

Expertise of Cardiologist & Cardio – Thoracic Surgeons



- 2500 Coronary Angioplasties in 2013, including many refined procedures like Multi-Vessel Angioplasty, Left Main Angioplasty and Bifurcation Lesions.
- 900 coronary bypass procedures including beating heart coronary bypass operations in 2013
- Pioneered open-heart surgeries and cardiac catheterization, in the early 80's.
- Achieved a 99.6% success rate in cardiac bypass surgeries; over 91% of which were beating heart surgeries.
- Introduced cutting edge procedures like Robotic Cardiac Surgeries, off-pump and beating-heart surgery, either by thoracotomy (minimal invasive access) or classical sternotomy, trans-radial angioplasty and stenting, mitral valve replacement.
- First to start Pediatric Cardiac Surgeries in AP
- Largest series of aortic valve replacements with stentless heart valve bioprosthesis.
- Performed successful heart surgery on a 2 day old baby, and successfully implanted a pacemaker on a 97 year old patient.
- Latest M guard stent technology, a specially designed Mesh covered stent used on Acute MI case.
- The Apollo Hospitals, one of the six centers in India to be part of a global trial on using drug-eluting bio-resorbable stents. The next generation devices, which relieve blood vessel blocks that will dissolve within couple of years. The device works like a regular stent by restoring blood flow to a clogged vessel. It also contains a drug that is slowly released to help the healing process.



- Apollo Hospitals Hyderabad launched a state-of-the-art cardiac facility 'Centre for Advanced Cardiac Care' (CACC), with dedicated, highly qualified and experienced cardiology and cardiothoracic teams, skilled technologists and support staff ably backed by a modern multi-specialty medical facility. The Center is equipped with state of the art modern flat panel cardiac catheterization laboratory and has acquired latest technology including Fractional Flow Reserve (FFR) and Intra vascular ultrasound (IVUS).
- Endovascular Aneurysm repair for 2 large aneurysms simultaneously performed at Apollo Hospitals
- Apollo Hospitals, Hyderabad performed coronary angioplasty using absorb-BVS for the first time in India.

- We have best heart failure management team including ECMO treatment.
- Regular post graduate specialty training in CTVS, Interventional Cardiology, Pediatric Cardiac Surgeries and interventions.
- Endovascular and surgical repairs of aortic aneurysms. Carotid stenting, peripheral angioplasty, and stenting for leg ischemia.
- We have the best outcomes for Catheter directed thrombolysis for DVT, Alcohol septal ablation for HOCM and Venous angioplasty for dialysis of AV fistula.

The unit was recognized for its best results by the India Today Magazine

Pediatric Cardiology

The first dedicated pediatric heart care center in the state of Andhra Pradesh

- The first hospital to have successfully completed 4000 interventional and surgical cases
- Our overall success rate was 98% which is comparable with any centre in the western world
- The pediatric cardiac interventions have grown by 300% this year

The dedicated pediatric heart care centre offers treatment for many complicated cases involving premature babies and infants.

- This includes complex neonatal surgeries including Arterial switch operation

- The surgery techniques include Permembranous VSD Device Closure, uni-focalization in children with VSD pulmonary atresia, single stage correction, Arterial switch operation in children with TGA – transposition of great arteries and Valvoplasties

The Medical Leadership Team

The cardiac and vascular services including Cardiovascular Medicine, Thoracic and Cardiovascular Surgery, and Vascular Surgery are offered under one roof which is extremely beneficial for the patient and helps the core team to collaborate on patient care.



