

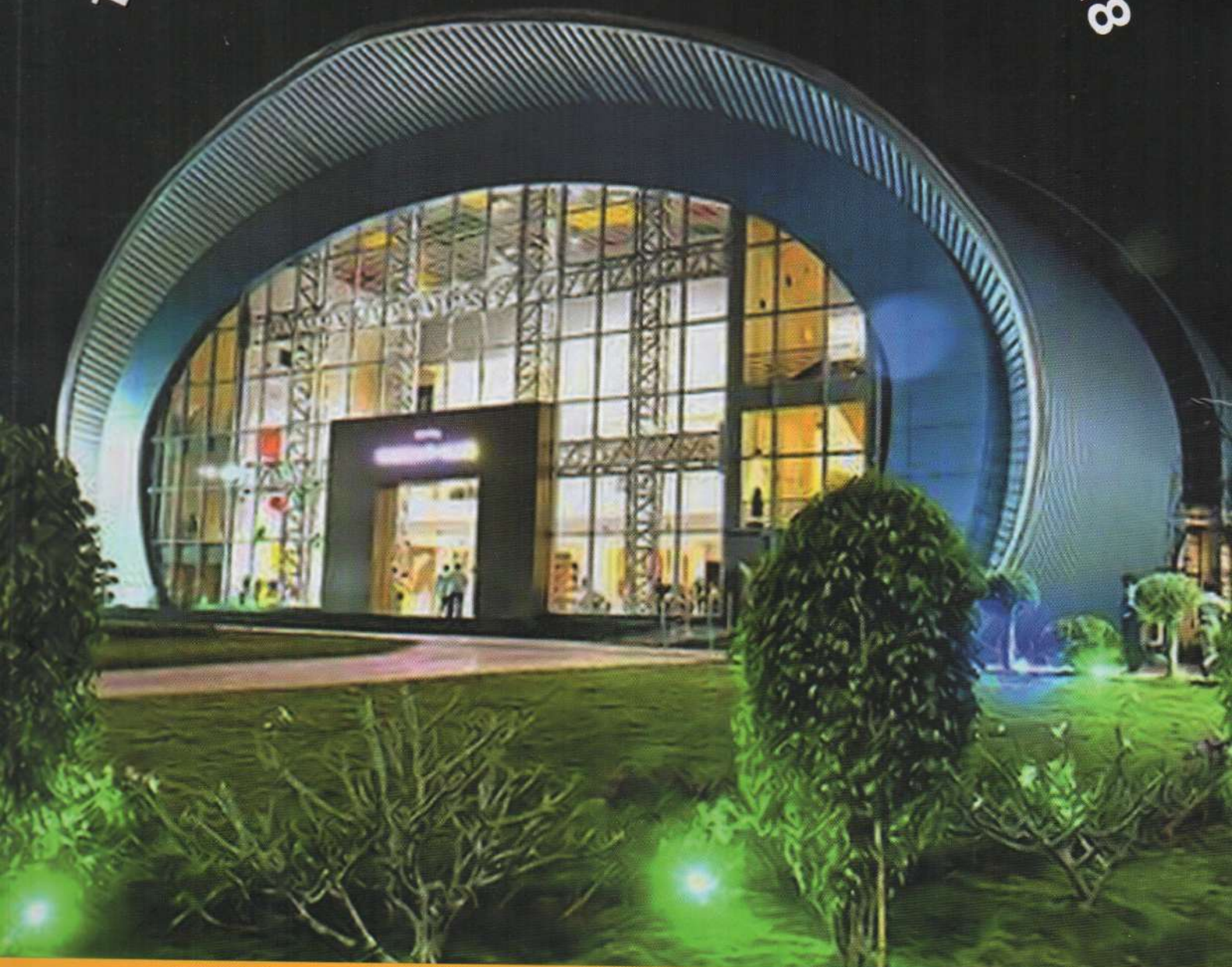
ISECT  
*Presents*

# 18<sup>th</sup> Annual Conference - ISECT CON 2018

Visakhapatnam

02 & 03 February, 2018

*Souvenir*



THEME: EXPLORING NEW FRONTIERS IN  
EXTRA CORPOREAL TECHNOLOGY

**VUDA CHILDRENS ARENA  
VISAKHAPATNAM**





## Dr.N.T.R.UNIVERSITY OF HEALTH SCIENCES, A.P.

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**Dr.C.V.Rao**, M.S.,M.Ch.  
Vice Chancellor



Vijayawada-520 008  
Andhra Pradesh, India  
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### MESSAGE

I am happy that city of destiny and the most happening place in contemporary period is chosen by the Indian Society of Extra-Corporeal Technology to have its 18th Annual meeting, ISECTCON 2018.

As perfusion technology is rapidly evolving to provide utmost safety in Cardiac surgical procedures, it is more appropriate to get educated on latest technology, acquire new skills and exchange the new innovative ideas. A highly skilled perfusionist along with anaesthetist will give peaceful and free access to the surgeon to perform delicate procedures on the heart with safety.

The Dr. NTR University of Health Sciences is actively pursuing the proposal to start graduate course in perfusion technology from the next academic year.

I wish the conference a success.

Dr C V Rao



I am delighted to know that 18<sup>th</sup>. Annual Conference of Indian Society of Extra-Corporeal Technology (ISECT) will be held at Visakhapatnam, known as “City of Destiny”.

The perfusionists play a very important role during open heart surgical surgical procedures. Their knowledge of perfusion techniques and their meticulous attention to details are of paramount importance for the successful clinical outcome of open heart surgery. I expect that the delegates will get enriched with advances in the Extra Corporeal Technology and carry home excellent memories of their stay.

I congratulate ICECT for choosing Visakhapatnam a city of beautiful environs for their annual meet.

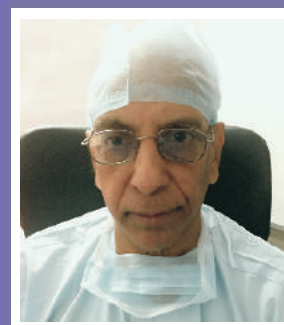
I thank the Organising Committee for giving me the opportunity to meet the Perfusionists and fellow Cardio-Thoracic Surgeons.

I wish the conference a great success.

Dr. Y.V.S.S. SRIDHARARAO. MS., MCh.

Sr. Cardiothoracic Surgeon

Visakhapatnam, Andhra Pradesh



Greetings from Organizing Chairman  
IACTSCON2018-Visakhapatnam

Dear friends

I would like to take this opportunity to congratulate the Indian Society of Extracorporeal Technology (ISECT) for organizing their annual conference in the City of destiny Visakhapatnam.

Perfusionists and cardiac surgeons have very intimate relationship throughout their carriers. Communications and understanding between them is very much essential for good clinical outcomes.

In the beginning days of perfusion, chance to develop disasters were possible whenever the perfusionist attention deviates more than 5 seconds off the pump. Of course over a period of time many safety devices were added to the circuit to avoid the fatal mistakes. But not many centers are adopting all the safety precautions in the name of cost containment.

Even in such suboptimal situations most of the perfusionists are able to run the Cardio Pulmonary by pass with negligible human errors for excellent clinical outcomes

Many a times they were forced to conduct with "Jugad" type of management.

Having stabilized many cutting edge technologies in their field, today they have to think innovations if not inventions in their chosen field.

To accomplish these goals we need a very strong database and document every detail, so that we can provide solutions particular to Indian problems. To exchange ideas the best platform is this kind of conferences. I hope the ambience of Visakhapatnam city may provide "Destiny" for such meaningful deliberations.

**Dr.P.V.Satyanarayana** M.S.,M.Ch., MBA.  
Chief Cardiothoracic and Vascular surgeon.



1953 John Gibbon used Heart Lung Machine to close Atrial Septal Defect .It was culmination of more than 20 years of his research.And this gave the birth to new science and technology .

Described as “**the boldest and most successful feats of man 's mind**”

With advent of such life saving science Cardiac Surgery has grown leaps and bounds .The understanding and advancement in CPB knowledge has led to the development of Allied Sciences such as **ECMO and L.V.Assist Devices**

These modalities have given newer hopes to Heart and lung failure patients who otherwise have no future.

Undoubtedly cardiac surgeons are blessed with this technology.

These who are naive and those who are aspiring to become perfusionist have promising future; as this science will persist and progress

**Afroz farooqi**

Chief Caridiothoracic Surgeon  
Apollo Hospital, Visakhapatnam



Dear Colleagues

Greetings to you all.

On behalf of Organizing Committee of ISECT CON 2018 and Indian Society of Extra Corporeal Technology, It's my great pleasure to welcome you all at Visakhapatnam to attend our 18<sup>th</sup> Annual National Conference on 2<sup>nd</sup> & 3<sup>rd</sup> February, 2018.

The Aim of the Organizing Committee to focus more on the Innovative Techniques in the field of Clinical Perfusion and we do have a healthy discussion on advance topics which will help us in expanding the horizons of Clinical Perfusion.

My best wishes to Organizing Secretaries and their Team for the herculean task ahead and publication of Souvenir all success.

I wish all the best for the success of the Conference.

*Kamla Rana*

DR KAMLA RANA  
PRESIDENT - ISECT

VISAKHA CLINICAL  
PERFUSION SOCIETY



**Mr. ChhipaUsmangani Y.**

*General Secretary ISECT*

*Indian Society Of Extra Corporeal Technology*

On behalf of our colleagues and Indian Society of Extra Corporeal Technology (ISECT) we extend a warm invitation to the 2018 Annual Scientific Meeting i.e. ISECTCON2018VISAKHAPATNAM held this year in Visakhapatnam from 02 to 03 February, which includes prompt keynote presentations, Oral talks, Poster presentations and Exhibitions.

Our aim is to aggregate researchers, academicians and scientists from the perfusionists community and create an avenue towards robust exchange of information on technological advances, new scientific achievements and the effectiveness of various regulatory programs towards perfusion. Bringing together the professors, researchers and students in all areas of cardiac surgery and to provide an international forum for the dissemination of original research results, new ideas and practical development experiences which concentrate on both theory and practices.

Many sessions will concentrate upon innovation, new technologies and the future direction of cardiac surgery. There will be topics to pique the interest of all – from those at the beginning of their training in our specialty to those with a wealth of experience.

The focus of this year's meeting is set firmly on the exciting and challenging future ahead for our specialty. The scientific program paves a way to gather visionaries through the research talks and presentations and put forward many thought provoking strategies in perfusion technology.

A major feature of the meeting is an inclusive trade and technical exhibition providing delegates with information around technological advances and innovation. The role of industry in the development of new technologies is crucial to the ongoing modernization of our specialities and we encourage you to explore the exhibition.

Visakhapatnam also known as Vizag is the largest city and "Financial Capital" of the Indian state of Andhra Pradesh. Visakhapatnam's history stretches back to the 6th century BCE, when it was considered a part of the Kalinga Kingdom. Telugu is the most predominantly spoken language by the native speakers.

The city is home to the oldest shipyard and the only natural harbor on the east coast of India. Visakhapatnam Port is the fifth-busiest cargo port in India and the city is home to the headquarters of the Indian Navy's Eastern Command. INS Kursura Submarine Museum is the only of its kind in India.

