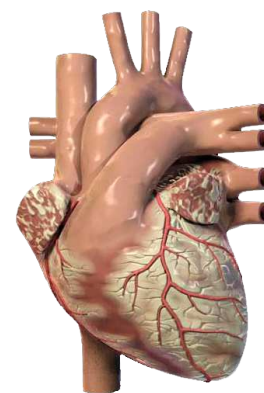


Healthy Heart



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Care Institute of Medical Sciences

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Honorary Editor :
Dr. Ajay Naik

Cardiologists

Dr. Anish Chandarana
(M) +91-98250 96922
Dr. Ajay Naik
(M) +91-98250 82666
Dr. Satya Gupta
(M) +91-99250 45780
Dr. Gunvant Patel
(M) +91-98240 61266
Dr. Keyur Parikh
(M) +91-98250 26999
Dr. Milan Chag
(M) +91-98240 22107
Dr. Urmil Shah
(M) +91-98250 66939
Dr. Hemang Baxi
(M) +91-98250 30111
Dr. Joyal Shah
(M) +91-98253 19645
Dr. Ravi Singhvie
(M) +91-98251 43975

Cardiac Surgeons

Dr. Dhiren Shah
(M)+91-98255 75933
Dr. Dhaval Naik
(M)+91-90991 11133

Cardiac Anaesthetists

Dr. Niren Bhavsar
(M)+91-98795 71917
Dr. Hiren Dholakia
(M)+91-95863 75818

Pediatric Cardiology

Dr. Kashyap Sheth
(M) +91-99246 12288

Dr. Milan Chag
(M) +91-98240 22107

Neonatal Cardiac & Critical Care Specialist

Dr. Amit Chitaliya
(M)+91-90999 87400

Cardiac Electrophysiologist

Dr. Ajay Naik
(M) +91-98250 82666

Dr. Ajay Naik completed his medical education and cardiology training from **Seth GS Medical College and KEM Hospital, Mumbai** and proceeded for a 2 ½ year fellowship for extensive experience in Cardiac Electrophysiology at the prestigious **Cedars-Sinai Medical Center in Los Angeles, California, USA.**

He is highly experienced in clinical and invasive management of cardiac arrhythmias including more than **2000 Electrophysiology studies and Radiofrequency ablation of complex cardiac arrhythmias, 1000 Pacemaker implantations and 200 ICD and 200 CRT implantations.** He was acclaimed by his peers and seniors for his astute judgment and comprehensive patient care.



Electrocardiology and Electrophysiology: Tools of the Trade

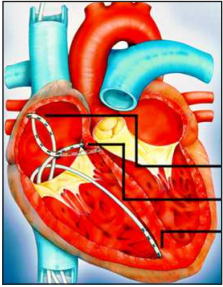
Dr. Ajay Naik has established the **Cardiac Arrhythmia Management Center (CAMC) at the ultra-modern CIMS Hospital at Ahmedabad** which is on par with any institution in the world in terms of patient care and facilities. The facility is **one of its kind in India** and offers:

1. **Electrophysiology studies (EPS)** for diagnosis of cardiac arrhythmias.
2. **Radiofrequency ablation (RFA)** of complex cardiac arrhythmias.
3. **3-Dimensional mapping and Ablation** using Biosense Carto3 Electroanatomic mapping system for complex cardiac arrhythmias like VT and AF.
4. **Pacemaker therapy** single, dual chamber and multi-site pacing.
5. **Implantable Cardioverter Defibrillator (ICD)** for ventricular arrhythmias.
6. **Biventricular pacing (CRT and CRT-D)** therapy for heart failure.
7. **Computerized ECG** with electronic database.
8. **Signal Averaged ECG (SAECG)** evaluation for risk of Sudden Cardiac Death.
9. **Treadmill test (TMT)** for inducibility of arrhythmias during exercise.
10. **Ambulatory Blood Pressure (ABP)** monitoring for syncope and HT therapy.
11. **Tilt Table Test (TTT)** for diagnosis in pre-syncope and syncope.
12. **Holter study** (24 hour EKG monitoring) for evaluation of symptoms.
13. **External Loop Recorder (ELR)** for evaluation of less frequent symptoms.
14. **Implantable Loop Recorder (ILR)** for evaluation of infrequent, severe symptoms.
15. **Telemetry** for monitoring and evaluation of high risk or convalescent patients.
16. **CIED and Arrhythmia clinic** for comprehensive arrhythmia and HF management, evaluation of pacemaker / ICD / CRT function.