Dr. Vijay Dikshit
MBBS, M.S. (Surgery),
M.Ch (Thoracic Surgery)



Dr. P. Seshagiri Rao
MBBS; MD (Internal
Medicine); DM (Cardiology)



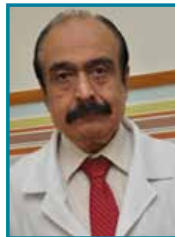
Dr. Avinash Dal
MBBS; MS, MCH (CVTS)
SCTIMST



Dr. P.C.RATH
MBBS ;
MD DM (Cardiology)



**Dr. Sanjay Kumar
Agarwal**, MBBS;
MS (GENERAL SURGERY);
MCh. (CVTS)



Dr. Sudhir Naik
MBBS; MD (Internal Medicine);
DM (Cardiology)



Dr. Anil Dronamraju
MBBS M.S. (Surgery), M.Ch
(Thoracic Surgery)



Dr. Manoj Agarwal
MBBS; MD (Medicine),
DM (Cardiology)



**Dr. Sanjeev Kumar
Khulbey**, MBBS; M.S;
Mch (CVTS)



Dr. Tripti Deb
MBBS;MD (Medicine)
DNB Cardiology



Dr. B V Purohit
MBBS;MD,DM



Dr. Badri Narayana
MBBS; MD (Medicine),
DM (Cardiology)



Dr. Nekkenti V. Rayudu
MBBS; M.D. (Gen. Med.)
D.M. (Cardiology)



HEART INSTITUTES

Emergency Service



1066 has saved many lives

- The first comprehensive emergency management services in the country using a single, toll-free number
- The first to start the concept of Pre Hospital care where treatment will start on site for effective management of the patient
- Supported by 5 State of Art Emergency rooms staffed by clinicians certified by American Heart Association
- Established Clinical Protocols for Heart Management
- Air Ambulance Services for remote areas and life – threatening emergencies

Diagnostics (Risk Assessment)