Visakhapatnam is one of the main tourism destinations in the state of Andhra Pradesh. The city is famous for beaches, caves and the Eastern Ghats as well as wildlife sanctuaries. The landmarks of the city include Dolphin's Nose Lighthouse, Kailasagiri, Beach Road, VUDA Park, Visakha Museum and Matsyadarsini (an aquarium). Indira Gandhi Zoological Park in the city has variety of wildlife species.

It has been selected as one of the Indian cities to be developed as a smart city under the Smart Cities Mission. As per the Swachhata Sarvekshan rankings of 2017, it is the third cleanest city in India.

We look forward to seeing you at the ISECTCON2018 Visakhapatnam.....

**Mr. ChhipaUsmangani Y.**  
*General Secretary ISECT*



**MR.V. MADHUSUDAN NAIDU**  
Organising Chairman



Dear Colleagues,

Warm Greetings from the Organizing Committee of the 18<sup>th</sup> annual conference of ISECT.

As the chairman of the Organizing Committee, I take pride in inviting all of you to one of the fastest growing cosmopolitans of India and rated the 3<sup>rd</sup> cleanest city of the country Visakhapatnam, where, the ISECTCON2018 is being hosted.

While updating yourselves with the various technological advancements and innovations in the field in various sessions, you will also have a great opportunity to relax in some of the beautiful beaches and scenic locations of Visakhapatnam.

The organizing committee has designed the two day conference in a very interesting manner with several interactive sessions including Quiz, Debates and Scientific Paper Presentations.

We are trying our best to provide you a great learning experience as well as memorable hospitality.

You are welcome to ISECTCON2018@ Vizag.

**V. Madhusudan Naidu**  
Organizing chairman.

VISAKHA CLINICAL  
PERFUSION SOCIETY





Dear Colleagues in Extra Corporeal Technology,

Let me take this opportunity to invite all of you to the ISECTCON 2018 being hosted in a historical city and the financial capital of Andhra Pradesh – Vizag.

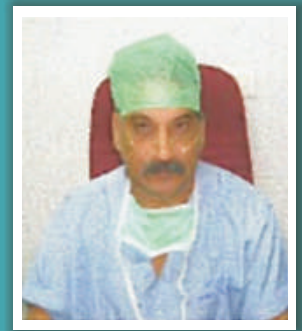
It is a great responsibility bestowed upon me as a Vice Chairman of the Conference. Therefore with the help of all our active colleagues in the organizing committee, we have dealt with the program with a two pronged approach. One, to ensure that you return to your work with enriched knowledge listening to some of the experienced resource persons and Two, making you stay memorable with lots of sightseeing places in and around Visakhapatnam.

Visakhapatnam is the largest city in Sunrise State of Andhra Pradesh with one of the biggest ports in the country, head quarters of the Eastern Naval Command, lots of lovely gardens, serene beaches and great locales. While Araku Valley provides a great outing opportunity, the Divine blessings of Lord Narasimha may be sought by visiting Simhachalam which are close to Vizag.

You are welcome to experience our arrangements and hospitality as well for enlightening yourselves at ISECTCON 2018.

  
Organizing Vice Chairman

VISAKHA CLINICAL  
PERFUSION SOCIETY



Greetings to All,

On behalf of the **Society Of Andhra Pradesh Perfusionist Association & Organizing Committee Of ISECT CON 2018 Vishakhapatnam**, It gives us great pleasure to extend a warm invitation to you in Vishakhapatnam . The host for the **18<sup>th</sup> Annual National Conference Of Indian Society Of Extra Corporeal Technology** from Feb 2<sup>nd</sup> to 3<sup>rd</sup> 2018. The specific program will provide amazing opportunities for perfusionist interested in expanding their skills & academic thought process.

I am sure the deliberation during the conference will bring new ideas which will update the knowledge. I wish this conference a grand success & you carry home enriched experience & good memories.

Warm regards,

  
VISAKHA CLINICAL  
PERFUSION SOCIETY

**LN. Malakalapalli V. Rao**

**(President Of Society Of Andhra Perfusionist)**



Greetings to All,

On behalf of the Society of Andhra Pradesh Perfusionist Association and Organising Committee. It is great pleasure inviting you to join the Annual Meeting of ISECTCON 2018. The 18<sup>th</sup> National Conference of Indian Society of Extracorporeal Technology from February 2<sup>nd</sup> to February 3<sup>rd</sup> 2018 at VUDA Children's Arena.

The Conference will be focusing on exchanging and advancing knowledge. The Conference will encompass orations, guest lectures, discussions and technological updates. We will bring you unreveiled faculty to share their experiences. This will resulting knowledge creation and dissemination. It will also give further impetus to research collaborations and expertise to make such a scientific sessions an avenue for progress in Perfusion Technology and beyond.

Visakhapatnam is a Port city, Smart city and financial capital in the Indian state of Andhra Pradesh, on the Bay of Bengal. It has Eastern Ghats, Mountain Range and It also known of its many beaches.

We welcome you all to enjoy the feast of knowledge with Serenity of Visakhapatnam.

With Warm regards,

A. Kanaka Durga  
Organising President  
ISECTCON 2018. Vizag



## FROM THE DESK OF ORGANIZING SECRETARY - ISECTCON 2018

“Exploring new frontiers in extra corporeal technology”

Dear Colleagues,

Warm Greetings.... On behalf of the Executive committee and the Organizing Committee, we are delighted to welcome you to the 18<sup>th</sup> annual conference of INDIAN SOCIETY OF EXTRA CORPOREAL TECHNOLOGY (ISECT) in “VISAKHAPATNAM” the city of destiny also known as VIZAG and/or WALT AIR.

The theme of ISECTCON-2018 “EXPLORING NEW FRONTIERS IN EXTRACORPOREAL TECHNOLOGY” is very apt in the present day context, as there is a need to explore more options and avenues available in our field, in our country and abroad, for increased efficiency and professional quality in our specialty, in the interest of patient care.

The organizing committee and its members have put in a lot of hard work to make this conference a memorable one. It has been a good learning experience, and I would like to convey my sincere thanks to one and all concerned, for having given me this opportunity.

I am very grateful for the support extended to us by the national body of the ISECT.

I am thankful to the members of the organizing committee ISECTCON-2018 for their support and cooperation...

Warm acknowledgments to all our sponsors, for having responded to our request. It would have been very difficult to organize this event without their support.

Our sincere thanks to the chairpersons of the scientific sessions and the delegates for participating in large numbers.

A special note of thanks to Dr.K. Sagar Babu, Mr. C.N.Sunil Kumar, Mr. P.V.S.Prakash, Mr.Sunil j Mekhala, Sri Madhusudan Rao, Sri Madhusudan Naidu, Dr. KamlaRana, Mr. Chippa Usmangani, Lion Malakapalli Venkateswara Rao, Mr. G.Naveen, Mr. Mamilla Murali Krishna, Mr.N. Mohan Rao who have been guiding the organizing committee with for their timely support . I convey my sincere thanks to the support team at venue, places of accommodation and travel desk , who worked hard for the success of this conference.

I convey my profound gratitude to my family, parents and to all those who supported me in making this conference a grand success.

Have a pleasant stay at Visakhapatnam, do enjoy the scientific deliberations, and please find time to visit the beautiful and wonderful places in and around Visakhapatnam.

HAVE A TRULY SPECIAL AND WONDERFUL 18<sup>TH</sup> ISECT CONFERENCE

SIVAPRASAD PERARAPU

ORG. SECRETARY-ISECTCON 2018 VISAKHAPATNAM  
+919618653530 prasadsiva373@gmail.com



Greetings from the Organising committee of the ISECTCON 2018!

We are delighted to be given the opportunity to organise, this important scientific meeting. We have brought together a good scientific programme that stimulates both our clinical knowledge and scientific intellect. Through a combination of interesting papers talks and interactive sessions that will enrich our current knowledge and clinical Perfusion skills.

This occasion is also a great opportunity for all of us to interact with our fellow perfusionists to share our knowledge and experience.

Such a herculean task would not have been possible without the whole hearted commitment of the organizing committee. With the wonderful arrangements and scientific meet, I am sure we will make this conference a great success.

The organizing committee has left no stone unturned to ensure that the conference turns out to be an occasion from which all of you carry back long lasting memories of not just scientific excellence but also warm hospitality, and a success of camaraderie.

Visakhapatnam is tourist delight with a vast coastal line with stunning beaches of, beautiful temples and many ancient Buddhists heritage sites

I would like to extend a warm invitation to all our colleagues to join us at this event. The committee looks forward to meeting you in Visakhapatnam.

Best Wishes

*P. Sreenivasa Rao*

**P. Sreenivasa Rao**

Organising Secretary



It is pleasure & privilege for me to invite all the delegates of ISECTCON 2018 to Visakhapatnam, the city of destiny.

In this present time of globalization we should enhance our knowledge and learning experience should be bartended and our career path should be diversified.

We hope ISECTCON 2018 will be bench mark in scientific sessions and clinical engagements which will pave along way in our extracorporeal technology journey.

Best wishes and warm regards to all the delegates and invites to enjoy our hospitality.

*R. Pardha Saradhi*  
**R.PARDHA SARADHI**

Treasurer ISECTCON 2018.

VISAKHA CLINICAL  
PERFUSION SOCIETY



## Message From Scientific Committee

Dear Seniors, Colleagues and all ISECT members,

It is a pleasure and privilege to me as the Head of Scientific Committee to invite all delegates to this pioneering event, which I hope will kindle a spark in the enthusiastic minds. There is no doubt in my mind that members of ISECT are committed in their profession of Cardiovascular Perfusion and that they strive to enhance their task through lifelong learning from each other.

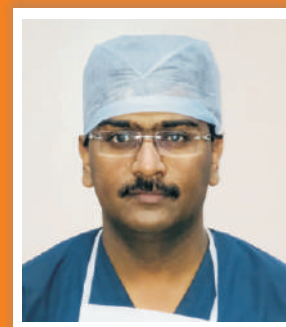
In this era of globalization our knowledge and learning experience should be broadened and our career path should be diversified. Our conference is one of our communication tools and a venue to draw us closer together. I hope the scientific presentations and discussions in this conference will be unique and innovative, and the participation will be intense and cohesive.

We wish all participants in this meeting enjoy high level deliberation, hospitality and social interaction.

We Welcome one and all.....to ISECTCON2018, VISAKHAPATNAM.

**S.GERSHOM,**

Chairman Scientific Committee.



## **IMPLANTABLE LEFT VENTRICULAR ASSIST DEVICE FOR END STAGE HEART DISEASE** *our institutional experience*

**Selvakumar R, P.V.S.Prakash, Sam Immanuel S, Dr. Devi P Shetty, Dr.Julius Punnen, Dr. Varun Shetty**

**Background:** Patients with end-stage heart failure require support and assistance for their damaged left ventricle. Left ventricular assist devices (LVADs) provides circulatory support and are an alternative to heart transplant for these irreversibly damaged LV. They are initiated as a Bridge to transplant or as Destination therapy.

**Material and Methods:** We have a modest experience of 9 patients who were put on implantable LVAD. Their EF was in the range of 15-25%. Our Inclusion Criteria included patients with advanced heart failure symptoms (NYHA Class III or IV), on optimal medical management and are failing to respond or Class IV heart failure and dependent on IABP and/or inotropes, VO<sub>2</sub>max ≤14 ml/kg/min. We have an experience of 4 Ventracore assist LVAD and 5 Heartmate II LVAD implantation cases.