Following is a brief summary of the need and methodology of utilizing the above tools:

1. Electrophysiology Study (EPS):



EPS is performed for diagnosis of cardiac arrhythmias. Patients with Palpitations (uncomfortable awareness of heart beats, rapid heart beats), Pre-syncope (giddiness, feeling faint), Syncope (fainting, unexplained falls and spells of unconsciousness) may have cardiac arrhythmias.

What is done during Electrophysiology study (EPS)?

Special electrode catheters (long flexible wires) are introduced through sheaths in the groin or neck into different chambers of the heart and electrical signals are recorded from these sites and displayed on the computerized EP system.

Electrical impulses are delivered from the EP system through the catheters to the heart to stimulate it and induce arrhythmias. Thereafter, various maneuvers are performed and the abnormal focus or pathway is localized.

2. Radiofrequency Ablation (RFA):

The EPS is performed to diagnose the problem, whereas RFA is done to treat it. In most cases, it is just continuation of the EPS and performed at the same sitting.

After localizing the abnormal focus or pathway, radiofrequency energy is passed through the catheter to heat up the catheter tip and destroy the abnormal tissue that causes the arrhythmia. This permanently cures the arrhythmia.

What are the benefits of EPS and RFA?

1. RFA provides permanent cure for the arrhythmia.
2. A firm diagnosis is achieved for the patient's symptoms and abnormal EKGs.
3. In most cases, it avoids a lifetime of medications or antiarrhythmic drugs.
4. The patient can lead a normal life, free from the psychological stress of impending palpitations.

Are EP Studies and RF Ablations safe?

1. EPS and RFA are "invasive" procedures requiring insertion of catheters in the body. Thus there is some risk involved,

however this risk is small.

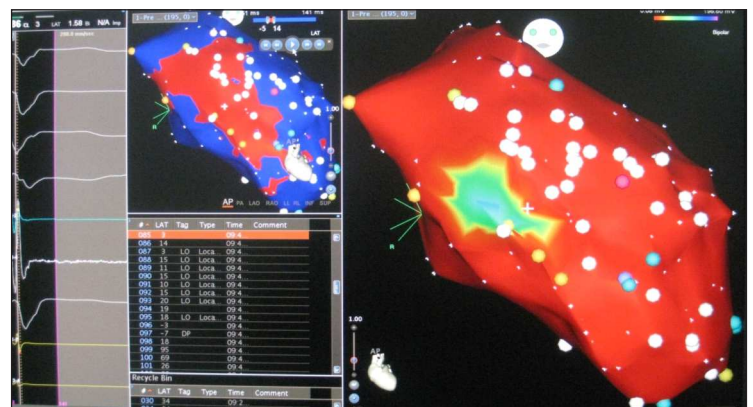
2. In very rare cases (less than 1 in 200), there is risk of AV block, in which case RF ablation is avoided and patient is maintained on medications.
3. In rare cases (less than 1 in 200), there may be pericardial collection. This is generally recognized and treated promptly.

3. Three Dimensional mapping and Ablation using Biosense Carto3:

Though conventional EP study and Radiofrequency Ablation therapy is being done in



Ahmedabad for the past 10 years by Dr. Naik, the Carto3 Biosense 3-D mapping system is now available in CIMS for the

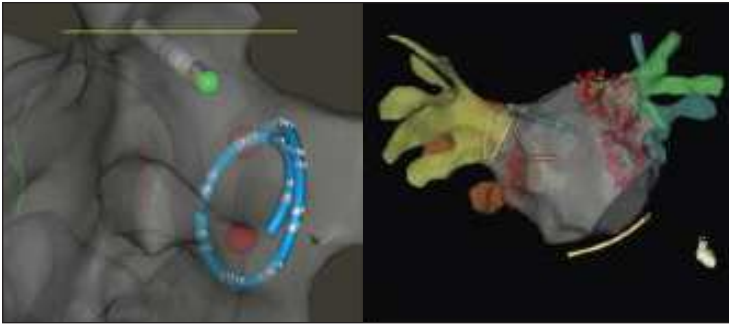


first time in Western India. With this system it is possible to treat and cure many complex arrhythmias (Ventricular Tachycardia, Atypical flutters, Atrial fibrillation, ectopic atrial and ventricular tachycardias) that are difficult to tackle with the conventional system.



Dr. Naik performing VT ablation in a Post-MI scar VT patient using Carto 3Dimensional mapping technique.





With the help of the Carto3 Biosense system, a 3-dimensional geometry of the heart is created in the Cath Lab. The diseased heart tissue, scars of old MI and the abnormal electrical circuits in the ventricle that produce VT are identified. Thereafter, irrigation tip Radiofrequency Ablation ("Thermocool") is used to treat Post MI- scar related VT.

