

aggressive form of care for patients in cardiogenic shock. In-depth physiologic principles that involve a sound understanding of cardiovascular complications, with indications for physiologic and psychological interventions, are necessary to aid the nurse during this critical period, moreover the cardiovascular nurses caring for these patients require skills and knowledge that enable prompt recognition and treatment of sometimes life-threatening complications associated with balloon pump therapy. Briefly, the intraaortic balloon pump is a specific and aggressive form of care for patients in cardiogenic shock. From the experience acquired in the treatment of cardiogenic shock and in the use of the IABP, it has emerged the unavoidable need to resort as soon as possible to IABP and intensive care to avoid multi-organ damages highly associated to mortality. The ICU nursing professional, who works with more and more sophisticated technologies and devices, has always to be acquainted with current literature, in order to ensure a better nursing care and to reduce complications.

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50. Successful percutaneous closure of spiral atrial septal defect

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Device occlusion of secundum septal defects has become an accepted means of closure in cases where the anatomy of the atrial septum is judged suitable. Selection criteria have included adequacy of the rims around the defect, particularly the inferior margin and the size of the defect in relation to the total septal length.

An unusual morphology of atrial septal defect has been described where there is an apparently “double atrial septum” (Roberson, 2006). The terminology around this lesion has been attributed to be the wide separation of the primary atrial septum (primum septum) from the secondary septum (septum secundum) and the “spiral” spatial arrangement of the margins of the atrial septal defect (ASD) has led to the term spiral ASD to describe this arrangement. This has been described to be associated with a high risk of device embolization or technical failure in the placement of an occluder device. We report the echocardiographic findings and outcome of a patient with this form of ASD in whom percutaneous occlusion was successful of which is considered up to date to be the first successful closure of this type of ASD.

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51. The use of bedside critical care US to detect occult diaphragmatic paresis in post-operative cardiac children

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Background/Aim: Diaphragmatic dysfunctions after pediatric cardiac surgery are not rare. The use of bedside diaphragmatic US to evaluate motion abnormalities was reported in small series of children. To evaluate the role of bedside US performed in PCICU by intensivist in detecting occult diaphragm dysfunction after cardiac surgery in children.

Methods: Prospective analysis of diaphragm US performed from June 2014 till September 2014, in pilot group of children admitted to PCICU after cardiac surgery with CXR not suggesting of diaphragm abnormalities.

The initial screening was performed by PCICU intensivists and verified by independent blind radiologists. *Results:* During the study period, 31 PCICU patients were selected to have bedside focus US to assess diaphragm motion. Their average age 15 months and average post day was 5 ± 2 days.

Out of 31 selected pilot cases: 4/31 had occult diaphragm paresis (12%). 2/31 had Right diaphragm paresis after sternotomy, 1/31 Left diaphragm paresis after left thoracotomy, 1/31 bilateral diaphragm paresis after redo-sternotomy.

Bedside diaphragm US of performed by intensivists was highly sensitive and reliable.

Conclusions: Bed side critical care US assessment of diaphragms is a simple tool that can be easily learn and performed by PCICU intensivist. The tool can help in early detection of diaphragm motion abnormality related to cardiac surgery. Early detection can help putting management plan that may involve need for surgery or require prolong positive invasive and non-invasive ventilator support.

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52. Cardiac injury in infants with acute gastroenteritis: Is it ischemia or rota associated carditis

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Reports suggested that rotavirus could be found in extra-intestinal tissues including the heart following infection and fatal rotavirus myocarditis has been recently reported in 2 children.

Purpose: We hypothesized that rotavirus may have a direct injurious effect on the myocardium of infants and this injury can be detected by the presence of cardiac troponin I (TnI).

Methods: Over 8 weeks period, 50 of 150 infants (5–18 months) with acute gastroenteritis were found to have human rotavirus (HRV) gastroenteritis with rotavirus antigenemia. Sera of 150 infants were analyzed for TnI. If TnI value was above the screening limit (0.05 ng/ml), electrocardiogram (ECG) and cardiac ultrasound were performed.

Infants with primary conditions associated with elevated TnI were excluded.

