID:36550506 | PMC:PMC9773516 | DOI:10.1186/s13019-022-02037-9

Categorías: Cirugía congénitos

Plasma Chymase Activity Reflects the Change in Hemodynamics Observed after the Surgical Treatment of Patent Ductus Arteriosus in Dogs

Jue, 12/22/2022 - 11:00

Vet Sci. 2022 Dec 8;9(12):682. doi: 10.3390/vetsci9120682.

ABSTRACT

Chymase is a protease stored in mast cell granules that produces angiotensin II (ANG II) from angiotensin I (ANG I) and is associated with tissue injury, inflammation, and remodeling, especially involving the cardiovascular system. As cardiovascular events occur, chymase is activated by degranulation to the extracellular matrix. Although chymase has been suggested to be associated with cardiovascular disease progression, there are not enough reports in veterinary medicine. Patent ductus arteriosus (PDA) is a common congenital cardiac disease in veterinary medicine. Almost all cases of PDA can be treated surgically to prevent the development of congestive heart disease and/or pulmonary hypertension. The aims of the present study were to measure chymase activity before and after PDA occlusions, and to investigate the relationships between the congestive and hemodynamic states of PDA and chymase activity. In the present study, 17 puppies diagnosed with PDA were included and all puppies completely recovered to the level of healthy dogs. Chymase activity significantly decreased at 2 months after the operation, along with the echocardiography parameters of congestion. Therefore, plasma chymase activity may be useful as a novel predictor for understanding the hemodynamics of PDA in veterinary medicine.

PMID:36548843 | PMC:PMC9786059 | DOI:10.3390/vetsci9120682

Categorías: Cirugía congénitos

Novel Hybrid Treatment for Pulmonary Arterial Hypertension with or without Eisenmenger Syndrome: Double Lung Transplantation with Simultaneous Endovascular or Classic Surgical Closure of the Patent Ductus Arteriosus (PDA)

Jue, 12/22/2022 - 11:00

J Cardiovasc Dev Dis. 2022 Dec 14;9(12):457. doi: 10.3390/jcdd9120457.

ABSTRACT

Patients with pulmonary arterial hypertension (PAH) become candidates for lung or lung and heart transplantation when the maximum specific therapy is no longer effective. The most difficult challenge is choosing one of the above options in the event of symptoms of right ventricular failure. Here, we present two female patients with PAH: (1) a 21-year-old patient with Eisenmenger syndrome, caused by a congenital defect-patent ductus arteriosus (PDA); and (2) a 39-year-old patient with idiopathic PAH and coexistent PDA. Their common denominator is PDA and the hybrid surgery performed: double lung transplantation with simultaneous PDA closure. The operation was performed after pharmacological bridging (conditioning) to transplantation that lasted for 33 and 70 days, respectively. In both cases, PDA closure effectiveness was 100%. Both patients survived the operation (100%); however, patient no. 1 died on the 2nd postoperative day due to multi-organ failure; while patient no. 2 was discharged home in full health. The authors did not find a similar description of the operation in the available literature and PubMed database. Hence, we propose this new treatment method for its effectiveness and applicability proven in our practice.

PMID:36547454 | PMC:PMC9783473 | DOI:10.3390/jcdd9120457

Categorías: Cirugía congénitos

Abdominal and Peripheral Tissue Oxygen Supply during Selective Lower Body Perfusion for the Surgical Repair of Congenital Heart Disease: A Pilot Study

Jue, 12/22/2022 - 11:00

J Cardiovasc Dev Dis. 2022 Dec 5;9(12):436. doi: 10.3390/jcdd9120436.

ABSTRACT

BACKGROUND: Lower body perfusion (LBP) may be a strategy for maintaining organ perfusion during congenital heart disease surgery. It is hypothesized that renal and lower limb oxygen supply during LBP is superior to off-pump surgery and comparable to that of a standard cardiopulmonary bypass (CPB).

METHODS: in this prospective single-center study, patients aged <1 year were recruited if they were scheduled for a correction of aortic arch anomalies using antegrade cerebral perfusion and LBP (group 1), a repair of coarctation during aortic cross-clamping (group 2), or surgery under whole-body CPB (group 3). Renal (prefix "r") and peripheral (prefix "p") oxygen saturation (SO2), hemoglobin amount (Hb), blood velocity (Velo), and blood flow (Flow) were measured noninvasively.