The same principle is used in treatment of complex supraventricular arrhythmias like Atrial Fibrillation, Atypical Flutters, Intra-atrial reentrant tachycardias and ectopic tachycardias.

4. Pacemaker:

Pacemaker implantation is an established and standardized therapy. Dr. Naik created and established new standards of pacemaker therapy in Gujarat by implanting dual chamber pacemakers and active screw-in leads a decade ago.



Defibrillator & Pacemaker

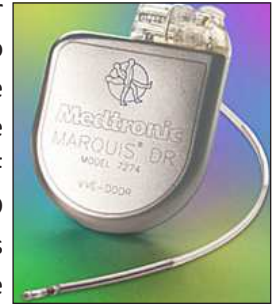
What is new in Pacemaker therapy?

MRI-safe pacemakers: For a marginally higher cost, patients can now have MRI compatible pacemaker implants - a boon for those with neurological or orthopedic diseases. In the coming years, MRI safe pacemakers will be the norm.

Healthy Heart Project: In an effort to provide pacemaker therapy to the non-affording patients, CIMS has launched a unique pilot project with worldwide collaboration. For the first time in this country, a patient can go home with a pacemaker implanted at Rs. 42000/- (all inclusive). This is a unique pilot project that will be a showcase to the world for the concept of disruptive innovation in healthcare.

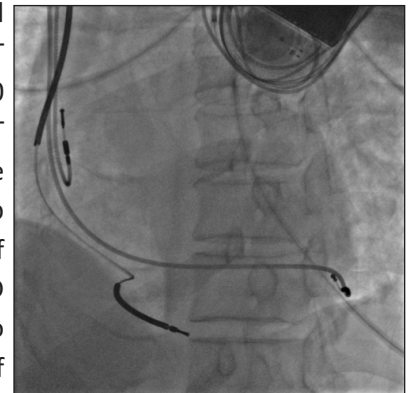
5. Defibrillators (ICD):

ICDs are recommended both for secondary and primary prevention to prevent Sudden Cardiac Death. The indications are expanding with evidence from recent trials. All patients with EF <35% should be evaluated for risk of SCD and need for ICD. Close to 100 patients implanted with Defibrillators are following up at CIMS hospital, having successfully survived Sudden Cardiac Arrest episodes due to VT /VF.



6. Biventricular pacing (Cardiac Resynchronization Therapy and CRT-Defibrillator)

CRT is a miraculous therapy and is a stellar program established by Dr. Naik. Meticulous care of advanced heart failure patients has resulted in 80% survival at a median 5 years after CRT implants. More than 100 patients implanted with CRT and CRT-D implants over the past decade are following up at CIMS. Almost 50% of patients now opt for CRT-D rather than CRT-P in order to take care of both aspects of the disease - heart failure and sudden cardiac death due to VT /VF.



What is new in ICD and CRT?

Fluid management options: This software helps predict overt HF and prevent hospitalization by early institution of drug therapy.

Technological advances in hardware: Newer lead and device technology have resulted in smaller devices, longer battery life and ability to perform multi-site pacing to find best configuration to optimize cardiac output.

Financing options in the Healthy Heart Project: The major limitation for wider penetration of ICD and CRT in India has been the issue of cost of the device therapy (close to ₹ 4,00,000). Healthy Heart Project has financing options and payments in EMI for these devices. Patients range can benefit immensely with this unique program, available only at CIMS.



7. Computerized ECG:

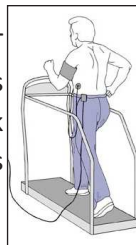
Computerized ECG and electronic database with cross-reference filing technique has provided with a wealth of longitudinal patient ECG data in CAMC at CIMS. This epidemiological data is also unique in the country.

8. Signal Averaged ECG (SAECG):

SAECG is used to look for presence of abnormal late potentials representing delayed depolarization in the myocardium. In patients with ARVD or CAD with LV dysfunction, late potential abnormalities may help in decision process for SCD prevention due to VT/VF.

9. Treadmill test (TMT):

Apart from diagnosis of reversible ischemia, a TMT is a tool to evaluate exercise-induced arrhythmias (RVOTT), chronotropic competence in early Sick Sinus Syndrome and for reassurance of patients post cardiac intervention.

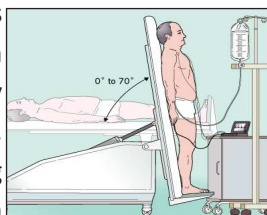


10. Ambulatory Blood Pressure (ABP) monitoring:

A simple gadget to periodically record BP in a 24 hour period. This is invaluable to diagnose or rule out "White coat hypertension", re-inforce need for antihypertensive medications and document orthostatic hypotension.