**Results:** Out of the four Ventracore LVAD one succumbed due to septicemia in the post operative period. One patient required Dorr's repair due to LV wall thinning after few months of implantation hence the VAD was explanted and Dorr was performed. Out of the three Heartmate II patients 3 survived and two succumbed. One due to septicemia and other due to multi organ dysfunction. We found out that patient who belonged to INTERMACS 3-4 profile had better outcome and the recovery was fast in the post operative period. Patients who were in the INTERMACS 0-1 had a long post operative stay with lot of co-morbidities.

**Conclusion:** LVAD support as a Bridge-to-transplant or as Destination therapy has been shown to improve the survival rate, improved life style of patients who were suffering from end stage heart disease. The role of perfusionist in the Implantable VADs is vital and has opened a new career to pursuit.





## **Our Experience with type III Hybrid Aortic Arch Replacement (Frozen Elephant Trunk)-Perfusion Strategies And Outcomes**

**Mr. Munim Akthar S.B. Clinical Perfusionist.**

Institute For Cardiac And Advanced Aortic Disorders, SIMS Hospital, Chennai,

**Background:** In the era of endovascular surgery, hybrid arch repairs are emerging as an effective alternative to open repairs. The results seem to be comparable to open repairs with lesser operative morbidity and mortality. We reviewed our experience with type 3 hybrid aortic repairs (Frozen Elephant Trunk) with the intent of analysing the perfusion strategies and outcomes.

**Materials and Methods:** Between February 2011 and August 2017 all 11 patients who had undergone type III hybrid aortic arch replacement were included. The preoperative patient characteristics, intraoperative variables, perfusion management (Total circulatory arrest, Selective Antegrade Cerebral Perfusion) were analysed. In this hybrid aortic arch repair Antegrade deployment of the stent graft and arch reconstruction with four branched Gelweave plexus graft was performed in single stage.

**Results:** All the 11 patients underwent antegrade deployment of the stent graft to descending thoracic aorta with total aortic arch replacement. Redo sternotomy was performed in 7 patients. Mean age was 57.25 years with 90.25% were male (n=10), Roller pump was used in all the patients. Plasmalyte A and Ringer lactate were used as priming solutions. Axillary artery was used for arterial cannulation in 7 patients while innominate artery in 4 patients. Femoral vein was used for venous drainage in 7 patients and Right atrium in 4 patients. Custodial (n=5) & Delnido (n=6) cardioplegia were used for myocardial protection and cooled to 16 °C. The mean myocardial ischemic arrest time, Cardio pulmonary bypass time, Aortic cross clamp time, Circulatory arrest time and Selective antegrade cerebral perfusion time were 98.17, 217.22, 116.11, 81, 115.33 minutes respectively. There were no incidence of any Cerebro vascular accident, Liver dysfunction and Renal failure in any of our cohort. One patient with type A aortic dissection who was taken as emergency has expired due to low cardiac output syndrome.

**Conclusion:** Type 3 hybrid aortic arch repair is an effective treatment option for patients with arch and descending aortic pathology. Proper preoperative planning with meticulous attention to perfusion techniques results in favourable outcomes.



## **OPEN REPAIR OF RUPTURED THORACOABDOMINAL ANEURYSM ON A MODIFIED ECMO CIRCUIT**

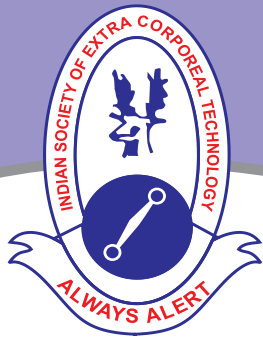
**Mrs. Thilagavathy, Mr. Rajkumar, Ms. Blessy, Ms. Jayashri, Dr. Prashant Vaijyanath,  
Dr. Gunaseelan, Dr. Kappian  
Kovai medical center and hospital, Coimbatore.**

### **Abstract:**

Here we report a case of emergency repair of ruptured Crawford type I thoracoabdominal aortic aneurysm. A 55-year-old gentleman was diagnosed to have a large juxta phrenic aortic aneurysm (diameter of 7.4 cm), eroded with multiple penetrating atherosclerotic aortic ulcers and had bilateral pleural effusion. He was not amenable for a conventional open repair using left heart bypass with single lung ventilation.

As it was an extensive surgical procedure, the decision was made to support him on VA ECMO perioperatively. The circuit comprised of a Medos diagonal pump, heparin-coated circuit and Hilite LT7000 oxygenator. The ascending aorta and left femoral artery were cannulated for the proximal and distal perfusion respectively. Left femoral vein was cannulated for venous drainage. An additional cardiomy reservoir with a single roller pump was incorporated. The blood from the cardiomy suction was carefully given back to the proximal end of the pump through a bubble trap. With mild systemic hypothermia of 32°C, under left thoracoabdominal approach at 5<sup>th</sup> and 7<sup>th</sup> intercostal space, distal arch and supraceliac aorta was looped and controlled. 24 mm Vascutek Dacron graft was interposed.

The use of modified ECMO circuit was more advantageous as it allowed minimal heparinization and massive transfusion to correct hypovolemia and low cardiac output. It also provided substantial proximal and distal organ protection (cerebral, spinal cord, visceral and renal). Total pump time was 204 minutes. The patient ICU stay was 3 days and he was discharged on 9<sup>th</sup> POD without any renal and neurological complication.



## **A STUDY ON THE SYSTEMIC CHANGES IN LIVER FUNCTION DURING CARDIOPULMONARY BYPASS**

**Ms. Sunitha Raja., Perfusionist, Sri Rama Chandra University, Chennai**

### **Introduction:**

The cardiopulmonary bypass may have multiple systemic effects on the body organs as Liver. This prospective study was planned to explore further the incidence and significance of this change.

### **Materials and Methods:**

We conducted a prospective study in Sri Ramachandra university and research center, Chennai referred for cardiac surgery under cardiopulmonary bypass. 40 patients who underwent elective open heart surgeries under cardiopulmonary bypass and age of above 10 years were included. Patients with pre-operative liver dysfunction were excluded. Three blood samples were collected pre-operatively and at 24 and 48 hours of following cardiac surgeries under cardiopulmonary bypass. The liver function test parameters that were compared is Total bilirubin, direct bilirubin, alkaline phosphate (ALP), alanine aminotransferase (ALT), and aspartate transferase (AST).

### **Results:**

Our study showed a significant increase of total bilirubin, direct bilirubin, alkaline phosphate, AST, ALT was observed during post-operative day 1 and post-operative day 2 in patients who underwent complex surgeries (BENTALL and RASTELLI) and valve replacement surgeries under cardiopulmonary bypass, even though these patients had normal hepatic enzyme pre-operatively. In our study, we found that patients with increased pre-operative hepatic enzymes had significant reduction of hepatic enzymes during their post-operative period.

### **Conclusion:**

We compared total bilirubin, direct bilirubin, hepatic enzymes ALT, AST were significantly increased during post-operative period. ALT and AST are considered to be significant markers of liver function according to our study. We conclude that patients who had longer duration of cardiopulmonary bypass had elevated hepatic enzymes during the post-operative period.



## **Median Term Biventricular Assist as a Bridge to Heart Transplant - A Case report**

**Authors:** Mr Suneel Kumar Lakkipogu ,Dr Prabhat Dutta,Dr Ravi kumar, Dr Sandeep attawar(Gleneagles global hospital, Chennai)

### **INTRODUCTION:**

We present a case of end stage alcoholic cardiomyopathy causing bi-ventricular dysfunction patient who was bridged to transplant using a Bi-ventricular assist device (Centrimag) for 6 weeks before proceeding with heart transplant.

We were able to employ Biventricular assist device until a donor heart was available and went on to perform a heart transplant successfully thereafter.

### **DESCRIPTION:**

A 64 year old gentleman suffering from cardiomyopathy for the past 2 years was referred to our hospital. On pre operative evaluation, the patient had severe biventricular dysfunction with an EF of 20%. Despite diuretics and Inotropic supports his condition deteriorated with decreased urine output, increased pedal edema and increased requirement of inotropic support.

We decided to put the patient on Bi-ventricular assist until a donor was available for heart transplant. The RA was cannulated with 34Fr Straight venous cannula and 21Fr Biomedicus St arterial cannula was inserted into the PA as outflow.

The RSPV was cannulated with a 32 Fr long bent venous cannula and outflow with a 23Fr Biomedicus st arterial cannula in aorta. A Centrimag pump was used in both the circuits to maintain flow.

After 36 days on ventricular assistance, the patient subsequently underwent successful heart transplant and currently 3 month post transplant in follow up.

### **CONCLUSION:**

This is one of the few cases in india in which biventricular assist device was employed as successful bridge to heart transplant.

The Bi-ventricular assist support provided a very good end organ perfusion and maintenance of biochemical parameters during the waiting period.The perfusionist role in the initiation and management will be highlighted.



## Anticoagulation management in a VV ECMO patient for ARDS with Severe Intra Uterine Bleed - A case report

Kalaimani D, P.V.S.Prakash, Sam Immanuel, Selvakumar R, Ahana Maria, Dr. Riyan Shetty, Dr. Varun Shetty

**Objective:** To describe the anticoagulation management of a Viral Pneumonia patient on ECMO who was on her second trimester, control of intrauterine bleed after miscarriage and successful wean off from ECMO after 19 days.

**Materials and Methods:** 31year old female patient came with severe breathlessness and was on ventilator. She was put on VV ECMO when conventional methods failed. She was on her second Trimester of pregnancy. Initial plan was to save both the child and mother with good oxygenation, ECMO flows and monitoring of fetal heart rate. On the second day of ECMO there was absence of Fetal heart rate and abdominal ultrasound scan confirmed the fetal death. In order to evacuate The fetus uterine contractions were pharmacologically induced. In order to reduce bleeding Heparin was stopped and circuit was run heparin free for the next two days. Intrauterine bleed persisted and this was managed with blood products and intrauterine packs. ECMO was initiated with Rotaflow Centrifugal pump and Maquet PLS Quadrox oxygenator. There was Dilutional coagulopathy due to the pregnant state and the bleeding was severe. This was managed by TEG monitoring and administering appropriate blood products. Interventional radiologist embolized some uterine arteries to reduce bleeding.

**Discussion:** Managing the patient without heparin and running at low ACT (140-150 seconds was a big challenge for the perfusionist. The ECMO flows (>4.5LPM and RPM were kept high (3000RPM) in order to prevent circuit clotting. A close watch was kept on the Delta Pand prepump pressures. The patient was anuric and ended with dialysis because of multiple transfusions. Bronchiolitis obliterans organizing pneumonia (BOOP) was suspected and was treated aggressively with steroids. BOOP is an inflammation of the bronchioles (bronchiolitis) and surrounding tissue in the lungs. The course on ECMO and bleeding management will be discussed in detail.

**Conclusion:** The patient was weaned of ECMO Successfully after 19 days and was discharged from hospital after 40 days. Appropriate management and multidisciplinary team approach salvaged this difficult scenario.