RESULTS: A total of 23 patients were included (group 1, n = 9; group 2, n = 5; group 3, n = 9). Compared to the baseline values, rSO2 and pSO2 decreased significantly in group 2 compared to groups 1 and 3. Conversely, rHB significantly increased in group 2 compared to groups 1 and 3, reflecting abdominal venous stasis. Compared to group 3, group 1 showed a significantly lower pFlow during CPB; however, rFlow, pFlow, and pVelo did not differ.

CONCLUSION: according to these observations, LBP results in an improved renal oxygen supply compared to off-pump surgery and may prove to be a promising alternative to conventional CPB.

PMID:36547433 | PMC:PMC9782002 | DOI:10.3390/jcdd9120436

Categorías: Cirugía congénitos

Complete atrioventricular septal defect: Modified 2-patch technique

Jue, 12/22/2022 - 11:00

Multimed Man Cardiothorac Surg. 2022 Dec 22;2022. doi: 10.1510/mmcts.2022.103.

ABSTRACT

Complete atrioventricular septal defect is a common congenital malformation. Various surgical corrections coexist. This video tutorial describes a correction that preserves the height of the leaflets by splitting both the anterior and the posterior bridging leaflets and using two patches to close the ventricular septal defect and the atrial septal defect separately.

PMID:36546680 | DOI:10.1510/mmcts.2022.103

Categorías: Cirugía congénitos

Surgical repair of an obstructed mixed-type total anomalous pulmonary venous connection

Jue, 12/22/2022 - 11:00

Clin Case Rep. 2022 Dec 18;10(12):e6747. doi: 10.1002/ccr3.6747. eCollection 2022 Dec.

ABSTRACT

Total anomalous pulmonary venous connection is a rare congenital anomaly and has four anatomical subtypes of which the mixed type represents diagnostic and therapeutic challenge. When associated

with obstruction, however, urgent surgical repair is needed. Herein, we present a rare case of obstructed mixed type total anomalous pulmonary venous connection with successful surgical repair.

PMID:36545552 | PMC:PMC9760782 | DOI:10.1002/ccr3.6747

Categorías: Cirugía congénitos

Impact of Ventricular Dominance on Long-Term Fontan Outcomes: a 25-year single-institution study

Mié, 12/21/2022 - 11:00

Ann Thorac Surg. 2022 Dec 18:S0003-4975(22)01603-4. doi: 10.1016/j.athoracsur.2022.11.039. Online ahead of print.

ABSTRACT

BACKGROUND: The long-term impact of ventricular dominance on Fontan outcomes is controversial. We examined this in a 25-year cohort.

METHODS: Patients from October 1998 to February 2022 were reviewed. Primary outcomes were transplant-free survival and Fontan failure (death, transplantation, takedown, protein-losing enteropathy, or plastic bronchitis). Secondary outcomes included hospital and intensive care length of stay. Kaplan-Meier methodology compared outcomes by ventricular dominance. Multiphase parametric risk hazard analysis identified risk factors for primary outcomes.

RESULTS: There were 195 patients (104 right ventricular dominant). Baseline characteristics were comparable. Perioperative survival was similar (right ventricular dominant 98%, non-right ventricular dominant 100%, p=0.51). The proportion of patients experiencing death or transplantation was 8.7% and Fontan failure was 11.8% during a median follow-up of 4.5 [0.3 - 9.8] years. Right ventricular dominant patients had reduced transplant-free survival (10-year estimates: 80% (95% CI 70-91%) vs. 92% (83-100%), p=.04) and freedom from Fontan failure (73% (62-86%) vs. 92% (83-100%), p=.04). Multiphase hazard modeling resolved 2 risk phases. The early phase spanned from surgery to approximately 6 months after. The late phase spanned from approximately 6 months after surgery onwards. In multivariable analysis, right ventricular dominance was an independent risk factor for death or transplantation (parameter estimate 1.3±0.6, p=0.04) and Fontan failure (1.1±0.5, p=0.04) during the second phase, with no significant first phase risk factors.

CONCLUSIONS: Right ventricular dominance was associated with long-term complications after Fontan, including mortality, transplantation, and Fontan failure. This cohort may benefit from heightened surveillance in a multi-disciplinary Fontan clinic after the perioperative period.

