Healthy Heart

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Honorary Editor :
Dr. Milan Chag

From the Desk of Hon. Editor:

Dear Friends,

CIMS Heart Team did the first Heart Transplant of Gujarat on December 19, 2016 and created the history. Advanced heart failure is a major health burden in the most of countries throughout the world. In spite of great advancement in drug and device therapy for HFrEF (Heart Failure with Reduced Ejection Fraction), prognosis remains poor and in stage D heart failure, mortality at 1 and 5 years is 20% and 80% respectively. Heart Transplant is a viable option in a suitable patient and as CIMS has the team and infrastructure to do this I am reviewing some basic aspects and long-term outcome.

- Dr. Milan Chag

Introduction:

Heart failure (HF) is a modern epidemic affecting 26 million individuals worldwide. In spite of optimum medical therapy, prognosis is poor. 20% of patients need readmission within one month and 50% patients need readmission within 6 months after initial hospitalization for heart failure. Even mortality of these hospitalized patients is dismal after discharge: one third of them do not survive beyond one year and 50% do not survive beyond five years. In the most advanced phase of HF, heart transplantation has been the only means of improving the quality of life and survival in these patients. South African Christiaan Barnard performed the first human-to-human heart transplant on December 3, 1967 and a new era began. With the advances in immunosuppression therapy, 1 year survival after cardiac transplantation approaches 90%, with 50% of patients surviving more than 10 years.

On an average, 10,000 heart transplants are done yearly world-wide. Majority of them are in North America and Europe. Till date around 1, 20,000 heart transplants have been performed. In India, approximately 250 heart transplants are done so far, with rapidly increasing number in last 1-2 years. Heart transplantation is a very laborious treatment modality and requires a dedicated team of specialists, consisting of a cardiologist a cardiothoracic surgeon, an anaesthesiologist, an infectious disease specialist, an immunologist and specialised nurses, a transplant coordinator and a social worker.

Selection Criteria for Cardiac Transplantation:

Any reversible or treatable cause should be ruled out before considering heart transplant in any patient with severe heart failure. Medical therapy needs to be optimized. In a patient with ischemic or valvular heart disease, this involves assessment of myocardial viability and/or severity of valvular disease to determine whether there are percutaneous or surgical options. Treatable congenital heart diseases, arrhythmias, reversible acute myocarditis, and metabolic and toxic agent exposure should be ruled out. Screening for transplantation involves an extensive evaluation to exclude significant comorbidities that can increase either the short-term perioperative risk or long-term survival.

Indications for HT:

(1) Cardiogenic shock requiring either continuous intravenous inotropic support or Mechanical Circulatory Support (MCS) with an intraaortic balloon pump counterpulsation device or MCS

(2) Persistent NYHA class IV congestive HF symptoms refractory to maximal medical therapy (LVEF <20%; peak VO2 <12 mL / kg/ min)

(3) Intractable or severe anginal symptoms in patients with coronary artery disease not amenable to percutaneous or surgical revascularization

(4) Intractable life-threatening arrhythmias unresponsive to medical therapy, catheter ablation, and/or implantation of intracardiac defibrillator.

Some conditions which can lead to this situation are:

(1) Ischemic and non-ischemic cardiomyopathy

(2) Coronary artery Disease

(3) Valvular Disease

(4) Congenital Heart Disease

(5) Myocarditis, Infiltrative Myocardial Disease

Contraindications:

Contraindications to transplantation continue to evolve, with centres expanding criteria for acceptance.