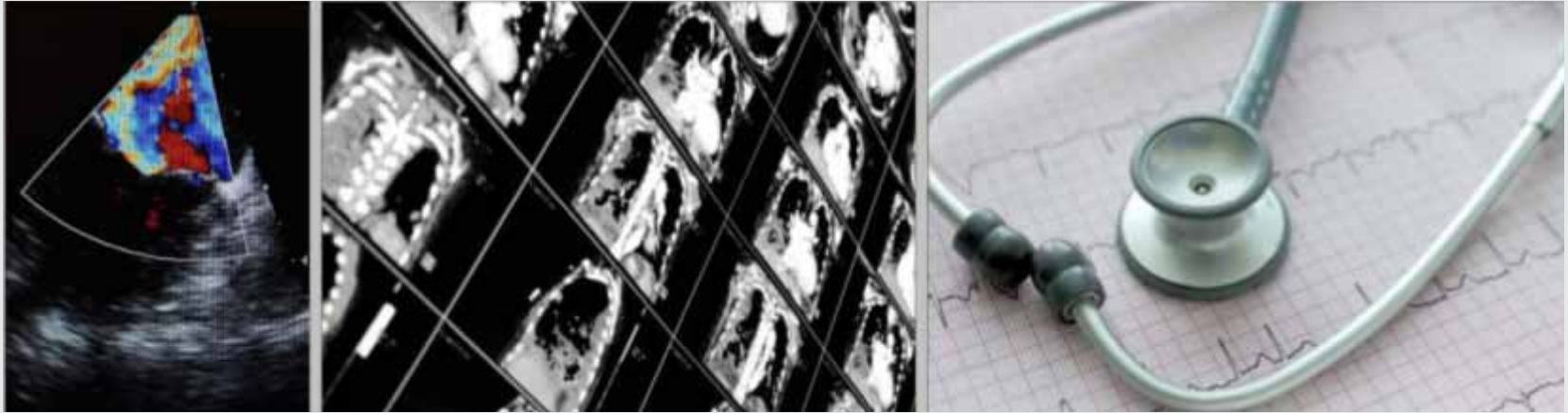


Technological Advancements

64 Slice CT

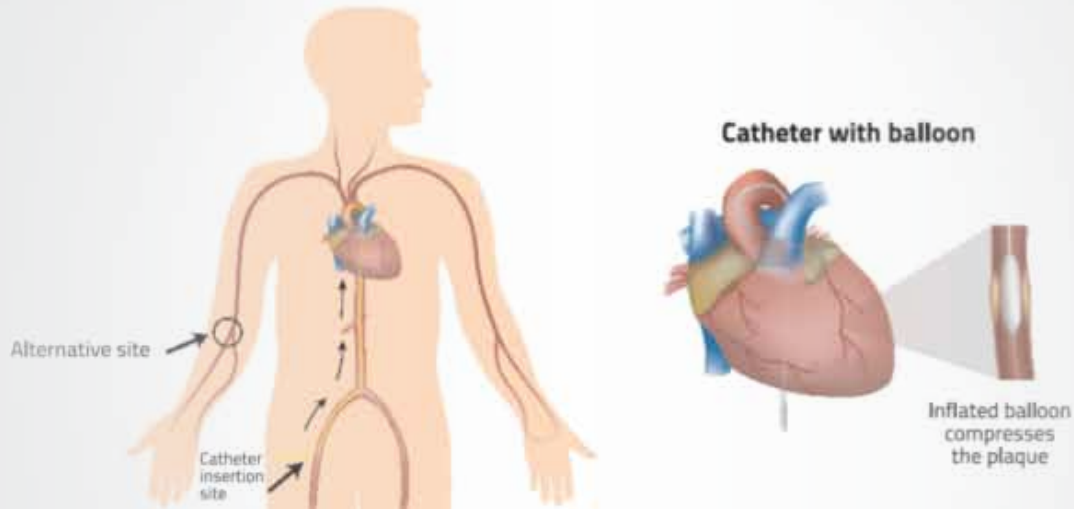
- Apollo Hospitals is the first in the country to introduce this sophisticated cardiac investigation
- The machine helps to acquire high-resolution three-dimensional images of the moving heart and great vessels
- Enables the cardiologists to spot even the smallest of blockage at a very early stage

TEE



Trans-esophageal Echocardiography (TEE)

- Low risk procedure (complication rate < .01%)
- Excellent evaluation of cardiovascular anatomy (mitral valve lesion, LA, LAA, intra cardiac mass / ASD / Thoracic aortic dissection)
- Assessment of native / prosthetic valvular function (Degree / Mechanism of resurgitation or stenosis)
- Assess LA / LAA pathology and function prior to DC cardioversion
- Assessment of valves for endocarditis and accompanying complications such as abscesses (Balloon valvotomy, device closure of ASD)
- Intra operative TEE to assess the results of various valve repair and replacement

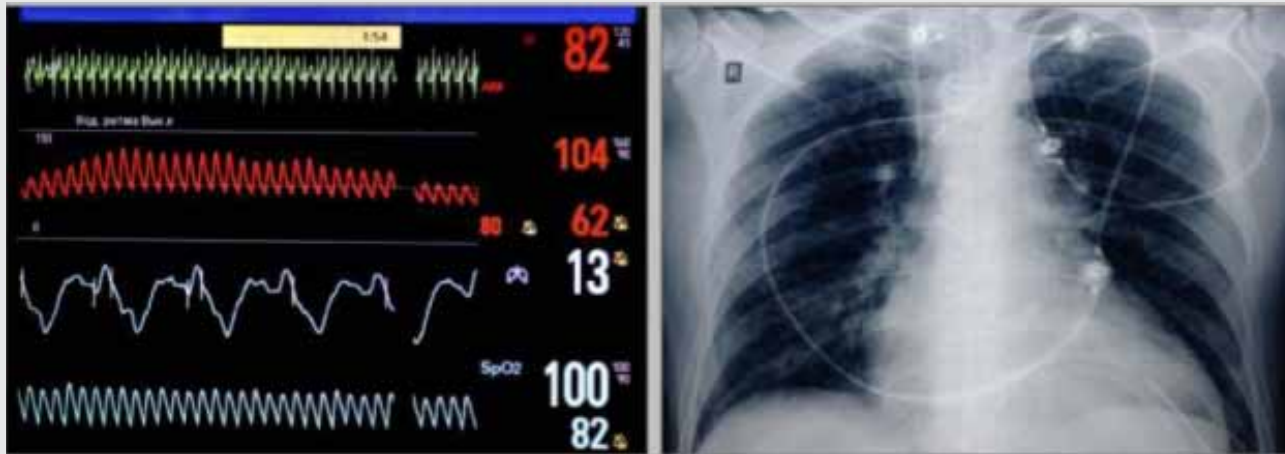


FFR (Fractional Flow Reserve)