PMID:36543280 | DOI:10.1016/j.athoracsur.2022.11.039

Categorías: Cirugía congénitos

Prevalence of Congenital Heart Defects in Individuals With Down Syndrome in Saudi Arabia: A Systematic Review and Meta-Analysis

Mié, 12/21/2022 - 11:00

Cureus. 2022 Nov 18;14(11):e31638. doi: 10.7759/cureus.31638. eCollection 2022 Nov.

ABSTRACT

Patients with Down syndrome (DS) are commonly diagnosed with congenital heart disease (CHD), which is the leading cause of mortality in this group during the first two years of life. This systematic

review and meta-analysis aims to review the current publications to assess the pooled prevalence of overall CHDs in individuals with DS in KSA. We conducted the search on the databases PubMed, EBSCO, Scopus, Web of Science through Clarivate, and Google Scholar using Boolean operators and various keywords. The Rayyan - Intelligent Systematic Reviews website (https://www.rayyan.ai/) was used for citation management and MedCalc® Statistical Software version 20.115 was used for the quantitative data synthesis (MedCalc Software Ltd., 2022, Ostend Belgium). We initially retrieved a total of 402 citations from the primary search and 10 articles were finally included after title screening and full-text assessment. A total of 1590 subjects were enrolled in the pooled analyses. The pooled prevalence of CHDs was found to be 66.1% (95% CI: 57.2% to 74.5%). There was significant heterogeneity (I2 = 92.2%), and inspection of the funnel plot shows the symmetrical distribution of plotted data. According to our study, 66% of DS patients in Saudi Arabia had one or more congenital cardiac defects. Due to the significant inter-study heterogeneity, the reliability of our results is, nevertheless, limited. We advise conducting more research to provide better data for determining the prevalence of CHD.

PMID:36540523 | PMC:PMC9759917 | DOI:10.7759/cureus.31638

Categorías: Cirugía congénitos

Adenocarcinoma of the Stomach With Situs Inversus Totalis: A Rare Case

Mié, 12/21/2022 - 11:00

Cureus. 2022 Nov 15;14(11):e31538. doi: 10.7759/cureus.31538. eCollection 2022 Nov.

ABSTRACT

Situs inversus is a scarce congenital anomaly. Situs inversus totalis (SIT) is a mirroring of the normal. Thoracic and abdominal viscera transposition is a characteristic feature of situs inversus. It is considered to be a premalignant condition. This uncommon genetic disorder is often identified incidentally during thoracic and abdominal imaging. The coexistence of SIT and gastric cancer is rare. Because this anomaly is known to have associated anatomical and vascular anomalies, due care is required to identify it preoperatively and during the surgical procedure. At centers with prior experience, consistent with oncological practices, open surgeries, laparoscopic surgeries, and robotic surgeries can be done. We present a patient with a stomach adenocarcinoma with SIT who underwent distal gastrectomy with gastrojejunostomy along with resection and anastomosis of the transverse colon and capecitabin-oxaliplatin chemotherapy. The postoperative course was favorable. To our knowledge, only 13 cases of diffuse-type gastric cancer in a patient with SIT have been reported in the English-language literature.

PMID:36540458 | PMC:PMC9754147 | DOI:10.7759/cureus.31538

Categorías: Cirugía congénitos

Determinants of Acute Kidney Injury in Children Undergoing Cardiopulmonary Bypass: Single-Center Experience in Saudi Arabia

Mié, 12/21/2022 - 11:00

Cureus. 2022 Dec 18;14(12):e32666. doi: 10.7759/cureus.32666. eCollection 2022 Dec.

ABSTRACT

Introduction Cardiopulmonary bypass (CPB) is a machine used in open cardiac surgeries and has been linked to many complications, one of which is acute kidney injury (AKI). Also, the Kidney Disease Improving Global Outcomes (KDIGO) criteria are used to diagnose AKI in the pediatric population. The study aimed to investigate the association between cardiopulmonary bypass

