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Heart Transplant: Present Scenario in India

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ABSTRACT

"A heart transplant is an operation in which a failing, diseased heart is replaced with a healthier, donor heart". Heart transplant is a treatment that's usually reserved for people who have tried medications or other surgeries; chance of survival is good with appropriate follow-up care. In India First time heart transplant did in KEM hospital Mumbai 1968, this surgery was done by Dr. P.K.Sen. Currently many hospitals performing heart transplant such as AIIMS, Apollo, Global, Medanta the Medicity, Fortis Escorts Heart Institute & Research Centre, Ram Manohar Lohia Hospital, Safdarjung Hospital & Frontier Life Line etc.

KEYWORDS

Heart, Transplant, Multiorgan Transplant, Open Heart Surgery

INTRODUCTION

A heart transplant replaces the patient's heart with a donor heart. Surgeon removes the patient's heart by transecting the aorta, the main pulmonary artery and the superior and inferior vena cavae, and dividing the left atrium, leaving the back wall of the left atrium with the pulmonary vein openings in place. The surgeon connects the donor heart by sewing together the recipient and donor vena cavae, aorta, pulmonary artery and left atrium. During patients with congenital heart disease, the surgeon may simultaneous transplant the lungs and the heart.

Indications:

- Severe heart failure .
- Ventricular failure
- Congenital heart disease
- A weakening of the heart muscle (cardiomyopathy)
- Coronary artery disease
- Heart valve disease
- Dangerous recurring abnormal heart rhythms (ventricular arrhythmias) not controlled by other treatments
- Amyloidosis
- Failure of a previous heart transplant[1].

Multiorgan transplant:

Another organ transplant may be performed at the same time as a heart transplant in people with certain conditions at select medical centers. Multiorgan transplants include:

Heart-kidney transplant. This procedure may be an option for some people with kidney failure in addition to heart failure.

Heart-liver transplant. This procedure may be an option for people with certain liver and heart conditions.

Heart-lung transplant. Sometimes doctors may suggest this procedure for some people with severe lung and heart diseases[2].

Factors for donor-recipient matching system, including:

- Medical urgency of potential recipients
- Blood type (A, B, AB or O)
- Antibodies the recipients may have developed
- Size of the donor
- Time spent on the waiting list

Factors that may affecting heart transplant

Heart transplant may not be appropriate in following:

Advanced age that would interfere with the ability to recover from transplant surgery

Have another medical condition that could shorten your life, regardless of receiving a donor heart, such as a serious kidney, liver or lung disease

Active infection

Recent personal medical history of cancer

Unwilling or unable to make lifestyle changes necessary to keep your donor heart healthy, such as not drinking alcohol or not smoking.

Perioperative procedure details (pre-intra-post procedure)

Before the heart transplant procedure

The patients waiting for a donor heart will generally carry a pager and be "on call." When a suitable donor heart becomes available, the patient will be asked to come to the hospital urgently.

In case the donor heart is in the same hospital as the recipient, then the surgery will be done as soon as all preparations have been made. The hospital team will require about 20-25 minutes to prepare the donor for removal of the heart. Time is critical, because the donor heart can survive for only four to six hours outside the body.

After reaching the hospital, the patient will be given specific preoperative medications and prepared for surgery. First, the chest area is shaved (if necessary). Then, the surgical team maintains a sterile environment by swabbing the patient's chest with an antiseptic solution and covering the area in sterile surgical drapes. An intravenous (IV) line will be started, usually in the forearm 5.

Heart transplant surgery:

It is an open heart surgery that takes several hours. Surgery is more complicated and will take longer. Surgeon will connect patient to a heart-lung bypass machine to keep oxygen-rich blood flowing throughout body. In this procedure, surgeon will make an incision in chest and will separate chest bone and open the rib cage.

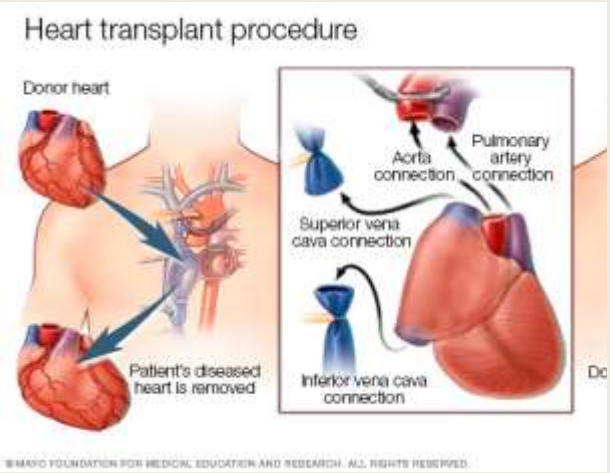

Diagram: 01

Heart transplant procedure

Surgeon take out the diseased heart from the chest then sews the donor heart into the place. Then attaches the major blood vessels to the donor heart. The new heart often starts beating when blood flow is restored. Sometimes an electric shock is required to make the donor heart to beat.

Medication will help to reduce pain after the surgery. With the help of ventilator to help you breathe and tubes in your chest to drain fluids from around your lungs and heart. After surgery, you'll also receive fluids and medications through intravenous (IV) tubes.