Absolute contraindications are:

(1) Systemic illness with a life expectancy <2 y despite HT, including active or recent solid organ or blood malignancy within 5 y (e.g. leukaemia, low-grade neoplasms of prostate with persistently elevated prostate-specific antigen)

(2) AIDS with frequent opportunistic infections

(3) Systemic lupus erythematosus, sarcoid, or amyloidosis that has multi system involvement and is still active

(4) Irreversible renal or hepatic dysfunction in patients considered for only HT

(5) Significant obstructive pulmonary disease (FEV1 <1 L/min)

(6) Fixed pulmonary hypertension:

Pulmonary artery systolic pressure >60 mm Hg

Mean trans-pulmonary gradient >15 mm Hg

Pulmonary vascular resistance >6 Wood units

Relative contraindications are:

(1) Age > 60-65 years

(2) Any active infection (with exception of device-related infection in VAD recipients)

(3) Active peptic ulcer disease

(4) Severe diabetes mellitus with end-organ damage (neuropathy, nephropathy, or retinopathy)

(5) Severe peripheral vascular or cerebrovascular disease:

Peripheral vascular disease not amenable to surgical or percutaneous therapy

Symptomatic carotid stenosis

Ankle brachial index <0.7

Uncorrected abdominal aortic aneurysm >6 cm

(6) Morbid obesity (body mass index >35 kg/m2) or cachexia (body mass index <18 kg/m2)

(7) Creatinine >2.5 mg/dL or creatinine clearance <25 mL/min*

(8) Bilirubin >2.5 mg/dL, serum transaminases >3X UNL, INR >1.5 off warfarin

(9) Severe pulmonary dysfunction with FEV1 <40% normal

(10) Recent pulmonary infarction within 6 to 8 wk.

(11) Difficult-to-control hypertension

(12) Irreversible neurological or neuromuscular disorder

(13) Active mental illness or psychosocial instability

(14) Drug, tobacco, or alcohol abuse within 6 months

(15) Heparin-induced thrombocytopenia within 100 days

Donor:

Donor hearts come from someone who is brain dead but still on life support. All other attempts of saving their life have failed. A donor is a person under the age of 55 years with little or no history of heart disease or trauma to chest. A donor heart can be kept outside the body for only 4 hours after harvesting it. After checking the donor card (willingness of deceased) and taking consent from family, the heart is removed by a specialized team of cardiac surgeons, preserved in specialized solution at very low temperature of 0 to 3 degree C. ABO blood type needs to be compatible between donor and recipient.

Signs and symptoms of organ rejection:

- Fever above 100°F
- Weight gain of over 4.5 kg for 2 days in a row, or a total of 12 in a week
- Nausea and vomiting
- Shortness of breath
- Dizziness or feeling light headed
- Chest pain
- Either high blood pressure (Systolic over 160 or Diastolic over 110) or low blood pressure
- Painful or burning urination
- Sores or a wound that does not heal
- Diarrhoea
- Flu-like symptoms: fever, chills, sore throat, earache
- Cough, with or without sputum
- Feeling fatigued, tired
- A general feeling "under the weather," not "up to par"
- High blood sugar levels: glucose over 250 mg/dl

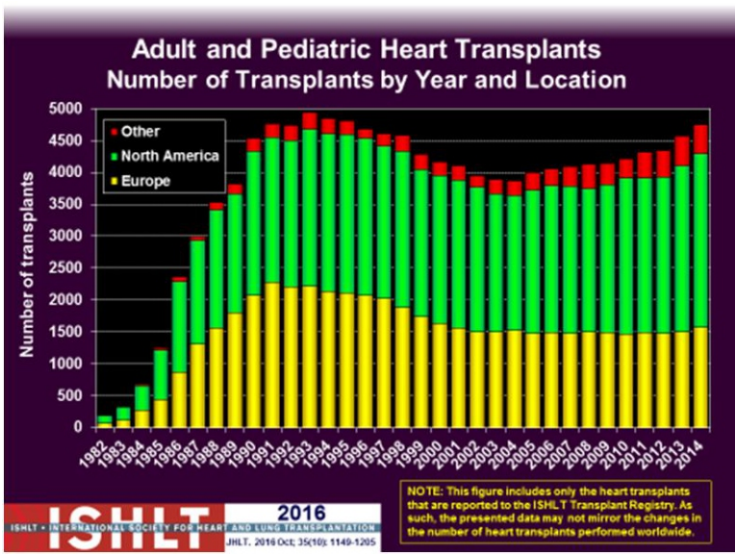
Medications after Transplant and Long-term outcome:

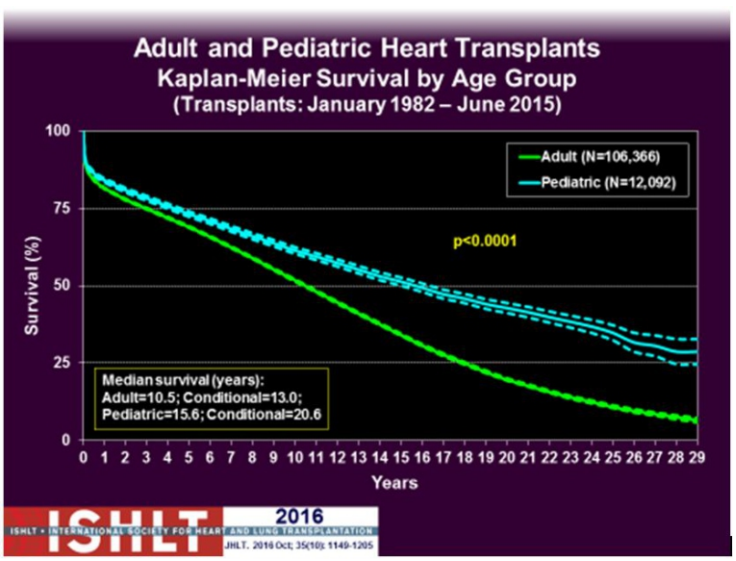
Heart transplant recipients must take many different medications, each prescribed for a specific therapeutic reason. They fall into 4 categories:

- Immunosuppressants — drugs and agents which decrease body's natural immune responses that would reduce chances of rejection
- Antibiotics, Antivirals and Fungicides —to fend off infection because natural immune responses are now disabled
- Vitamins, Minerals and Nutritional Supplements — compounds to aid body in its efforts to heal and maintain proper functioning
- Coronary-Disease Preventing and Antihypertensive Medications — drugs to prevent coronary artery disease and regulate blood pressure

Most medications are required immediately after the operation. Over the first year, some dosages can be lowered and possibly discontinued.

Long-term survival is improving in current era. Almost 50% patients survive beyond 10 years after HT.





References:

(1) Selection of Cardiac Transplantation Candidates in 2010. Donna Mancini, MD; Katherine Lietz, MD, PhD. Circulation. 2010;122:173-183

CIMS Learning Center

BASIC ECG LEARNING COURSE-FEBRUARY 12, 2017 (SUNDAY)

Course Directors : Dr. Vineet Sankhla / Dr. Ajay Naik / Dr. Vipul Kapoor / Dr. Tejas V. Patel

Venue : CIMS Auditorium

Program Highlights :

- Interpretation of basic ECG
- Conduction defects
- Chamber hypertrophy & enlargement
- Evaluation of tachycardia and bradycardia
- ECG interpretation of ischemic heart disease

INFECTIONS ACROSS SPECIALTIES- AN UPDATE: FEBRUARY 19, 2017 (SUNDAY)

Course Director : Dr. Surabhi Madan

Venue : CIMS Auditorium

Program Highlights :

- Management of drug-resistant infections
- Treatment of invasive fungal infections
- Discussion on the medical and surgical treatment of infective endocarditis
- Orthopaedic and surgical infections
- Community and hospital acquired infections in Neurology

Registration Fees : 500/- (Non Refundable) | **Spot Registration Fees :** 1,000/- (Non Refundable)

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ECHOCARDIOGRAPHY FELLOWSHIP PROGRAM-FEBRUARY 20-25, 2017 (MONDAY TO SATURDAY)

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Venue : CIMS Auditorium

Program Highlights :

- 6 days extensive teaching of echocardiography
- Easy access to faculty members
- Supervised hands-on practice
- Provision of course materials (Textbook of Echocardiography)

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