duration and renal function impairment in pediatric patients who had cardiac surgery. Methods This was an observational, cross-sectional study conducted at the King Abdulaziz Medical City, King Faisal Cardiac Center, the section of the Pediatric Cardiac Intensive Care Unit (PICU), Ministry of National Guard Health Affairs, from January 2016 to December 2019. Patients younger than 14 years old, those having a cardiac surgery where CPB was implemented, normal pre-operative kidney functions, and having a cardiac surgery longer than 60 minutes (min) were included. The exclusion criteria were patients known to have pre-operative renal impairment and patients with pre-operative hemodynamic instability or cardiac arrest. Demographics of pre-operative, intra-operative, and post-operative data were extracted, and Statistical Package for the Social Sciences (SPSS) version 25 (Armonk, NY: IBM Corp.) was used for analysis. For descriptive statistics, frequencies and percentages for qualitative data were examined, while mean and standard deviation (SD) or median and interquartile range (IQR) quantitative data were used accordingly. Student's t-test, Mann-Whitney (median test), chi-square, or Fisher's exact tests were used for univariate analysis accordingly. Logistic regression analysis was used to determine significant predictors for developing AKI. A p-value of <0.05 would be considered significant. Results Of the 111 patients, 87 patients were included in the analysis. The median age was six months, IQR two to 13 months, body mass index (BMI) mean of 13.8, and SD 3.6. There was similar sex distribution, male 47.1% vs. female 52.9%. There were no patients in Risk Adjustment for Congenital Heart Surgery (RACHS) who scored 5 or 6. The AKI prevalence was 31% (27/87) within three days after surgery. One patient had stage 2 AKI; the rest were mild. One patient (3.7%) died. The CPB time was significantly longer in patients who developed AKI 150 (104-202), vs. non-AKI 104 (82-142) min, p=0.004. In the AKI group, the mean baseline (pre-operative) serum creatinine (sCr) was significantly lower, whereas, it was significantly higher at 24 hours (h), and 48 h post-operation (p=0.001, 0.001, and 0.036, respectively). Additionally, the estimated Glomerular Filtration Rate (eGFR) was significantly higher in the AKI group at 24 h (p=0.007). In logistical regression analysis, CPB time (per min unit time) was a significant predictor for developing AKI, OR 1.015, p=0.011 as a measured outcome. However, only CPB time >180 min was highly significant with OR 16.2, p=00.6 compared to CPB time 121-180 min OR 2.3, p=0.29 and CPB time 91-120 min OR 1.2, p=0.84. Conclusion Acute kidney injury is an expected complication of pediatric congenital heart surgery receiving CPB. Although in our single-center experience, CPB duration was a significant predictor for AKI; however, it is considered a mild complication that does not contribute significantly to short-term morbidity or mortality. A larger multicenter, national prospective data registry is recommended to explore long-term effects.

PMID:36540319 | PMC:PMC9760221 | DOI:10.7759/cureus.32666

Categorías: Cirugía congénitos

Ten-year experience in the clinical management of intralobar pulmonary sequestration in children

Mar, 12/20/2022 - 11:00

Pediatr Pulmonol. 2022 Dec 20. doi: 10.1002/ppul.26287. Online ahead of print.

ABSTRACT

OBJECTIVES: Intralobar pulmonary sequestration (ILS) is rare and its optimal clinical management remains ambiguous. This study aimed to introduce our 10-year experience in clinical management of ILS. And the application of our novel surgical method, thoracoscopic anatomical lesion resection (TALR) on ILS was introduced.

MATERIALS AND METHODS: Patients with ILS who received treatment between December 2010 and 2020 were included in this study, retrospectively. A binary logistic regression model was used to assess risk factors for preoperative symptoms. Intraoperative and postoperative outcomes were compared between the thoracoscopic lobectomy and lung-sparing surgery groups.

RESULTS: A total of 112 patients were included in this study. Age and maximum cyst diameter were risk factors for preoperative symptoms. Lung-sparing surgery proved to be safe and feasible with no

residual lesions.

CONCLUSIONS: The overall prognosis of early thoracoscopic surgery for ILS was good. Lung-sparing surgery, especially TALR could be used as a first-line surgery for ILS. It may resolve the long-standing controversy over whether surgery for asymptomatic patients with ILS.

PMID:36539260 | DOI:10.1002/ppul.26287

Categorías: Cirugía congénitos

Evaluating the Effectiveness of Stenting for Aortic Coarctation

Mar, 12/20/2022 - 11:00

Aorta (Stamford). 2022 Oct;10(5):235-241. doi: 10.1055/s-0042-1750097. Epub 2022 Dec 20.