After the procedure

After surgery patient will be kept in the intensive care unit (ICU) for several days under close observation of doctors and nurses.

Patient is frequently observed for any signs of rejection, such as shortness of breath, fever, fatigue, not urinating as much or weight gain etc.

After the procedure, patient have many follow-up appointments at the transplant center/hospital and also needs to undergo regular tests.

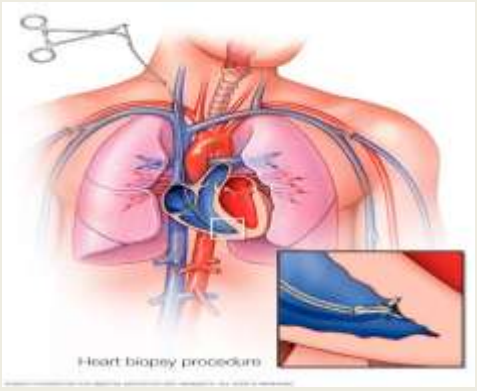

Diagram: 02

Heart biopsy

To determine whether body is rejecting the new heart, patient must have frequent heart biopsies in the first few months after heart transplantation, when rejection is most likely to occur.

During a heart biopsy, a doctor inserts a tube into a vein in neck or groin and directs it to heart. A doctor runs a biopsy device through the tube to remove a tiny sample of heart tissue, which is examined in a lab[3].

Complications of Heart transplant surgery:

- Bleeding
- Infection
- Blood clots
- Heart attack
- Stroke
- Death

Rejection of the donor heart.

Statistical information:

The excitement generated the by first successful heart transplant, performed by Christian Barnard in South Africa in 1967, a landmark in medical history. Transplantation was plagued with insurmountable immunological problems of organ rejection.

Proliferation of transplant centers worldwide which, in turn, generated an increase in the number of potential recipients. Initially this increase was matched by an increase in the supply of donor hearts. This continued until 1990, when the number of cardiac donors reached a plateau at about 3,500 a year worldwide4.

The number of patients listed for cardiac transplantation now far outstrips the supply of donor organs. There are now eight centers in the UK performing 250-300 heart transplants a year (Anyanwu, 1999).

In India First time heart transplant did in KEM hospital Mumbai 1968, this surgery was done by Dr.P.K.Sen6. still few hospitals only carrying out heart transplant such as AIIMS, Apollo, Global, Medanta the Medicity, Fortis Escorts Heart Institute & Research Centre, Ram Manohar Lohia Hospital, Safdarjung Hospital & Frontier Life Line etc.

Prognosis:

Most people after heart transplant enjoy a better life. Heart transplant recipient survival rates based on many factors. A 2014 report by the Organ Procurement and Transplantation Network and the Scientific Registry of Transplant Recipients stated that the overall survival rate in the U.S. is about 88 percent after one year and about 75 percent after five years.

Post-transplant care:

NURSE'S ROLE: Nurse Play vital role in cardiac transplant in perioperative

Monitor and provide care in following:

- Assess and plan to reduce pain
- Assess for infection
- Frequently monitor Vital signs
- Assess for Side effects of drugs and if found take action immediately.
- Assess for weight gain;
- Assess for low grade temperature
- Assess for Lethargy/general malaise
- Assess for Psychological status
- Assess for Palpitations
- Assess for Shortness of breath.
- Plan and assist for rehabilitation.
- Explain follow up care
- Explain brief about routine activities
- Provide better emotional/psychological support.

- Maintain important records in detail.
- Client teaching about diet, exercise, prognosis and post-surgery care
- **Taking immunosuppressant.** These medications decrease the activity of immune system to prevent it from attacking donated heart. Immunosuppressant medications may cause side effects. Such as face may become round and gain in weight, develop acne or facial hair, or experience stomach problems.

Diet and nutrition: After heart transplant, Patient need to adjust with diet to maintain heart health. Maintaining a healthy weight through diet and exercise will avoid complications like high heart disease and diabetes.

- Patient diet includes plenty of fruits and vegetables each day
- Eat whole-grain breads, cereals and other grains
- Maintaining a low-salt diet
- Avoiding excessive alcohol

Exercise:

- After heart transplant, regular exercises and physical activity a routine part of life to continue to improve heart health and overall health also.
- Exercising can help to control blood pressure, reduce stress, maintain a healthy weight, strengthen bones and increase physical function.
- Cardiac rehabilitation will help to improve strength and energy.
- Exercise program may include warm-up exercises such as stretching or slow walking.

CONCLUSION

Cardiac transplantation is highly specialized heart surgery and every year patient also drastically increasing for the same because of sedentary life styles and chronic illness like hypertension and diabetes. If patient undergo cardiac transplantation so that their life span shall be maximized by routine proper follow up with life style modifications. This surgery has been doing successfully in many Govt/Private corporate hospitals of India such as AIIMS, Apollo, Max, Medanta Medicity, KEM & Global hospital etc. Nurse role is vital in pre-intra-post heart transplantation including cardiac rehabilitation. Mainly Nurses will help to heal/assist in routine activities in such cases.

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Conflict of interest: None

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