11. Tilt Table Test / Head Up Tilt Test (TTT/HUTT):

HUTT is an invaluable tool in diagnosis of syncope. Many patients present with history of giddiness and fainting. They often get injured following falls. However most of the tests including ECG, Echo, EEG, CT scan brain etc. turn out to be normal in their case and there is no definite cause found. Many of these patients suffer from Neurocardiogenic syncope or orthostatic hypotension. After obtaining the results of this test, the patient can be given specific therapy in order to prevent fainting and falls.



12. Holter:

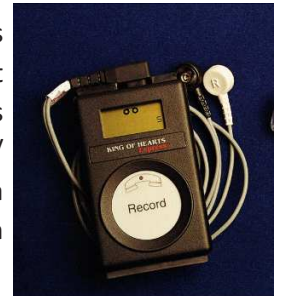
For patients with frequent, daily symptoms, a 24 / 48 hour ECG monitoring with 3 or 12 lead Holter helps diagnose or rule out cardiac etiology. Holter is also important in Post MI LV dysfunction patients



when evaluating risk of SCD due to ventricular tachyarrhythmias.

13. External Loop Recorder (ELR):

Patients with less frequent symptoms are given an external monitor that remains with them for 2 - 4 weeks. This helps diagnose cause of palpitations / syncope that occur only once or twice a month / transient symptoms which cannot be easily documented.



14. Implantable Loop Recorder (ILR):

Patients with severe, infrequent life-threatening symptoms (aborted SCA / syncope with injuries) in which a diagnosis cannot be established despite other cardiac and neurological investigations are implanted a device (ILR)



that can document cardiac rhythm during these episodes. Thereafter, if a cardiac cause is established, the patient can undergo a therapeutic procedure (e.g. Radiofrequency ablation or Pacemaker / ICD implantation).

15. Telemetry:

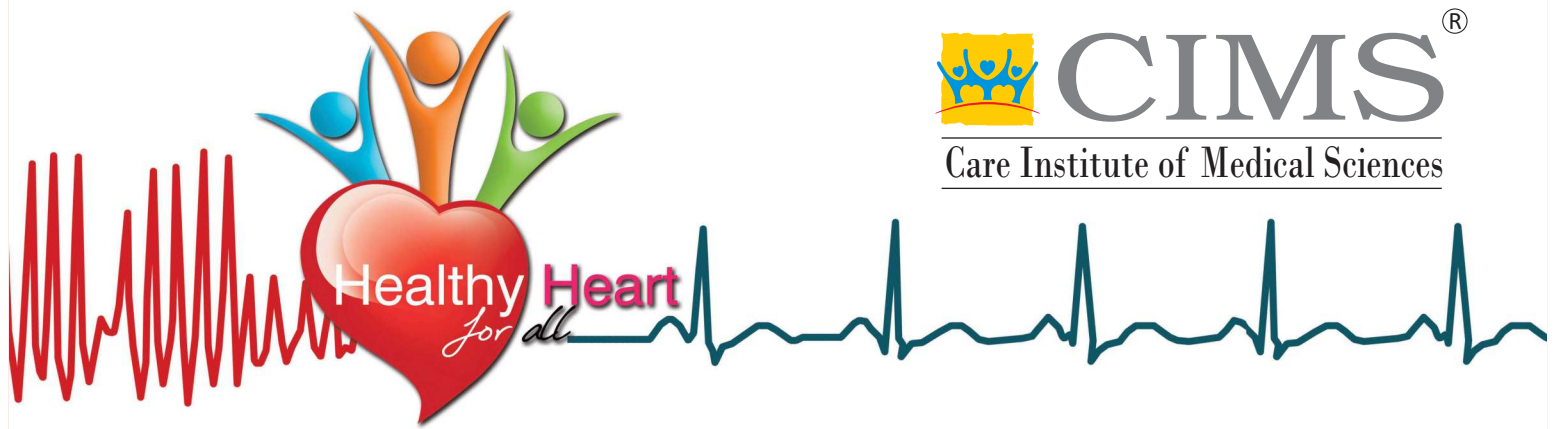
These are simple gadgets for rhythm monitoring used for monitoring high risk patients in convalescent phase or during cardiac rehabilitation. These are almost a norm in post cardiac surgery patients at CIMS.