- Physiological assessment of pressure drop across the Coronary Stenosis at maximal Hyperemia induced by Adenosine
- Done by passing the pressure via the lesion and measuring pressure drop
- Angiography forms the basis of most revascularization decision but has well known limitation in assessing blocks with intermediate severities
- FFR – Physiologically based – describes the ratio of maximum flow in the presence of stenosis to the theoretical maximum flow in the absence of stenosis
- Simple procedure with scientific evidence

Advantage :

- Helps in assessing the physiological significance of “intermediate” stenosis
- Helps identifying the patients who will benefit from Angioplasties and Stenting and who will do well with medical management
- Helps avoid unnecessary angioplasties and CABG surgeries
- With FFR, one can be confident whether a stenosis needs to be treated with a stent or by pass or medical management



Stress echo cardiography

Safe and can be performed by experienced hands

- Pharmacological stress (Dobutamine, Dipyridamole, Adenosine)
- Effective method of evaluating myocardial ischemia by detection of stress induced RWMA
- Accuracy of stress Echo is comparable to stress thallium/Tc MIBI SPECT
- Differentiate viable myocardium from scarred myocardium (which may predict whether LV function will improve after revascularization)
- Pre operative cardiac evaluation (predictor of peri operative cardiac events)
- Surveillance for CAD after cardiac transplantation
- Evaluate functional significance of variety of valvular lesions (AS, MR, MS)

Risk Mitigation



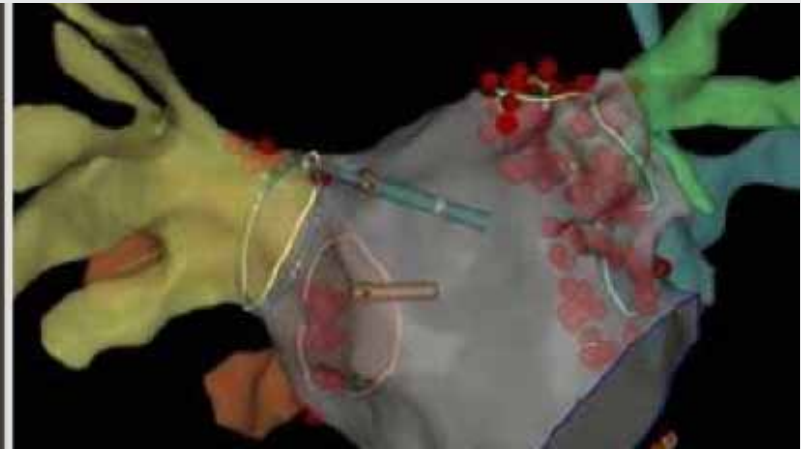
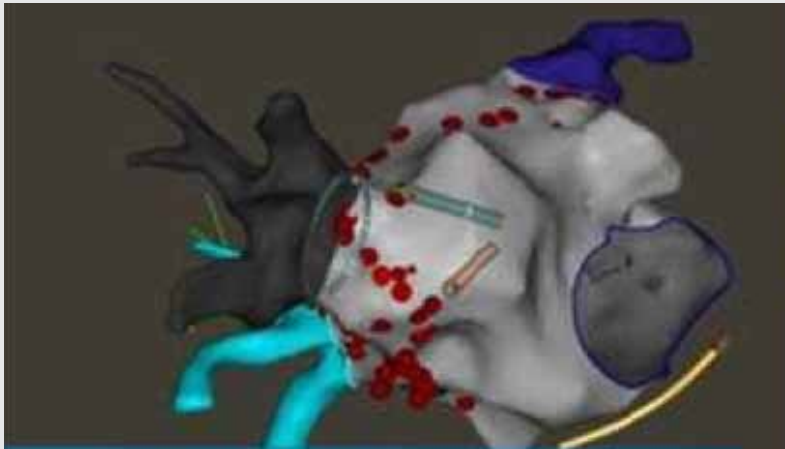
Cathlab