**Bhawandip Sandhu CCP CPC Nov 2017**

## **Toronto General Hospital's Organ Perfusion Program:**

### **A Perfusion Perspective**

#### **Abstract**

In Canada there are over 4600 people waiting for an organ yet only about 2500 transplants are performed annually. More than 50% of patients on the waitlist will not get an organ this year. Part of the cause is a lack of donors. Two methods to alleviate this issue are to increase the number of donors and to increase the number of suitable organs for transplantation. The Toronto General Hospital (TGH), in Ontario, Canada, has employed organ perfusion techniques to increase the number of suitable organs that may otherwise be rejected. TGH was the first center in North America to successfully transplant lungs (that may have otherwise been rejected) after they were put on the Ex-Vivo Lung Perfusion (EVLP) system. Today EVLP has increased the number of lungs transplanted by 30-40%. Furthermore, TGH is expanding this technology to other organs such as livers and kidneys. As Perfusionists, we play a vital role in assisting with these advances in the field of transplantation. The circuitry, composition of perfusate and the role of perfusion are outlined. The organ perfusion techniques at TGH have seen great results and continue to recruit more organs to meet the growing need for many types of organ transplantation.



## **Replacement of cardiopulmonary bypass with ECMO circuit in heart and lung transplantation....A case report**

**Mr venkatareddy , Dr PV Naresh kumar,Dr ravikanth, balakrishna, Ashlesha, ramu, veeru**

### **INTRODUCTION:**

Replacing Conventional Cardiopulmonary Bypass(CPB) support with veno-arterial membrane oxygenation(ECMO) with minimal activated clotting time(ACT) in a Heart and Lung transplantation surgery.

### **BACKGROUND:**

CPB is currently the standard method for Heart and Lung transplantation,however recently ECMO might be considered as alternative to CPB apart from its pre and post-operative rescue support.ECMO has many advantages like lower heparin dose, less blood-air interferences,less haemolysis, less haemodilution,lesser usage of blood products and lesser incidence of primary graft dysfunction. With these in consideration we report a case of heart and lung transplantation using ECMO as a primary CPB circuit.

### **CASE:**

We hereby report our case experience in heart and lung transplantation surgery in a 13 year old girl child diagnosed with primary pulmonary hypertension. ECMO was initiated via central cannulation and ACT was maintained around  $200 \pm 20$  seconds throughout the surgery. Baseline haematocrit of patient was 36% and with minimal priming volume of 500ml-550ml, circulating haematocrit of patient was maintained around 27% without transfusion of any blood product during transplantation. Patient was supported for 2hours post transplantation, then gradually came down on Fio2 and flows. Patient was weaned off ECMO in sinus rhythm maintaining saturation of 99% on ventilator support and with inotropic was shifted to isolation room.Total blood loss during and after-transplantation was 500-600ml.

### **CONCLUSION:**

ECMO offers a good alternative to CPB and can be extended post transplant extracorporeal cardiopulmonary support. It reduces peri and post procedural use of blood and blood products,less Incidence of Haemolysis and primary graft dysfunction leading to better survival.



## **DROWSINESS AFTER THEATRE ! WHO IS TO BLAME ??**

**TYPE: ORAL PRESENTATION**

**PRESENTING AUTHORS:**

DHARINI.S, SHANKAR.M, ROY THANKACHEN, BIRLA ROY GNANAMUTHU, KORAH.T.KURUVILLA ,RAJ.S, VARSHA A.V

DEPT OF CTSURGERY, CMCH VELLORE

**BACKGROUND**

Long term occupational exposure to trace concentrations of volatile anaesthetics is thought to have adverse effects on the health of exposed personnel. The sole use of intravenous drugs such as propofol instead of volatile agents, were this possible, would eliminate occupational exposure,

**AIM**

The Aim of this short term observational study was to compare the effect of inhalational and intravenous Anaesthetics on the healthcare worker team

**METHODS**

At our institute , Anaesthesia during Bypass was maintained using Isoflurane Vapouriser . and of recent practice , we have switched over to Propofol Infusion to maintain the depth of anaesthesia. We questioned the entire team at the end of day about their working experience from then to now. The surgeons , Anaesthesiologists , Perfusionists , Scrub Nurses , Circulating Nurses , Technical Personnel Strongly felt the Frequency and incidence of Tiredness , Sluggishness has markedly reduced after Switching over from Isoflurane to Propofol.

Study was done for a period of one month questioning 10 personnel everyday.

One theatre used Sevoflurane while the other theatre used propofol.Statistical analysis was done and conclusions obtained

**CONCLUSION**

The safe limits of Inhalational Anaesthetic agents are still not discoverable, Hence the mere inspiration of these drugs can be harmful to the personnel exposed, Moreover taking into consideration the Teratogenic nature of the inhalational drugs and the damage it poses to the Ozone layer and the survey results we took in our theatre, we Feel Propofol can maybe be a better drug of choice to maintain anaesthesia on pump and the awareness for such issues has to be raised.





## Using Two Separate Rollers to Perfuse Upper & Lower Body Simultaneously. How Does it Help? A Case Report.

**Name:** Mr.S.Azarudeen., Perfusionist

### **Abstract**

#### **Aim**

To avoid deep hypothermic circulatory arrest in an aortic de-branching procedure using two separate rollers to perfuse upper and lower body simultaneously.

#### **Background**

Patient came with findings of Takayasu's arteritis, annulo aortic ectasia, severe AR, aneurysm of ascending arch and descending thoracic aorta with left carotid subclavian stenosis. Since this case had required arch debranching procedure our team decided to perfuse the upper body and lower body as well with adequate flow rate using two different roller pumps.

#### **Procedure and Perfusion Technique Employed**

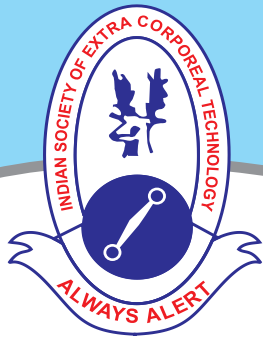
CPB was instituted in a regular fashion. Upper body was perfused through innominate and carotid artery using separate roller pump. Managing Adequate flows and pressure throughout the bypass with two different roller pumps using single oxygenator needs meticulous attention and this really presents major challenges for the perfusionist.

At 24 °C distal perfusion was discontinued for distal anastomosis, uninterrupted ACP was performed & the distal end of the arch was reconstructed. After deairing and cross clamping the graft whole body perfusion was restored. clamp released & heart picked up with sinus rhythm spontaneously. Weaned off CPB with adequate support. Patient shifted to ICU with stable condition.

#### **Conclusion**

Normally, arch de-branching procedures are being performed using single pump with "Y" bifurcation line for perfusing the upper body in the main arterial line. Whereas, in our case main aim was to use two separate roller pumps for controlling perfusion adequacy & to avoid circulatory arrest.

The materials used for perfusion including pump, oxygenator, hemofilter, cannulae as well as the techniques involving to maintain temperatures, flows, pressures using two different pumps for upper and lower body perfusion, ultrafiltration techniques, ICU stay & the patient outcome will be discussed during the presentation



## **The Effect of Modified Ultrafiltration (MUF) and its Duration on Pulmonary Functions and Hemodynamics in infants undergoing CPB.**

**Name: Mr. Ramachandra Reddy,**

**Dr. Sunil Kumar Swain,** Dr. Sameer Diwale, Dr. Mahesh, Dr. Prasanth Patil, Dr. Anil Reddy, Dr. Ramesh Babu, Dr. Anjul Dayal, Mr. Ramesh, Mr. Rasool

**Background:** Cardiopulmonary bypass (CPB) used for conduct of cardiac surgery in children can cause increased capillary permeability and fluid overload due to water retention (1118% increase in total body water occurs in the immediate postoperative period). MUF is used to ameliorate the deleterious effects of CPB. To know, the ideal duration of modified ultrafiltration, we investigated the effects of extended duration of modified ultrafiltration on pulmonary functions and hemodynamics in the early postoperative period in infants.

**Methods:** Study applied (in 25 patients) in three groups (10, 15 and 20 min in group 1, 2, 3 respectively) and variables considered for study are Pulmonary compliance, gas exchange capacity, hemodynamic measurements, inotropic support, blood loss, transfusion requirements, hematocrit level and duration of ventilator support were measured at termination in the 3<sup>rd</sup>, 6<sup>th</sup>, 12<sup>th</sup> and 24<sup>th</sup> hours after admission to ICU.

**Results:** MUF has shown benefits including reduction of fluid overload, reduced inflammatory mediators and complement activation, improved recovery of cardiac, pulmonary, and cerebral function and reduced postoperative duration of mechanical ventilation and hospitalization. Hematocrit levels were significantly increased in groups 2 and 3 compared to group 1. Therefore, RBCs were transfused less after modified ultrafiltration in groups 2 and 3 compared to group 1. Static and dynamic compliance and ventilation index had improved similarly in all three groups.

**Conclusion:** MUF provides good clinical benefit, continuing MUF beyond 10 minutes does not appear to improve clinical outcomes in children undergoing cardiac surgery. However, the duration of MUF may not be the most relevant variable for improving outcomes.



## **HEART TRANSPLANTATION.- A Brief Overview**

**Name: Mohammed Nooruddin., Perfusionist, Apollo Hospital, Visakhapatnam**

**Background:** Indications for heart transplant Inclusion and exclusion criteria for selecting a recipient and donor.

**Introduction:** Case of severe refractory heart failure has come for transplant with a healthy heart donor.

### **Procedure:**

- Ø Custodial Solution
- Ø Explantation
- Ø Transportation of Heart
- Ø Implantation

**Post Operative Complications and Immunosuppressant's**

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Title of the Paper : **Perfusionist in Thoracic Emergencies**  
Authors : Mr Kamal Das

Name of the Hospital/Institution : R G Kar Medical College Hospital

Abstract : Abstract Case-1 Emergency CPB in Thoracic Surgery A 10 year girl child who was diagnosed broncheal mass suggestive of adenoma with features of carcinoid tumour. She was planed of surgical resection of tumour through right lateral thoracotomy. Intra operative period sudden cardiac arrest occured. Inspite of cardiac massage could not be revived .So planed for Emergency Cardio Pulmonary Bypass wi



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#### ABSTRACT

### INNOVATIVE INDIGINIOUS RBC WASHING TECHNIQ BY HEMOFILTRS

BY

**Mr. VIVEK.VISHWAS PAUL.** (BSc Cardiac Perfusion N.H. Bangalore) **CARDIAC PERFUSIONIST**  
(**Dr.Sanjay.R.Gaikwad, Dr.Mayur Mastud, Dr.V.M.Chavan .Dr.Vishwas.K.Paul**)

**ASHWINI RURAL MEDICAL COLLAGE HOSPITAL & RESEARCH CENTER.KUMBHARI,  
SOLAPUR. MAHARASHTRA**

#### **Purpose:**

This study is designed to determine if point-of-care washing of allogeneic Leukocyte-Reduced Red Blood Cells reduces pulmonary complications when compared to standard-of-care Leukocyte-Reduced Red Blood Cells in cardiac and other surgical fields. Dialysis membranes for RBC Washing technique.

#### **Method:**

Saline-washed RBCs are units of whole blood or RBCs that have been washed with 1 to 2 liters of saline manually or in an automated cell washer. These units have a hematocrit of 90% and have been depleted of 90% of the plasma proteins and 95% of the leukocytes. The residual potassium concentration is 0.2 mEq/L. Other RBC metabolites are almost entirely removed. Washing also removes cytokines that cause febrile reactions. Saline washed RBCs must be used within 24 h after washing since the original collection bag has been entered. Removal of the anticoagulant-preservative solution also limits cell viability and function. Saline washed red blood cells have limited medical indications.