16. CIED and Arrhythmia clinic:

Cardiac Implantable Electronic Device (CIED) is an all inclusive term denoting pacemaker, defibrillators, CRTs, ILRs and other devices. Patients implanted with these devices are followed up in a comprehensive manner to provide optimal care. The CIED and Arrhythmia clinic is the core of the CAMC at CIMS.

The above passages summarize the gamut of tools available in CIMS to treat patients with arrhythmias and heart failure. The large number of patients who have been successfully treated and managed are a testimony to the world-class and excellent care provided at the CAMC - CIMS.





Affordable Pacemaker Therapy

Pacemaker implantation at flexible prices starting @ ₹ 42,000 (all inclusive) to match every budget

- **Healthy Heart Loan Program** : For families who qualify, special loan programs are available to help your loved ones get the highest quality treatment (**CRT, Defibrillators and high grade Pacemakers**)
- **Cardiac Patient Counsellors** : Our team of empathetic and trained counsellors will provide the support and guidance and help make the right choices.
- **Healthy Heart Check-Ups** : Our in-house expert Cardiac Technicians will help assess the patient if they would benefit from further evaluation of their heart condition.

Please contact Dr. Ajay Naik (M) +91-98250 82666 for further details

Contact

CIMS Hospital : Nr. Shukan Mall, Off Science City Road,
Sola, Ahmedabad-380060. Ph. : +91-79-3010 1000, 3010 1001
Mobile : +91-98250 66664, 98250 66668.

**Call Healthy Heart Helpline
97261 66222**

CIMS First Low-Cost Pacemaker Given through Healthy Heart for All Initiative



CIMS is proud to announce that its first Healthy Heart for All low-cost pacemaker was given to Mrs. Nainaben Chandra, a 35-year old female patient, on January

19th, 2011. Healthy Heart for All is a nation-wide social initiative to provide high-quality, affordable heart care for all people—including those who are economically disadvantaged. CIMS has partnered with Healthy Heart for All to bring these services to the people of Gujarat. Nainaben was the first person in Ahmedabad and Gujarat to receive this special low-cost device to help her ailing heart,

and without the discounted price provided by Healthy Heart for All, her family would not have been able to afford the procedure cost.

Mrs. Chandra suffered from presyncope due to complete heart block. Following the pacemaker implant, she is asymptomatic & has returned to full health. She is the mother of two children, a son and daughter, and together with her husband they are very thankful that she was able to receive this device and care—and to see her happy and healthy again!

In addition to this low-cost device, Healthy Heart for All also provides financing and patient support for all heart patients. For assistance or questions about these services please call our helpline at +91 97261 66222.



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hr@cims.me or amit.chitaliya@cims.me

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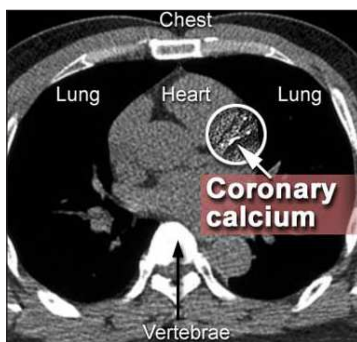
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Coronary Calcium Score



What are some common uses of the procedure? The goal of cardiac CT scan for calcium scoring is to determine if CAD is present and to what extent, even if there are no symptoms. It is a screening study that may be recommended by a physician for patients with risk factors for CAD but no clinical symptoms.

The major risk factors for CAD are:

- High blood cholesterol levels
- Family history of heart attacks
- Diabetes
- High blood pressure
- Cigarette smoking
- Overweight or obese
- Physical inactivity

Benefits

- Cardiac CT for calcium scoring is a convenient and noninvasive way of evaluating whether you may be at increased risk for a heart attack.
- The exam takes little time, causes no pain, and does not require injection of contrast material.
- No radiation remains in a patient's body after a CT examination.
- X-rays used in CT scans usually have no immediate side effects.



CIMS Hospital : Nr. Shukan Mall, Off Science City Road, Sola, Ahmedabad-380060.

For appointment call : +91-79-3010 1200, 3010 1008 (M) +91-90990 66540, 98250 66664, 98250 66668.

Ph. : +91-79-2771 2771-75 (5 lines) For appointment email on opd.rec@cims.me

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- A non-invasive treatment for coronary artery stenosis.
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- Safe, painless, comfortable with no side effects.
- Cost effective.



- ECP (External Counter Pulsation), is a non-invasive procedure which reduces symptoms of angina pectoris.
- ECP therapy is clinically tested and proven atraumatic outpatient alternative procedure to standard surgical interventions, namely balloon angioplasty (PTCA) and bypass surgery(CABG).



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