Benefits

- Flat panel systems can produce an image in two steps:
- Dramatically reduces the possible number of sources for error
- Chances for image degradation
- Flat panel detector systems give a more discrete image of the anatomy
- More acute angles separate out vessels that have a tendency to overlap, opening up the coronary tree for optimal visualization

Intra-Coronary Imaging

- OCT & IVUS- Advanced intra-coronary imaging techniques to guide and optimize PCI
- OCT – Light – based – Gives excellent Images to accurately measure vessel size, stent placement.
- IVUS – Ultrasound based – Helps to achieve good outcomes in complex PCI



Electrophysiology (EP) Study and 3D Mapping System (Carto 3)

EP studies are done to diagnose the cause and source of cardiac rhythm disorder

- In EP procedure, multiple thin flexible catheters are inserted into a blood vessel (usually in the groin) and guided into the heart to measure the electrical signals from inside the heart
- First hospital in India to get the latest 3D mapping technology (Carto 3) in arrhythmia management
- 3D mapping technology helps the electrophysiologist to identify the site of origin of the abnormal rhythm accurately



Radiofrequency (RF) catheter ablation

In catheter ablation, the RF catheter delivers a low voltage; high frequency current to destroy the areas producing abnormal rhythm there by preventing further triggering of tachyarrhythmia

- Advanced 3D mapping system enhances the accuracy of delivering RF ablation which translates into high success rate

Benefits:

- Quality of Care : Most cardiac arrhythmias can be treated and cured by catheter ablation thereby eliminating the need for lifelong therapy

- Quality of Life : Catheter Ablation can restore the quality of life of the patient leading to a happier family life an improved productivity at workplace
- Save Lives : Some life-threatening Ventricular Arrhythmias can be successfully treated with catheter ablation thereby preventing sudden cardiac death
- Cost of Care : The overall life cycle costs of care for the patient may reduced due to the curative nature of catheter ablation therapy



Nuclear Imaging

Apollo Hospitals, Hyderabad has the most Comprehensive Nuclear Medicine Facility in the State. It's the first PETCT in India with Onsite Cyclotron. PET CT gives accurate diagnosis of cardiovascular Diseases. PET CT is the gold standard for determining Cardio vascular diseases in the world. The range of diagnosis include

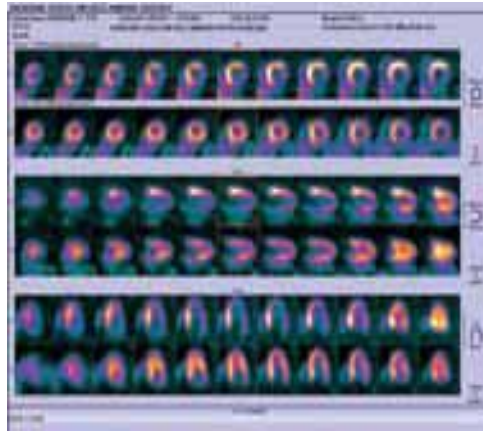


PET – CT FDG Scan

- Computed tomography (CT) and magnetic resonance imaging play important roles in the assessment of structural abnormalities of the cardiovascular system but Positron Emission Tomography (PET) and CT may depict inflammatory processes before structural changes occur.
- Positron emission tomography (PET) performed with fluorine 18 fluorodeoxyglucose (FDG) has the unique ability to depict metabolically active disease, and in this respect it complements other cross-sectional imaging modalities, which provide predominantly anatomic information



Ammonia Myocardial Perfusion



Ammonia Myocardial Perfusion

- The ability to obtain quantitative values of flow and myocardial flow reserve has been perceived as an important advantage of PET over conventional SPECT, which therefore provides functional information far beyond the epicardial section of the coronary vascular tree