#### **Conclusion:**

Blood transfusions alter humoral and cellular immunity in the recipient Whether the cells themselves, the supernatant, or both, contribute to inflammation and poor clinical outcomes attributed to transfusion-related immunomodulation remains unknown Bioactive substances and micro particles in the supernatant of stored RBCs likely serve as a secondary inflammatory insult, Whether removal of these bioactive substances by washing can attenuate the recipient's inflammatory and immunogenic response, and improve post-operative clinical outcomes. Washed transfusions have been associated with reduced cardiopulmonary complications and improved survival in adults.



## **CARDIOPULMONARY BYPASS: AN EFFECTIVE RESUSCITATIVE MEASURE**

(Ms. Aleena Anna Korah, Ms. Sai Preethi N, Mr. Lakshmipathi.T , Dr. Sanjay Theodore MS,Mch ,  
Dr. Siva Kumar MD Anaesthesiology, Chettinad Health City, Kelambakkam )

**Introduction :** There is a lack of demonstrated techniques to achieve good recovery of patients who go into sudden refractory cardiac arrest without any prodrome. Patients who do not respond to conventional cardiopulmonary resuscitation require an alternative therapeutic method which gives hemodynamic stability while allowing further exploration and management.

**Background :** Three cases of acute Cardiorespiratory arrest under different circumstances, unresponsive to continuous conventional cardiopulmonary resuscitation were instituted with Emergency Cardiopulmonary Bypass. Once hemodynamically stable they were taken in for further evaluation and management. Two of the patients underwent cardiac interventions and came off-bypass successfully, while, we lost a patient to certain severe pre-bypass complications.

**Conclusion :** Emergency Cardiopulmonary Bypass is effective in resuscitation of patients unresponsive to conventional cardiopulmonary resuscitation and can be put to use as an emergency resuscitative measure for idiopathic cases which require time and hemodynamic stability for evaluation and management.



## **Femoral Lower limb Ischemia and cerebral Monitoring during VA ECMO**

**Viswanath Belavi, MS,CCP,ECCP** (Avinash Moreshwar, Anand Ghorpade, Kiran L,Suneel Sankannavar,,Dr Richard Saldhana, Dr Mohan Gan, Dr Anand Vagralli, Dr Sharan Patil).

From the **KLE'S Dr Prabhakar Kore Hospital & MRC**, Department of Cardiac Surgery, Nehru Nagar, Belgavi, Karnataka

**Abstract:-** Percutaneous femoral venoarterial (VA) or jugular venovenous (VV) extracorporeal membrane oxygenation (ECMO) can result in delivery of hypoxic blood to the brain, coronaries, and upper extremities. This support serves as a bridge to recovery, decision-making, heart transplantation or ventricular-assist device implantation. It can be implanted either through a percutaneous approach using Seldinger's technique or via an open approach through common femoral artery or the axillary artery.

Additionally, VA-ECMO by percutaneous femoral artery cannulation may compromise perfusion to the lower limbs. Use of near-infrared spectroscopy (NIRS) detects regional ischemia and warns of impending hypoxic damage. Early and late arterial vascular complications remain an important issue, with rates of up to 28% with femoral and axillary cannulation sites. Among them, limb ischemia and localized bleeding requires prompt diagnosis and management to avoid limb amputation.

**Conclusion:-** To minimize the risks, perfusion of distal limb with peripheral percutaneous cannulation was done. Distal perfusion was monitored with NIRS to assess the oxygenation. At the end of de-cannulation patch angioplasty was performed to prevent the development of narrowing of the artery at the cannulation site.



## **Cardiopulmonary bypass management for IAA repair in a 3kg patient with very low platelet count : A case report**

**Authors:** Rajeev Gupta, Archip John, I.Shashikant, Ms. Kirti Dr.Niti,Dr.Usha Kiran, Dr.V.Devagourou,Dr.Balram Airan All India Institute of Medical Sciences, New Delhi,India

### **Abstract**

Perioperative management of cardiovascular surgical procedures requiring cardiopulmonary bypass (CPB) in patients with low platelets count poses a clinical challenge in coagulation management.

We hereby present a case report of 3kg patient diagnosed as ACHD, Increased Qp, Type B IAA, DiGeorge syndrome, having very low platelet count of merely 50,000 / $\mu$ L successfully underwent for corrective surgery and discharged to home.

Use of CPB requires the administration of an anticoagulant, usually unfractionated heparin, and also causes dilutional coagulopathy, platelet dysfunction or platelet consumption coagulopathy. Hypothermia and activation of the inflammatory cascade also affect the function of platelets. The effects of CPB and hemodilution on platelets and strategies to manage CPB in neonates undergoing CPB for complex congenital cardiac surgeries having low platelets count will be shared in this presentation..

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## EFFECTS OF CARDIOPULMONARY BYPASS ON SERUM PROCALCITONIN AND C-REACTIVE PROTEIN CONCENTRATIONS

**Name: Ms. Vashnavi.P, Perfusionist, Sri Ramachandra University, Chennai**

**Introduction:** Cardiac surgery causes an inflammatory response with clinical and biological changes. This Systemic Inflammatory Response Syndrome [SIRS] is a result of several stimuli, such as exposure of blood to non physiological surfaces, surgical trauma, myocardial ischemia-reperfusion and endotoxin release. Because of this response, conventional clinical and biological signs may be misleading in the diagnosis of postoperative complications particularly infections.

**Methods:** We conducted a prospective study in Sri Ramachandra University and Research Center, Chennai for patients referred for cardiac surgery under Cardiopulmonary bypass [CPB]. 35 Patients undergoing surgery with the help of Cardiopulmonary bypass [CPB] were included in the study. The blood samples were obtained to measure the serum procalcitonin [PCT] and C-Reactive protein [CRP] concentrations before the initiation of Cardiopulmonary bypass [CPB] and during postoperative day-1 and postoperative day-2 of ICU stay.

**Results:** The serum C-Reactive proteins [CRP] concentrations increased in all patients, thus the postoperative increase in C-Reactive proteins lasted longer than that of procalcitonin. Systemic Inflammatory Response Syndrome [SIRS] induced by cardiac surgery with Cardiopulmonary bypass [CPB] influenced by serum procalcitonin concentrations with a moderate and transient postoperative peak on the first day after the surgery. We speculate that postoperative inflammatory cascade is probably responsible for the increase in serum procalcitonin after Cardiopulmonary bypass [CPB].

**Conclusion:** The increase in serum procalcitonin concentrations after cardiac surgery appeared to be related to postoperative Systemic Inflammatory Response Syndrome [SIRS] irrespective of the surgical technique under Cardiopulmonary bypass [CPB]. Because of the prolonged increase of serum C-Reactive proteins [CRP] postoperatively, so it was useful for detection of impending postoperative complications. Thus, we concluded that both serum C-Reactive proteins and procalcitonin increase during the postoperative period, but procalcitonin seems to be a better marker for sepsis for patients undergoing Cardiopulmonary bypass [CPB].



## **Autologues blood priming & Retrograde Autologues priming in pediatric OHS**

SYAMBABU NAMABATHULA , DR.BENEDICT RAJ.R, DR.N.SRINADH REDDY, DR.P. SRINIVASA RAO  
ASTER Ramesh Hospital, Vijayawada

**Speaker:** SyamBabu. Namabathula

**Email:** namabathula@gmail.com

### **Abstract:**

Autologous blood collection & Retrograde Autologous priming in pediatric Open Heart Surgery.

### **Materials and Methods:**

#### ***Autologous blood collection:***

Autologous blood collection (ABC) is usually done in children weight more than 8 kg. In TOF (cyanotic) cases 10ml per kg Blood collection from arterial line through aortic cannula. Collection done ACT above 480sec Heparinised blood collection. After pump off Chase reservoir volume High potassium correction up to 5meq/l Diuretic bolus 1mg/kg Start Autologous blood transfusion.

#### ***Retrograde autologous priming***

Retrograde autologous priming (RAP) is done to partially replace the prime volume of the CPB pump. It takes about 35 min before commencing CPB. To counteract the transient fall in mean arterial pressure (MAP <35 mm Hg infants) small boluses of phenylephrine (10 µg) or adrenaline infusion may be used.

### **Conclusion:**

The introduction of autologous blood priming & autologous blood collection in paediatric CPB are improved the percentage of transfusion free operations and Minimize transfusion infection, Cost reduction, decrease Hemolysis... Blood conservation is possible in children undergoing cardiac surgery with better outcomes.



Title : Comparison of Perfusion Techniques in the surgery of Thoraco Abdominal Aorta

Name : V Saravana Kumar, Dr L Mohana Krishnan and Team members  
Velammal Super Speciality Hospital Madurai

Abstract : Choosing of Inflow CPB circuit in Thoraco Abdominal Aneurysm and Coarctation of aorta Comparison between left heart bypass from LA to Femoral artery and Femoro femoral bypass which is also named as partial left heart bypass The conclusion is from partial IVC inflow to Femoral artery has got better outcome than left heart bypass which is from left atrium to femoral artery

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## **PERFUSION STRATEGIES FOR REPAIR OF TOTAL ANOMALOUS PULMONARY VENOUS CONNECTION IN CHILDREN WITHOUT CIRCULATORY ARREST**

Nivasbegam Nazarhussain\*, Christy mariam kurian\*, Banuppriya Ravi\*, Umopathy Jagannathan\*, Soundararajan Srinivasan\*, Sumathi Maheshwaran\*, Daniel Valentine Jones\*, Vijayakumar Raju\*\*

Division of Cardiothoracic Surgery,  
G.Kuppuswamy Naidu Memorial Hospital, Coimbatore, Tamilnadu, India

### **ABSTRACT:**

**BACKGROUND:** Total Anomalous Pulmonary venous drainage is the most important anomaly of pulmonary veins. Emergency repair is challenging in a neonates with obstructed TAPVC. Circulatory arrest is the most common perfusion strategies during repair. We describe hypothermic low flow CPB rather than circulatory arrest as our perfusion strategies in repair of TAPVC.

**METHODS:** Retrospective study done at GKNM Hospital over a period of 3 years ( June 2014 till June 2017 ). We have included all children underwent isolated TAPVC repair. Children with other associated anomalies were excluded.

**RESULTS:** Total of 75 children underwent TAPVC repair during this 3 year period. Among these 25 (33.3%) children were neonates. 45 (60%) children were less than 1 year. Supra cardiac TAPVC is the most common type (80 %) followed by intracardiac, mixed and infracardiac TAPVC. All children underwent surgery using aorta & bicaval cannulation . All children were cooled down to 25 degree celsius. No circulatory arrest was used. Perfusion was maintained with 30ml/kg/min of flow during pulmonary venous anastomosis . Rewarming was started and full flow was established after pulmonary venous anastomosis. Only 2 (2.6%) surgical mortality. No neurological events were observed in any of children in the immediate postoperative period. All children are doing well on follow up.

**CONCLUSION:** Low flow hypothermic CPB is a good and alternative perfusion strategy in children undergoing TAPVC repair. It avoids circulatory arrest and it neurological complications. It should be considered in the



## **Title :** ECMO and e-CPR : our 10 year experience

**Authors:** Bijender singh bali, Dr. Ansh Garg, Dr.G Srinivas Rao, Dr.Rajesh Sharma, Dr. Vishal Singh.  
Jaypee hospital, Noida.