ABSTRACT

BACKGROUND: Coarctation of the aorta (CoA) is a congenital cardiovascular malformation involving narrowing of the thoracic aorta just distal to the left subclavian artery. The aim of our study was to evaluate the hemodynamic effects of endovascular treatment for CoA by using invasive aortic catheterization.

METHODS: All patients with CoA who underwent treatment by aortic stent implantation between September 1, 2003, and February 1, 2019, at the "Onassis Cardiac Surgery Center," in Athens, Greece, were evaluated. Patients were treated with either bare (uncovered) Cheatham-Platinum (bCP) or covered Cheatham-Platinum (cCP) stent implantations. Invasive aortic pressure measurements were recorded before and after the endovascular intervention.

RESULTS: A total of 48, eight zig CP stents, comprising 24 bCP and 24 cCP stents were implanted in 47 patients. The mean aortic diameter (mm) at the CoA lesion increased from 9.7 ± 3.3 to 19.2 ± 2.9 mm (p <0.01) after the endovascular procedure. The invasive mean blood pressure (BP; mm Hg) from catheterization in the descending aorta increased (before = 114.2 ± 12.8 vs. after = 135.5 ± 28.1; p <0.01), while the invasive mean BP (mm Hg) from catheterization in the ascending aorta was decreased (before = 156.8 ± 25.0 vs. after = 138.4 ± 27.5; p <0.01) after the intervention. The mean aortic BP gradient decreased in both types of stents after intervention (BP gradient among patients with cCP stents = 30.9 +/- 23.6 mmHg and BP gradient among patients with bCP stents = 38.0 +/-23.1 mmHg). However, there was no statistically significant difference between the two types of stents; p = 0.36.

CONCLUSIONS: Invasive aortic catheterization provided evidence that endovascular stenting with either bare or covered stents is efficient in treating patients with CoA.

PMID:36539115 | PMC:PMC9767786 | DOI:10.1055/s-0042-1750097

Categorías: Cirugía congénitos

Standardizing Prostaglandin Initiation in Prenatally Diagnosed Ductal-Dependent Neonates; A Quality Initiative

Mar, 12/20/2022 - 11:00

Pediatr Cardiol. 2022 Dec 20. doi: 10.1007/s00246-022-03075-9. Online ahead of print.

ABSTRACT

Prostaglandin E1 (PGE) is used in patients with ductal-dependent congenital heart disease (CHD).

Side effects of apnea and fever are often dose dependent and occur within 48 h after initiation. We initiated a standardized approach to PGE initiation after our institution recognized a high incidence of side effects and a wide variety of starting doses of PGE. Neonates with prenatally diagnosed ductal-dependent CHD were identified, started on a standardized protocol that started PGE at 0.01 mcg/kg/min, and evaluated for PGE related side effects. Compliance, outcomes and dose adjustments during the first 48 h post-PGE initiation were evaluated. Fifty patients were identified (25 pre-intervention; 25 post-intervention). After intervention, compliance with the protocol was 96%, and apnea or fever occurred in 28% (compared to 63% pre-intervention, p = 0.015). Dose adjustments (either increase or decrease) prior to cardiac surgery were similar in both cohorts (60%, 52%, p = 0.569). There were no mortalities or emergent procedures performed due to ductus arteriosus closure. Standardizing a protocol for initiating PGE in prenatally diagnosed ductal-dependent CHD was successful and reduced the incidence of apnea, fever, and sepsis evaluations. A starting dose of 0.01 mcg/kg/min did not cause increased adverse effects.

PMID:36538050 | DOI:10.1007/s00246-022-03075-9

Categorías: Cirugía congénitos

Normothermic Versus Hypothermic Norwood Procedure

Mar, 12/20/2022 - 11:00

World J Pediatr Congenit Heart Surg. 2022 Dec 20:21501351221140330. doi: 10.1177/21501351221140330. Online ahead of print.

ABSTRACT

BACKGROUND: Either deep hypothermia with circulatory arrest or hypothermic perfusion with antegrade selective cerebral perfusion is used during the Norwood procedure for hypoplastic left heart syndrome. Normothermic perfusion has been described for pediatric patients. The aim of this study was to compare the early outcomes of patients undergoing the Norwood procedure with antegrade selective cerebral perfusion under hypothermia with the procedure under normothermia.