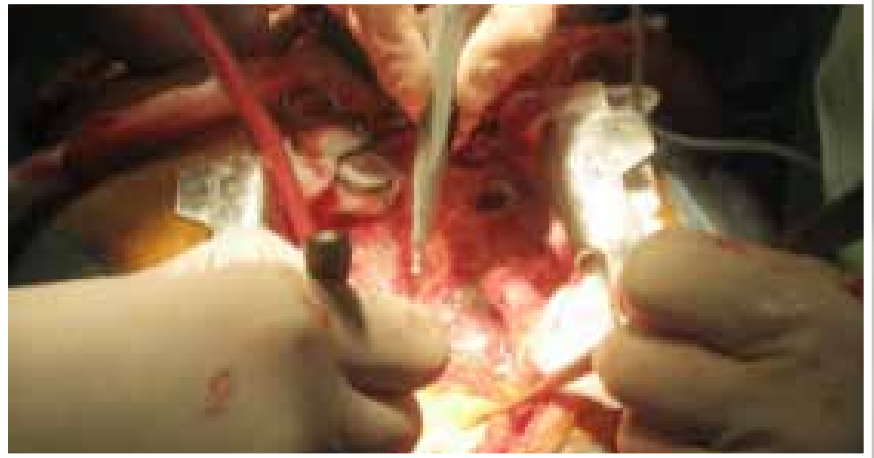
FDG Cardiac Viability

F-18 fluorodeoxyglucose (FDG) is the radioactive substance used to determine myocardial viability. FDG PET viability data has had an impact on decision making in patients with severe left ventricular (LV) dysfunction and the benefits of early revascularization have been seen in patients with ischemic viable myocardium.

SPECT CT

Nuclear medicine imaging which has been performed for many years with the SPECT camera has been revolutionized by the addition of CT. This has helped improve lesion localization. Patient comfort and convenience have improved with the shorter acquisition time. SPECT-CT will give improved image quality particularly in cardiac scans. MUGA Scans, myocardial perfusion image, viability scan are done regularly at the centre

Treatment



Sophisticated procedures

- 3D ECHO Machine for Myocardial Contract Imaging & 3D Trans Esophageal ECHO
- Cath Lab 24x7 with State of the art advanced imaging
- IVUS
- FFR
- Primary PCI, Rescue PCI, Compassionate PCI, Highly Complex PCI
- Left Main Angioplasties
- High-end Cardiac device implants : MRI Safe pace maker, CRT-P, CRT-D, ICD
- Chronic Total Occlusion (CTO) Angioplasties
- Optical Coherence Tomography (OCT)
- Post-CABG Angioplasties and Angiographies
- Day care Angioplasties and Angiographies
- Radial Angiographies and Angioplasties
- Transulnar Angiographies and Angioplasties
- Renal artery stenting
- Coronary Angiographies and Angioplasties in renal failure patients
- Very elderly patient interventions
- Thoracic and Abdominal Aortic Aneurysm interventions (EVAR & TEVAR)
- Angioplasties on single kidneys and transplant kidneys



Cardiothoracic Surgery

- Heart operations
- Lung operations
- Mechanical devices – VAD (ventricular assist device), ECMO (Extra corporeal membrane oxygenation)
- Critical care pre and post-surgery
- Trauma

Coronary Artery bypass grafting (CABG)