### **Introduction :**

Indications for ECMO are integral part of any pediatric cardiac surgical unit .It is very important to initiate the therapy at correct time. It can be in the form of continues support from the operating room ,impending cardiac arrest in Intensive care unit or sudden cardiac arrest. We hereby present our 10 years experience with ECMO in pediatric cardiac surgical unit.

### **Methods :**

80 patients were studied retrospectively over a 10 year period (2007-2017) operated by same pediatric cardiac surgical team at two different centres. Data was collected and reviewed.

### **Results :**

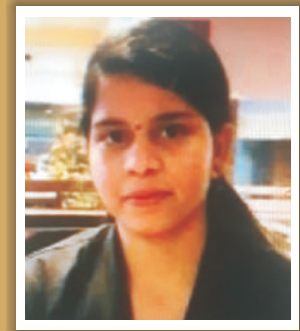
Extracorporeal life support was instituted in these patients as an elective measure ( Group 1) or as a part of e-CPR protocol. ( Group II).

53 patients were in group I (elective ECMO ) and 27 patients were in group II (e-CPR).

49 % patients (n= 26/53) were successfully weaned off in group I and 59% patients (n= 16/27) in group II. 28% (n= 15/53) patients were discharged from hospital in group I while 40.7% (n= 11/27) were discharged in group II.

### **Conclusion :**

Timely e-CPR forms a very vital component of post pediatric cardiac surgical ICU care. In some situations, peri-op Cardiopulmonary bypass continued as ECMO in the surgical ICU, prevents sudden cardiac arrest, thus improving survival. Our experience over the last 10 years has shown significant decrease in mortality in both e-CPR and ECMO group when results were compared between the two centres.



## **THE NOVEL TECHNIQUE TO AVOID TOTAL CIRCULATORY ARREST IN AN ADULT WITH SCIMITAR SYNDROME**

**Banuppriya Ravi\***, Christy Mariam Kurian\*, Nivasbegam Nazar\*, Umapathy Jagannathan\*, Soundararajan Srinivasan\*, Sumathi Maheshwaran\*, Daniel Valentine Jones\*, Sundar Ramanathan\*\* \*Perfusionist, \*\* Cardiothoracic surgeon

### **Division of Cardiothoracic Surgery**

G.Kuppuswamy Naidu Memorial Hospital, Coimbatore, Tamilnadu, India

### **Case Report**

Generally in Scimitar syndrome, where the right-sided pulmonary veins drain to the inferior vena cava right atrial junction. During surgery the period of Hypothermic Total Circulatory Arrest may be needed for precise visualization during Intra Cardiac Repair.

In our case, we utilized Cuffed Endo Branchial Tube for drainage of Inferior vena cava helping us to achieve good surgical result without the use of Total Circulatory Arrest (TCA)

Technical details of how it was done will be discussed.



## **REDO TRICUSPID REPAIR (MICS) USING SUPPORTIVE BYPASS AND THE ISSUES FACED**

**Tejas manju .MR**, Amith Krishnan, Dr T.R.Rajesh, Dr chiranbabu, Dr jagadishhegade,

### **INTRODUCTION**

Problems we faced while checking the valve after the tricuspid repair in supportive bypass and its management.

### **BACKGROUND**

As it was Redo Tricuspid repair (MICS) which was planned to carry out using supportive bypass, complications were predicted and extra precautions were taken which includes Patient position 45 degree ideal for sternotomy, external pedals, cardioplegia was on standby. Unfortunately there was a fibrillation of heart and Patient positioning turned in favour for the management.

### **CASE**

We hereby report our case experience on Redo Tricuspid repair (MICS) on 64yrs old lady diagnosed with RHD, S/P MVR on 2006, SEV PAH, Moderate PAH, RV Dysfunction. Patient was cannulated with IJV and Femoral venous and Femoral artery. Patient went on supportive bypass with normothermia and tricuspid repair was done using felt. Heart started fibrillating while checking the valve using saline technique. Immediately anti arrhythmic drugs were administered simultaneously multiple shocks were given which went futile and Even tried with internal pedals. But the problem is Left side pedal couldn't reach the apex as it was right thoracotomy. Surgeon made an incision approaching a left side apex so that pedals can reach and shock has delivered and heart was reverted.

### **CONCLUSION**

Be prepared with an alternative for such cases which is on supportive bypass. Presence of mind and good communication among the team members play a vital role in managing during complications.



## **ECMO in Meconium Aspiration Syndrome associated with Severe Pulmonary Arterial Hypertension - Our Experience**

**Ramakrishna M, P.V.S.Prakash, Selvakumar R, Lavanya R, Ansar S, Dr. Riyan Shetty, Dr. Sudesh Prabhu**

**Background:** Meconium aspiration syndrome (MAS) is a respiratory distress in a newborn that has aspirated meconium into the lungs before or around the time of birth. MAS develop intractable pulmonary hypertension with profound hypoxia, co-existent with a variable degree of parenchymal lung injury. When conventional ventilatory therapy is not productive, ECMO becomes a life saving option in this vulnerable sect of patients. We have an experience of initiating VA ECMO in two newborns who were suffering from respiratory distress due to Meconium aspiration syndrome.

**Methods & Management:** Both the patients were intubated and had an oxygenation index of > 40. Both the patients had severe pulmonary hypertension and were on surfactant therapy, inhalation NO and required high inotropic supports. The sites of cannulation were Right internal jugular vein and Right common carotid artery. We used sorin Dideco ECMO oxygenator, Maquet Rota flow centrifugal pump with a non coated ECMO circuit. Soon after initiation of VA-ECMO all the inotropic supports were stopped and complete rest to the heart and lungs was established. The average ECMO support was for 79 hours. All the ECMO parameters were continuously monitored and coagulation parameters are also kept under control to avoid bleeding complications. Regular meconium suctioning and with resting ventilatory parameters adequate rest is provided to the traumatized lungs. The ECMO flows are gradually decreased as pulmonary function improves, with regular assessment of ABG, serial chest X-rays and lung compliance measurements. After reaching 20% of calculated blood flow for 6 to 12 hours with ABG within normal range, patients are decannulated from ECMO.

**Conclusion:** The VA-ECMO support provides all body tissue oxygenation and gives the pulmonary vasculature and lung parenchyma time to recover in newborns who suffer from Severe Pulmonary Hypertension due to Meconium Aspiration Syndrome.





## **Extracorporeal Membrane Oxygenation For Multi-drug Intoxication.**

**Jesima Yasmin**, Hemanth Babu, Mr.Lakshmi pathi Thenneti, Dr. Sanjay Theodore, Dr.SivaKumar,  
Department of CTVS, Chettinad Health City, Kelambakkam.

### **Abstract:**

A young woman presented to our hospital following Multi drug suicidal poisoning. The patient's condition deteriorated and she developed severe Metabolic Acidosis and Refractory cardiogenic shock on conventional therapy. In order to prevent the Multi organ failure, Veno-Arterial Extracorporeal Membrane Oxygenation (VA-ECMO) was initiated. The patient's hemodynamics improved significantly after the application of ECMO. She was weaned successfully after 69 hours.

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## **Oxygenator failure, a havoc during bypass in a heart transplantation**

**Mrs. Thoyajakshi, Mr. Suneel L. G, Mr. Kiran kumar, Dr. Sandeep Attawar, Dr. Govini**  
BalasubramaniGleneagles Global Health City, Chennai.

### **Introduction:**

Critical events during cardiopulmonary bypass (CPB) can even challenge the most experienced perfusionists and can potentially lead to devastating outcomes.

### **Case History:**

A 28 years male, international patient presented with dilated cardiomyopathy, posted for heart transplantation. Following routine anesthesia, uneventful sternotomy and dissection of the heart, cardiopulmonary bypass was instituted. Immediately low arterial BP, high transmembrane pressure gradient was noted. Before any intervention has been done the pump boot busted. While we were addressing the problem the heart was being explanted. Hence stopping the CPB was not an option. Immediately patient was cooled, the Pump boot was reconnected, and simultaneously the Oxygenator was changed. This restored the seamless resumption of CPB and the rest of the surgery went uneventful.

### **Discussion:**

In such a critical clinical situation there was clear communication amongst the team that avoided the catastrophic incident. Prompt action restored situation without speck of delay.

### **Conclusion:**

Heart lung machine has become more sophisticated as technology has advanced. However, the use of CPB, with its various mechanical components, has the potential to fail. When this occurs, it is potentially lethal. Therefore, perfusion safety is paramount and encompasses many facets including equipment, safety devices, conduct of perfusion, surgical technique, vigilance, and communication in the operating room.



## **Cardiopulmonary bypass strategy in Heart transplant patients: AIIMS Experience**

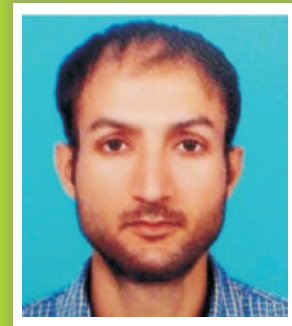
**Mr. Rajesh Yadav**, Mr. Arun Kumar, Mr. Yogesh Solanki, Mr. Lokender Kumar, Dr. Sarvesh Pal Singh, Dr. Milind P. Hote, Prof. Balram Airan.

**Objective:** To assess the outcome of heart transplant patient performed under Normothermia or mild hypothermia with normothermic blood flow.

**Method:** From August 1994 to October 2017, 60 patients underwent heart transplant surgery for Dilated cardiomyopathy 50, congestive cardiomyopathy 1, restrictive cardiomyopathy 2 and CAD with LV dysfunction (EF- 10-15%) 8. Adult (1/2\*3/8\*1/2) Cardiopulmonary bypass circuit was used. In starting days we used St. Thomas CPG through BCD but now a days we are using Custodial CPG through pressure bag for ischemic heart. Perfusate temperature was maintained at 32- 33°C. Cerebral perfusion was monitored by **Near Infra Red Spectroscopy**.

**Result:** There is no significant differences between hyperkalemia and arrhythmia. 3 patients require haemodialysis due to renal dysfunction. There was no neurological deficiency in any of the patients. Primary graft dysfunction occurred in 7 patients.

**Conclusion:** The CPB strategy is simple and easily reproducible. Heart transplant can be safely performed under mild hypothermia with normothermic blood flow. Infection is the most common adverse event after heart transplant followed by rejection and PGD.



## **Myocardial protection in Heart Transplant by using Bretschneider-HTK (Custodial) solution**

**Type: Poster Presentation**

**ARUN KUMAR**, Yogesh Solanki, Lokendra Kumar, Dr. Shambhu, Dr. Milind Hote, Dr Balram Airan  
Department of CTVS, AIIMS, New Delhi, India.

### **Abstract:**

**Introduction :** Heart transplant is the surgical replacement of a person's diseased heart with a healthy heart from a donor who has died. The first heart transplant done in south Africa in 1967 by Dr Christiaan and in INDIA done at AIIMS in 3<sup>rd</sup> August 1994.

Myocardial protection facilitates the operative replacement of heart and provides optimal operative condition to the surgeon. Ideal Cardioplegia would provide excellent myocardial protection over the whole length of cardiac ischemia time.

Various cardioplegia solutions have been used at various centres worldwide for heart transplant operation. Custodial cardioplegia is now a day popular used in many centres. At AIIMS we have used custodial cardioplegia solution in last more than four years.

**Method and material :** we analysed data of 26 patient who underwent heart transplant operation from August 2014 October 2017 All patients underwent cardiopulmonary bypass using mild hypothermia. Custodial cardioplegia solution used for myocardial preservation in all donor heart, dose of cardioplegia is 20 ml/kg of body weight.