METHODS: From 2005 to 2020, 117 consecutive patients with hypoplastic left heart syndrome underwent the Norwood procedure: 68 (58.2%) under hypothermia and 49 (41.8%) under normothermia. Antegrade selective cerebral perfusion flow was adjusted to maintain right radial arterial pressure above 50 mm Hg, and a flow rate of 40 to 50 mL kg-1 min-1. Baseline characteristics, operative data, and postoperative outcomes including lactate recovery time were compared.

RESULTS: The baseline characteristics and cardiovascular diagnosis were similar in both groups. The normothermic group had a significantly shorter bypass time (in minutes) of 90.31 (±31.60) versus 123.63 (±25.33), a cross-clamp time of 45.24 (±16.35) versus 81.93 (±16.34), and an antegrade selective cerebral perfusion time of 25.61 (±13.84) versus 47.30 (±14.35) ($P < .001$). There were no statistically significant differences in the immediate postoperative course, or in terms of in-hospital mortality, which totaled 9 (18.4%) in the normothermic group, and 10 (14.9%) in the hypothermic group ($P = .81$).

CONCLUSION: The normothermic Norwood procedure with selective cerebral perfusion is feasible and safe in terms of in-hospital mortality and short-term outcomes. It is comparable to the standard hypothermic Norwood with selective cerebral perfusion.

PMID:36537725 | DOI:10.1177/21501351221140330

Categorías: Cirugía congénitos

The effect of clinical and haemodynamic variables on post-operative length of stay

immediately upon admission after biventricular repair with Yasui operation following an earlier Norwood operation

Mar, 12/20/2022 - 11:00

Cardiol Young. 2022 Dec 20:1-6. doi: 10.1017/S1047951122003948. Online ahead of print.

ABSTRACT

BACKGROUND: There are a variety of approaches to biventricular repair in neonates and infants with adequately sized ventricles and left-sided obstruction in the presence of a ventricular septal defect. Those who undergo this in a staged manner initially undergo a Norwood procedure followed by a ventricular septal defect closure such that the neo-aorta is entirely committed to the left ventricle and placement of a right ventricular to pulmonary artery conduit (Yasui operation). This study aimed to determine clinical and haemodynamic factors upon paediatric cardiac ICU admission immediately after the two-stage Yasui operation that was associated with post-operative length of stay.

METHODS: This was a retrospective review of patients who underwent the Yasui procedure after the initial Norwood operation between 1 January 2011 and 31 December 2020. Patients with complete data on admission were identified and analysed using Bayesian regression analysis.

RESULTS: A total of 15 patients were included. The median age was 9.0 months and post-operative length of stay was 6days. Bayesian regression analysis demonstrated that age, weight, heart rate, mean arterial blood pressure, central venous pressure, pulse oximetry, cerebral near infrared spectroscopy, renal near infrared spectroscopy, pH, pCO2, ionised calcium, and serum lactate were all associated with post-operative length of stay.

CONCLUSION: Discrete clinical and haemodynamic factors upon paediatric cardiac ICU admission after staged Yasui completion are associated with post-operative length of stay. Clinical target ranges can be developed and seem consistent with the notion that greater systemic oxygen delivery is associated with lower post-operative length of stay.

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Categorías: Cirugía congénitos

The effect of applying telehealth education to home care of infants after congenital heart disease surgery

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ABSTRACT

BACKGROUND: The purpose of this study was to investigate the effect of applying telehealth education to home care of infants after congenital heart disease surgery.

METHODS: A prospective randomized controlled study was conducted from July 2020 to February 2021 in our hospital to compare the home care condition of infants after congenital heart disease surgery between intervention group and control group.

RESULTS: At 3 months after discharge, parents' caring ability and congenital heart disease knowledge in the intervention group were significantly better than those in the control group, and were significantly improved compared with those at discharge time ($P<0.05$). The parental care burden in the intervention group was significantly lower than that in the control group, and was significantly lower than that at discharge time ($P<0.05$). During the follow-up period, the rate of loss of follow-up and complications in the intervention group were significantly lower than those in the

control group (P<0.05).

CONCLUSION: Telehealth education via WeChat can effectively improve the knowledge of disease and home care ability of parents of infants after CHD surgery and reduce their home care burden, which can effectively reduce the incidence of complications and lost to follow-up rate after discharge.

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Categorías: Cirugía congénitos

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