Coronary artery bypass – elective

- Minimal access (small incisions, no CPB)
- Arterial grafts
- High risk CABG

Coronary artery bypass – emergency

- Post arrest
- ICU – ICU transfer



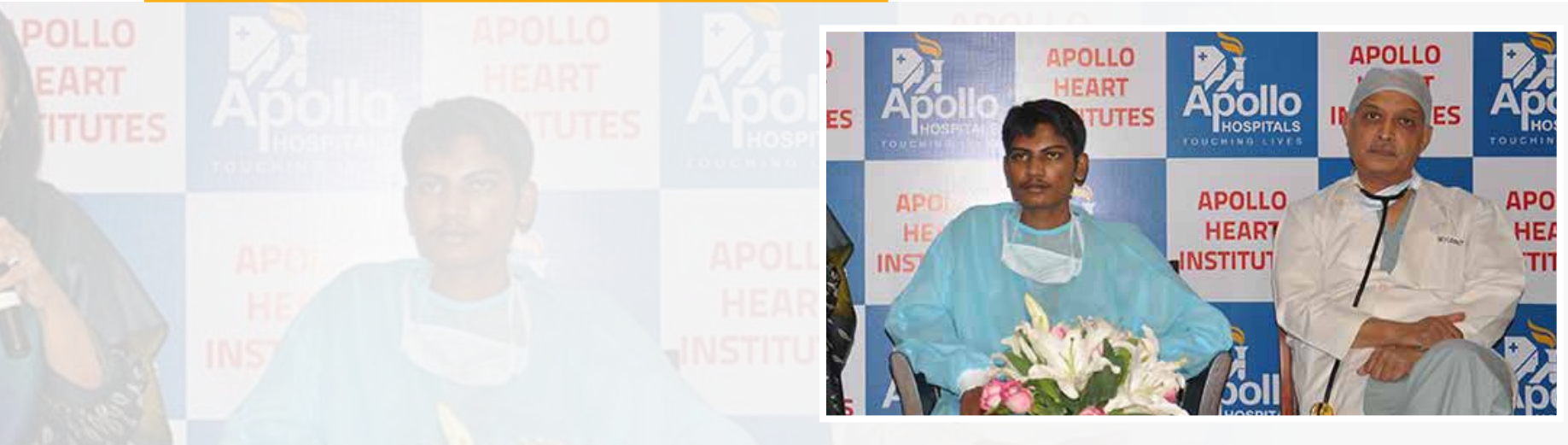
Valve Surgery

- Replacement and repair : Aortic valve, Mitral valve, Tricuspid valve
- Low risk cases – majority
- State of the art valves
- Advanced assessment for high risk cases
- Aortic Surgery
 - Surgical
 - Interventional
 - Hybrid

Heart Surgery : Emergency Operations

- Provide ICU to ICU transfer after preliminary assessment
- Ischemic VSD (ventricular septal defect) / MR (mitral regurgitation)
- Aortic Aneurysm surgery : Acute & chronic aortic dissection surgery
- Infective endocarditis (infected valves) – even if patient is very sick can still be considered for surgery

Heart Transplant



A multidisciplinary approach to End Stage Heart Failure was envisaged and a formal Heart Transplant Program commenced in 2004 . Since then, we are performing heart transplant operations including a Heart and Lung Transplantation



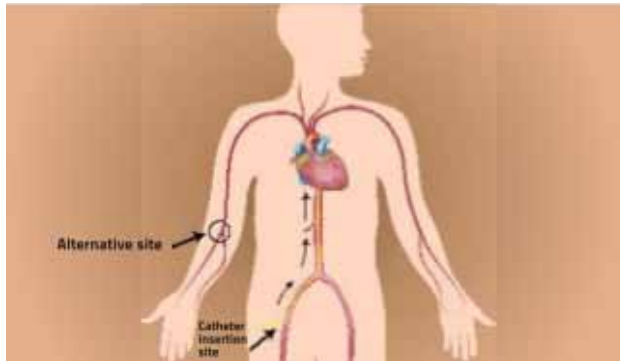
Thoracic Surgery

- Full range of minimal access thoroscopic surgery available for Lung, Oesophagus, Thymus, Mediastinal mass, Thoracic duct
- Post – op ICU
- Rehabilitation (TLC)

Mechanical circulatory support

- IABP – Intra-aortic balloon pump
- LVAD – left ventricular assist device
- ECMO – Extracorporeal membrane oxygenation – Foremost experience with ECMO patients in ICU setting including peri arrest ECMO
- Acute heart failure – massive heart attack
- Acute lung failure – pneumonia/ARDS (Adult Respiratory Distress Syndrome)
- Most experienced for Veno-Venus ECMO

Day care Angiograms



Day care Angiograms

Few have perfected Day care angiography to a level where the procedures are performed in 3-5 minutes, with sub-minute fluoroscopy in the vast majority of the cases.