Results: Thirty four infants (22.6%) had elevated TnI (0.06–2.5 ng/ml), 16 (47%) of them had HRV-GE ($p = 0.054$). However, none of them had any sign of myocarditis or ischemia in their ECG or cardiac ultrasound scan and their TnI levels normalized within 24–72 h after correction of dehydration.

Infants less than 1 year, and those with dehydration, anemia or acidosis were more prone to have elevated cTnI ($p = 0.008, 0.009, 0.006, 0.001$, respectively). Multivariate logistic regression analysis, showed that severe dehydration and acidosis are still significantly associated with elevated TnI levels (adjusted OR, 95% CI = 22.9, 2.19–239 and 20.76, 6.15–70, respectively).

Conclusion: Our study is the first pediatric study to show that myocardial injury occurs in infants with gastroenteritis and this injury was precipitated by transient ischemia which may go unnoticed on the ECG. However, we could not document rotavirus myocarditis

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53. Improved outcome of cardio-pulmonary arrest in post-operative cardiac children resuscitated in critical care setup

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Background/Aim: Outcome of cardio-pulmonary resuscitation in post-operative cardiac children in ICU setup has changed markedly in the last 20 years. The purpose of the study is to look for the current causes, practice and outcome of CPR in post-operative children within PCICU setup.

Methods: we conducted retrospective review study of all children who had cardio pulmonary arrest (CPA) after cardiac surgery in PCICU of KAMC during 2012–2013. We looked for the causes, circumstances, duration of resuscitation and time to return of spontaneous circulation (ROSC) after arrest and outcome.

Results: During this study, of the 758 post-operative children admitted to the PCICU. 15 patients (2%) had 19 episodes of Cardio-Pulmonary Arrests. 9/19 (47%) arrests

were due to arrhythmia. The age of the patients ranged from 15 day to 14 years (median of 10 months). Cardiac arrest occurred during procedure in 5 cases (26%). One Patient (7%) had open cardiac message. Median arrests time occurred on the 5th post-operative days. Of the 19 arrests episodes in 15 patients 16/19 (84%) were successfully resuscitated to ROSC and 12/15 patients (80%) survived to discharge from hospital with average follow up of 5.8 ± 1.25 months.

Conclusions: The current outcome of cardio-pulmonary arrest in post-operative cardiac children has improved. Majority of cardiac arrest were successfully resuscitated with ROSC and 80% survived to discharge. The current result reflects significant improvement in the reported outcome of children who had cardio-pulmonary arrest in post-operative cardiac children in PCICU setup.

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54. Fibrinolytic therapy and polyvalvular heart disease in pediatric patient

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Introduction: Novel therapy for a stuck mechanical heart valve in pediatric patient with multiple prosthetic valves. Not much is known with the use of anticoagulation and fibrinolysis in multiple mechanical valves in pediatric patients.

Case presentation: 10 year, Saudi, male with poly-valvular disease with tricuspid, mitral, and aortic, and pulmonary valve regurgitation. Initially, he had repair of all his valves in June 2008. He required Mitral valve replacement #21, and repeat poly-valvar repair in July 2008. Eventually, tricuspid valve was replaced by CM #27, aortic valve was replaced by St.Jude #19 mm, and pulmonary valve replaced by Jan 2012. He presented to cardiology clinic on March 2014 in which found to have stuck disc of the tricuspid valve prosthesis on echo with increasing gradients of six mmHg, despite therapeutic INR with warfarin. Immediate fluoroscopy confirmed diagnosis.

Physical exam positively mild tachypnea and liver of three cm below costal margin, with mechanical cardiac click sounds. Immediate admission to the intensive care for observation and planning starting the tPA with heparin infusion. TPA stated as a dose of 0.5 mg/kg/h over 6 h then repeated fluoroscopy done after 4 h of the completion of tPA showed mobile tricuspid disc. He was observed for a few days in ward with therapeutic INR and discharged home.

Conclusion: As growing surgical skills we are facing many pediatric cases with prosthetic valves with stuck valves. Which tPA dose should be used? Is streptokinase better? How long do you wait before considering surgery?

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