**Result :** The mean age of patients 32.04 ± 16.11 Yr there were eighteen males, eight females (four children out of twenty six) there were seventeen patients of dilated cardiomyopathy, seven patients of ischemic cardiomyopathy and two of restrictive cardiomyopathy. seven patient developed primery graft dysfunction, three patient had renal failure, five developed arrhythmias, three had bacterial infection and one had convulsion

**Conclusion :** The available evidence suggest that custodial cardioplegia provides prolong myocardial protection and has significant benefits for the performance of heart transplant surgeries.



## Innovative detachable bridge circuit as a weaning strategy for ECMO

### Type: Poster Presentation

**Cousigan V, P.V.S.Prakash, Sam Immanuel S, SelvaKumar R, Kebin Chacko, Dr.Sudesh Prabhu, Dr.Riyan Shetty**

**Objective:** To present a circuit which can be incorporated while weaning ECMO. It will keep the circuit patent and enable us to resume ECMO instantly if the patient condition worsens.

**Materials and Methods:** The circuit consists of few three ways and luer connectors as shown in the poster. This circuit is usually connected at the time of weaning off ECMO. The circuit separates the cannulae and the oxygenator part into two and keeps both the components patent by recirculation and infusion of heparin. This circuit can be used for four hours. In case the patient destabilizes ECMO can be resumed instantly by clamping the bridge and opening the AV loop.

**Discussion:** The Bridge is detachable and can be removed when the patient is back on ECMO. No time wastage is there in reinstating ECMO as the cannula is kept patent in situ with adequate heparinization till the patient stabilizes. It is easy to make and can be kept readymade in the ITU.

**Conclusion:** The poster will depict the components, circuit diagram, connectors and Heparin infusion dosages.



## **PATTERN OF PERIOPERATIVE BLOOD LACTATE LEVEL CHANGES IN REOPERATIVE VALVULAR CARDIAC SURGERY**

**Dharini.S**, Sankar.M<sup>^</sup>, Birla Roy Gnanamuthu, Kirubakaran<sup>\*\*\*</sup>, KorahKuruvilla<sup>\*</sup>, Roy Thankachen<sup>\*\*</sup>

**Type :** Poster Presentation

### **Background.**

Cardiopulmonary bypass (CPB) is widely used to maintain systemic perfusion and oxygenation during open-heart surgery. Tissue hypoperfusion with resultant lactic acidosis during CPB, may occur during hypothermia, extreme haemodilution, low flow CPB, and excessive neurohormonal activation.

Reoperative cases in itself is associated with more stress when compared to regular CPB cases.

### **Methods.**

We reviewed 37 patients who underwent reoperative cases with CPB from the year 2016 - 2017. Patients with abnormal preoperative blood lactate levels were excluded. Blood lactate concentration during CPB, clinical data, and perioperative events were recorded.

We studied factors such as Total ischemic time, Temperature, blood loss, Intraoperative Hemoglobin levels, Transfusion timing, Duration of Storage of Banked blood, perfusion flow rates and their correlation to the lactate levels in the postoperative period.

We also studied factors like sex of the patient, timing between the first and the second surgery, Age, comorbid conditions like Diabetes and the timing of transfusion on pump to a relation of lactic acidosis in the perioperative period

We studied about the pattern in the lactate level rising in the ICU and its relation to the risk factors

We also studied the implications of lactic acidosis on the morbidity and mortality rate

### **Conclusions**

Blood lactate concentration of 4.0 mmol/L or higher during CPB identifies a subgroup of patients with increased risk of postoperative morbidity and mortality in Redo cases. The remaining details pertaining to the study will be presented in the poster



## **SIGNIFICANCE OF TIMING OF TRANSFUSION OF BANKED BLOOD DURING CARDIOPULMONARY BYPASS ON BLOOD LACTATE LEVELS**

**Type: Poster Presentation  
author**

**Raj Mark Stenin, Manickam Shankar, Gnanamuthu Birla Roy, Srinivasan Dharini, Thankachen Roy.**

### **Background**

Cardiopulmonary bypass is often associated with hemodilution and anemia. Banked blood is transfused during cardiopulmonary bypass when the hematocrit falls below 22% or when the corresponding reservoir volume is low. Anemia causes reduction of blood viscosity but increases tissue perfusion. Anemia during cardiopulmonary bypass is known to be associated with lactic acidosis perioperatively. Timing of addition of banked blood is a crucial factor in preventing post operative morbidity due to acidosis.

### **Aim**

To evaluate the appropriate timing of blood transfusion during cardiopulmonary bypass to prevent perioperative hyperlactatemia.

### **Method**

A retrospective analysis of patients 50 patients who were transfused during valve replacement surgeries between January and November in the year 2017 were taken up for study. The patients were randomly divided into two groups. Group A (n=25) received blood transfusion before initiation of cardiopulmonary bypass. Group B (n=25) received blood transfusion after cardioplegic arrest.

### **Inference**

Our data analysis revealed that the patients who received blood transfusion before cardiopulmonary bypass support had a serum lactate level of 1.7-3.9mmol whereas patients who received blood transfusion after cardioplegic arrest had a serum lactate of 4.0-6.7mmol.

### **Conclusion :**

Based on the study we observed that the timing of addition of blood during cardiopulmonary bypass influences the blood lactate levels. Based on this conclusion, we have devised an institutional protocol for the timing of adding of banked blood, the details of which will be presented along with paper.



### **Type: Poster Presentation**

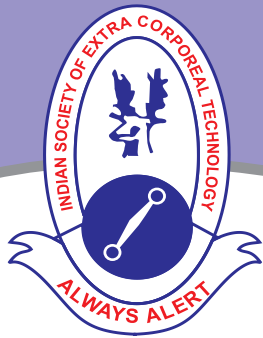
Title of the Paper : **Easiest Way of Cardioplegia Delivery System**

Authors : TUHINSUBHRA MEDDA KAMAL DAS R G KAR MEDICAL COLLEGE

Abstract : Easiest Way of Cardioplegia Delivery System Introduction- Cardioplegia is having important role in cardiac surgery to protect the myocardium. To administrate the solution it is needed one delivery system. Techniques that have been used to offset myocardial protection have effects on the other organ systems, and vice versa. We have also tried a little modification which may help better protection.

**VISAKHA CLINICAL  
PERFUSION SOCIETY**





**Title of poster:** NORMOTHERMIC/TEPID BLOOD CARDIOPLEGIA OUR EXPERIENCE

**Speaker-**MsLalitaShakya  
lalitashakya1@gmail.com

**Co-speakers,** Anand G, Avinash M, Kiran L, Sunil S, Tanaji K, KLE's DrPrabhakarKore Hospital & MRC, Belagavi, India

**About Author:** Bsc Perfusion technology, Intern in KLE's DrPrabhakarKore Hospital & MRC, Belagavi, India

### **Abstract**

The major concern during Cardiac surgery is to preserve Myocardial function which is usually done by means of Hypothermia and Electrochemical arrest of the heart. Also, the Reperfusion insult is a key determinant for functional recovery of organs during the post-operative period including the mortality and morbidity of patient.

Hypothermia decreases the myocardial oxygen requirements but at the same time it has many deleterious effects. So, the question arises whether to use cold or warm blood cardioplegia for obtaining superior myocardial protection. Maintaining the systemic and myocardial normothermia eliminates the effects of hypothermia and provides physiological approach during Cardiac surgery.

The era of cold blood cardioplegia practice is slowly being replaced by the intermittent tepid blood cardioplegia according to the Rapid changes in cardiac surgery. Hence, we share the experience of practicing warm (tepid) blood cardioplegia in selective cases at our center.

### **Conclusion**

In this era of evidence based practice, the practice of using normothermic blood cardioplegia in selective cases has been encouraging, simple as well as cost effective.



**Title of poster presentation: CPB effects on Kidney.**

**Speaker-**MsVijayalaxmi P. Mudaliar  
vijayamudaliar@gmail.com

**Co-speakers:** Anand G, Avinash M, Kiran L, Sunil S, Tanaji K, KLE's DrPrabhakarKore Hospital & MRC, Belagavi, India

**About Author:** Bsc Perfusion technology, Intern in KLE University, Belagavi.

#### **Abstract**

The Kidney primarily functions to preserve the internal homeostasis, osmolality, ionic composition, concentrate and excrete the daily exogenous and endogenous waste. Kidney has a very high renal blood flow and oxygen consumption compared to other organs. Any reduction in the flow will cause renal injury.

CPB disturbs the normal physiology of the kidney by altering the renal blood flow thus, interfering in the glomerular filtration rate and tubular reabsorption. The detrimental effect of the haemodilution and vasoconstriction due to non-pulsatile flow during cpb causes a reduced oxygen delivery to the kidney. This affects the renal oxygen consumption for the metabolic work of the tubular sodium reabsorption. This leads to acute kidney injury post operatively in a cardiac surgery with CPB.

#### **Conclusion**

CPB impairs renal oxygenation due to renal vasoconstriction and haemodilution leading to Acute Kidney Injury post operatively. Renal injury could be avoided by making circuitary changes and pharmacological interventions.



## Cardiopulmonary bypass blood flow determination during unilateral cerebral perfusion in hemi-arch aortic surgery

Type : **poster presentation:**

**Authors** Yogesh Solanki, Rajesh Yadav, Lokendra kumar, Dr.ParagGharde, Dr Devagourou  
Dr Shiv Kumar Choudhary, Dr Balram Airan All India Institute of Medical Sciences New Delhi

### **Abstract**

Cerebral protection using unilateral cerebral perfusion (UCP) is gaining interest during aortic arch surgery due to its simplicity. Near infrared spectroscopy (NIRS) now become an integral part of perioperative non invasive neuromonitoring during aortic arch surgery.

**Objective** Main aim of this study is to determine the adequacy of cerebral blood flow based on NIRS.

**Method and material** This study was conducted in 20 patients undergoing ascending aorta and hemi-arch aortic surgery. In all the patients, unilateral cerebral perfusion was performed under moderate hypothermia (28°C) based on inputs from NIRS device. The decision for antegrade cerebral perfusion (ACP) strategy was based on changes in NIRS values assessed during a test clamp on left common carotid artery for 3 minutes with hemodynamic optimization (MAP > 90 mmHg, PaCO<sub>2</sub> - 45 mmHg, hemoglobin concentration > 10 gm/dl). After three minutes if the NIRS value on the side of carotid clamping did not fall > 20% of its baseline value, then UCP strategy was used, otherwise bilateral cerebral perfusion strategy was used. ACP was initiated by translocation of ascending aortic cannula into innominate artery with 30% flow of the calculated normothermic CPB flow, once hemi-arch replacement was to be performed. The NIRS was monitored throughout this period.

**Result** The mean age of patients (n = 20) was 41.65 ± 15.6 years. Cardiopulmonary bypass time and aortic cross time were 141.65 ± 14.23 and 87.65 ± 9.12. And UCP time was 17.8 ± 3.32 minutes.

**Conclusion** Patients who are having complete circle of Willis, 30% of the calculated normothermic blood flow seems to be adequate with optimized hemodynamic during UCP.