Transulnar angiographies

Few have been doing Transulnar angiographies in those with very thin radial artery pulse and in those with anomalous radial arteries, allowing day care procedures even in these cases.

IABP & assisted PCI

The increasing use of these adjunctive methods underlines the increasingly complex nature of the PCIs we are taking up, with successful clinical outcomes

Post-CABG angioplasties

The most gratifying has been angioplasty for LIMALAD anastomotic site critical stenosis via LIMA graft

Renal artery stenting, Coronary angiography



Robotic Heart Surgery



Closed-chest heart surgery is a type of minimally invasive heart surgery performed by a cardiac surgeon. The surgeon uses a specially designed computer console to control surgical instruments on thin robotic arms.

Robotically-assisted surgery has changed the way certain heart operations are being performed. This technology allows surgeons to perform certain types of complex heart surgeries with smaller incisions and precise motion control, offering patients improved outcomes.

Apollo Hospitals Hyderabad uses the state of the art da Vinci Surgical System. The da Vinci Surgical System is designed to provide surgeons with enhanced capabilities, including high-definition 3D vision and a magnified view.

Robotic Surgery benefits include Less post-operative pain. Reduced trauma to the body. Less scarring. Shorter hospital stays. Reduced blood loss and need for transfusions. Quicker recovery and return to normal activities.



Post – operative care / Rehabilitation

Apollo Health City is the first health city in Asia with multi specialties & centers of excellence, preventive care and wellness services in a sprawling campus.

Apollo Life Center

Is a dedicated rehab centre an ideal place for post surgery patients to relax and recoup.

Post intervention care and rehabilitation:

Maintenance or secondary risk reduction :

- Heart Disease Support Group
- Diet Diary Services
- Counseling to Family members
- Periodic Talks / Sessions with Consultants

Rehabilitation:

- Counseling to Patient and Family members
- Physiotherapy
- Vocational Readiness
- Heart Disease Support Group
- Customized Diet / Nutrition
- Smoking / Alcohol Cessation Sessions with Consultants in minimally Invasive Coronary Artery

Facilities offered



Apollo has modern and sophisticated diagnostic equipment's and facilities (ICU setups) like

- a. Cardiothoracic CCU
- b. Centre for Advanced Cardiac Care (CACC)
- c. Stem cell research
- d. Preventive Heart Care- Apollo Heart Check and Advanced

Summary

- Cardiology Department focuses on holistic approach to Cardiac Care through invasive and non-invasive, therapeutic and diagnostic services managed by dedicated team of doctors
- At department of cardiology we have a dedicated team of cardiologists who work in tandem to provide comprehensive, multi disciplinary care to patients suffering from heart ailments
- Our team of doctors, nurses, technicians and other heart experts are there to ensure excellence in patient care with human touch.
- Department of Cardiology at Apollo Hospital is committed to provide health care of international standard at an affordable cost
- Our highly qualified team of cardiologists along with the latest technology provides unmatched patient care and clinical outcomes at par with international standards.
- The Center of Cardio-Thoracic Surgery, Apollo Hospitals is a Center of Excellence, which attracts national and international patients
- Cardio-Thoracic team at Apollo Hospitals has the experience of having performed a large number of minimally Invasive Bypass surgeries in the country
- From intervention to Cardio-Thoracic surgery and rehabilitation, the institute's approach hinges on The Cardio surgical unit that has performed a wide range of surgeries – from Neonatal open heart surgeries to Aneurysm surgeries, with excellent results.

Prevention and treatment of heart disease has led to the achievement of better outcomes and improved quality of life for thousands of cardiac patients who visit Apollo each year.