## **ECMO in H1N1 Infection *Bridge to Recovery - A Tertiary Care Institutional Experience***

**Authors - Mr.Sabari.M / Mr.U.Mohamed.Imran / Mr.Elijah Stanly / Ms.Neema Prasad**  
*P.S.G.IMS&R, Coimbatore.*

### **Introduction**

ECMO, as we know has been a go-to mechanical circulatory support mode for critically ill patients from past few decades. Veno- venous ECMO has become the most commonly used tool for worsening respiratory failures and post infective ARDS.,

### **Case Report**

A 44 Yr old male diagnosed with H1N1 10 days earlier, ignored treatment and continued working until he was rushed to the ER with breathing difficulty followed by a small episode of brady arrest and reverted. Further investigations revealed worsening lung shadows which needed immediate intervention in the form of veno-venous ECMO. He also suffered acute kidney injury as a result of arrest.

RIJV & Right femoral Vein were chosen cannulation sites and ECMO was initiated with Maquet PLS Kit, Heparin coated. All daily routines and protocols were strictly followed along with lung protective ventilation. Though patient remained unresponsive for ECMO support in first few days, hemofiltration played a key role in the progress of the patient gradually. On 14<sup>th</sup> day the patient was weaned off completely from ECMO and further supportive forms of treatment led to a successful discharge of the patient and return to his daily routine.

### **Conclusion**

Early initiation of VV ECMO, hemofiltering the patient, keeping the lungs dry, along with an overall team effort led to a win-win situation for us and the patient.



## **Minimal invasive cardiac surgery versus conventional median sternotomy for atrial septal defect closure**

**Type: poster presentation:**

**Authors:** Mrs. Anju Singh, Mr.Lokendra Kumar, Dr Vishwas Malik, Dr Milind P. hoteDr.BalramAiran All India Institute of Medical Sciences New Delhi

**Objective-** In last 20 years Minimally invasive cardiac surgery (MICS) is being performed at many cardiac centres for many conditions . We review the results of mini right anterolateral thoracotomy compared with conventional median sternotomy (CMS) for ASD closure at our centre.

**Method and material** We analysed data of 40 adult patients who underwent isolated ASD closure from January 2014 to July 2017 (20 patients in CMS group A & 20 patients in MICS group B). In group A median sternotomy was performed and in group B, a 5 cm incision was given through right 4<sup>th</sup> intercostal space. Jugular and femoral veins were cannulated for venous drainage and femoral artery was cannulated for arterial inflow. Preoperative intraoperative and postoperative data were collected and compared between two groups.

**Result** The MICS group was younger (19.88 years vs 29.00 years ) and included more females than CMS group. Cardiopulmonary bypass (CPB) time (110.0517 minutes vs 57.9011 minutes) & aortic cross clamp time (50.299 minutes vs 32.7213 minutes) were significantly longer in the MICS group. Patient extubation chest tube drainage, ambulation ICU stay and hospital stay were shorter in MICS group. Cosmetic results were better in MICS group.

**Conclusion** -MICS via mini right anterolateral thoracotomy is an alternative choice for ASD closure. Though operation time are longer but other factors related to patient recovery are better in MICS group. Our centre is providing low cost MICS for ASD closures.



## **Veno-venoarterial (VVA) hybrid ECMO cannulation (Poster presentation)**

**Speaker: Suresh S,**

**About the Author: Perfusionist, KIMS Hospitals, Secunderabad.**

### **ABSTRACT**

Use of extracorporeal membrane oxygenation (ECMO) in adults has surged in recent years. Typical configurations are venovenous which provides respiratory support, or venoarterial, which provides both respiratory and circulatory support. In patients supported with venovenous ECMO who develop hemodynamic compromise, an arterial limb can be added venovenous arterial ECMO to provide additional circulatory support. For patient on venoarterial ECMO who develop concomitant respiratory failure in the setting of some residual cardiac function, an oxygenated reinfusion limb can be added to the internal jugular vein (venoarterial venous ECMO) to improve oxygen delivery to the cerebral and coronary circulation. Such hybrid configurations can provide differential support for various forms of cardiopulmonary failure.

We present our experience with management of patient requiring hybrid combinations.



**TITLE: Tackling Pneumonia in Hydrocarbon induced chemical Pneumonitis & ARDS  
- A Nail-biting Experience**

**Speaker: Mr. Hari Krishna**

**Co Speaker:** Dr. K.R.Balakrishnan, Dr.K.G.Suresh Rao, Mr.K.Raju, Fortis Malar Hospital - Chennai

**About the Author :** Perfusionist ( Staff Trainee )

**Abstract**

**Background:** It is usual for kid drinking water but it becomes critical when they drink kerosene accidentally and situation becomes worse. Hydrocarbon induced chemical pneumonitis is a rare case of ARDS in which ECMO would be the choice of treatment when the child had significant aspiration with severe PAH. Timely initiation of V-V ECMO is a vital decision in treating the Chemical induces pneumonitis and we had an ultimately nail-biting experience in this case.

**Case Study:** A 2 years old boy was admitted critically who drank kerosene accidentally as had significant aspiration. He was intubated with difficult ventilation and had progressive shock. Decision was made to cannulate for V-V ECMO since he had severe shock and hypoxia in spite of high inotropes and ventilation with inhaled nitric, which also showing appearance of pneumomediastinum. IJV and Femoral were cannulated with Biomedicus 15 fr cannula for inflow and outflow respectively. Flows (2.4 cardiac index), Anticoagulation (180-220sec of ACT), temperature (35-36°C), ultrafiltration (5-10 ml/min ) and other parameters were maintained and monitored precisely. Day by day patient was recovering effectively.

**Results:** On the 9th day decision was made to wean off ECMO, eventually child was also improving. Elective V-V ECMO is not only reputed but also helps as a vital choice for chemical induced pneumonitis.



## **OUR EXPERIENCE ON CARDIAC TRANSPLANTATION (ORTHOTOPIC & HETEROTOPIC)**

*Mr.Rajkumar, Mrs.Thilagavathy,Ms.Blessy, Dr.PrashantVaijyanath,  
Dr. Gunaseelan, Dr.Kappian  
Kovai medical center and hospital, Coimbatore.*

**Type: poster presentation:**

### **ABSTRACT**

Orthotopic heart transplantation is a well-established lifesaving procedure for patients with end-stage heart failure. A major obstacle to perform orthotopic heart transplantation is high pulmonary vascular resistance, due to the risk of early failure of the right ventricle of transplanted organ. Heterotopic heart transplantation is performed for such patients with fixed pulmonary hypertension, where the donor heart is anastomosed to the native heart in a parallel fashion to provide a kind of biological biventricular support. Here we report our clinical experience of the donor heart procurement and cardiopulmonary bypass techniques applied in three orthotopic and one heterotopic heart transplantation. The role of the perfusionist in performing proper cardiopulmonary bypass management and effective donor heart protection is essential for the successful cardiac transplantation.





## INTRA AORTIC BALLOON PUMP: TROUBLESHOOTING

MR ROHIT SAXENA; MRS MEETA MATHUR; DR SAMEER SHARMA; DR RAKESH CHITTORA  
FORTIS ESCORTS HOSPITAL: JAIPUR

**Type: poster presentation:**

### ABSTRACT:

The Intra-aortic balloon pump (IABP) is an electromechanical myocardial assist device used to improve coronary artery perfusion and decrease left ventricular afterload. IABP catheter is used to inflate & deflate inside the descending aorta. It provides temporary support to the left ventricle with the principle of counter pulsation. While the balloon is positioned at proper place, the pump is adjusted to trigger in synchrony with the ECG or arterial pressure waveform to ensure that inflation & deflation occur at the appropriate points during the cardiac cycle.

In last 10 years we had used 521 Intra Aortic Balloon Catheters in cardiac surgery. We had faced various errors while using intra aortic balloon pump. Here we are presenting the some of these errors & how we rectified them.



## **Multiorgan Perfusion in Abdominal Aortic Aneurysm Repair undergoing CPB**

**Authors:** Suresh Chand Yadav, Alok Kumar, Dr. Suruchi Hasija, Dr. Ujjwal chowdhary  
Name of Hospital/Institution: All India Institute of Medical Sciences, New Delhi

**Type: poster presentation:**

### **Introduction:**

One of the developmental techniques of CPB involves perfusion to multiple organs simultaneously using separate arterial pumps in order to provide effective flow to each organ. This strategy may lower the prevalence of splanchnic ischemia and ischemia to other visceral organs associated with CPB in these patients. A 55 years old female patient diagnosed with abdominal aortic aneurysm repair underwent CPB. Three different arterial pumps were used to perfuse four different sites of the aorta and its branches.

### **Aim & Objective:**

To provide adequate flow in all vital organs during Cardiopulmonary bypass through multi-artery cannulation in patients with extensive arterial vascular disease.

### **Method & Material:**

A 55 year old female patient weighing 44 kg (BSA-1.4m<sup>2</sup>) diagnosed with abdominal aortic aneurysm (juxta-diaphragmatic to aortic bifurcation) of atherosclerotic etiology, contained rupture (infra-renal aorta), with moderate tricuspid regurgitation, mild aortic regurgitation and H/O Pott's Spine. She was clinically evaluated and planned for aneurysm resection with interposition PTFE graft placement for abdominal aortic aneurysm on beating heart normothermic CPB. Circuit planning, assembling, priming and perfusion strategy and its complication were well managed and it must required expertise perfusion skills.

### **Conclusion:**

Although the ascending aorta is the most common site of arterial cannulation for CPB, the presence of an abdominal aortic aneurysm extending from juxta-diaphragmatic to aortic bifurcation may make ascending aortic cannulation difficult. we have found multi-organ perfusion through multi-artery cannulation to be an effective and safe method of arterial cannulation for CPB in patients with extensive arterial vascular disease



## **MODIFICATION OF PMP OXYGENATOR AS AN INTEGRATED ECMO-CPB**

**Type: poster presentation:**

**Authors: Alok Kumar, Sandeep Chauhan, S.C.Yadav, A. K. Bisoi,**

Name of Hospital/Institution: **All India Institute of Medical Sciences, New Delhi**

### **Introduction:**

The indications for ECMO support in children with congenital heart disease are well defined and range from use of peri-operative cardiopulmonary support to its use for management of failure to wean from CPB to use after cardiopulmonary resuscitation<sup>1</sup>. Modifications of ECMO circuit led to the development of integrated ECMO cardiopulmonary bypass (CPB) circuit (2005) at author's institute. Recently, the outcome was analyzed with reference to the use Integrated ECMO-CPB with silicone membrane oxygenator and with Polymethylepenteen(PMP) membrane. The authors reported the significantly improved survival rate with the use of Integrated ECMO-CPB with PMP membrane oxygenator.

### **Aim & Objective:**

To accept the challenges of non availability of silicon rubber membrane oxygenator since 2014 and further modification was done in the Integrated ECMO-CPB circuit after the development of Polymethylenepentene (PMP) as a better alternative for ECMO for the extracorporeal life support (ECLS).

### **Method & Material:**

Integrated ECMO-CPB circuit using a Polymethylenepentene (PMP) oxygenator was a perfect alternative to the earlier silicone rubber membrane but the initial problem was to select one of the best PMP oxygenator available in market which can be modified for the purpose of Integrated ECMO-CPB support in Author's Institute.

### **Conclusion:**

We present the modification in the Integrated ECMOCPB circuit with of Polymethylenepentene (PMP), centrifugal pump & without bladder and present our recent experiences with the new Integrated ECMO-CPB circuit.