

Kidney Transplantation at Department of Nephrology

In AIIMS, the Department of Nephrology along with the Department of Surgery provides kidney transplantation facility to patients suffering from End Stage Kidney Disease (ESKD) since 1972, as per the Certificate of Registration granted by appropriate authorities, from time to time. We follow the Transplantation of Human Organs Rules, 1995 and the subsequent amendments (as and when amended). The information related to procedure for kidney transplantation at AIIMS is as under. All this information is broad general information for patients and family to understand process of kidney transplantation at AIIMS. For a specific individual patient, it is always better to discuss with treating nephrologist.

I. Registration of Patient for Transplantation

Patients with chronic kidney disease (CKD) must first attend Renal Clinic AIIMS, run by the department of Nephrology. Initial evaluation of patient is done to know the cause of kidney disease, its severity, its reversibility (if any) and co-existing conditions (co-morbidities). Subsequently, patients are advised renal replacement therapy (RRT) if they have End Stage Kidney Disease, a stage when patient cannot be maintained on medical treatment alone (CKD stage-CKD-5D). RRT consists of hemodialysis, Continuous Ambulatory Peritoneal Dialysis (CAPD) and/or Kidney transplantation. It is patient and family decision, whether they want life-long dialysis (either hemodialysis or CAPD) or kidney transplant. Medically, patient is advised kidney transplant ONLY when he/she is fit for transplant. Every patient of ESKD may not be fit for kidney transplant and in that case he/she has to remain on life-long dialysis. Some important contraindications for kidney transplantation include:

- 1) Advanced Coronary artery disease or Cerebrovascular disease
- 2) Active infection
- 3) Untreated Malignancy

In case of coexisting conditions, patients are treated appropriately before consider them for kidney transplantation. Other investigations required for transplantation are also carried out. If he/she has any other associated illness, then that illness is investigated in detail and appropriately treated on its own merit before kidney transplant may be possible. Thus, even though a patient wants kidney transplant and donor is available and tested, he/she may have to wait for transplant to solve these issues first before kidney transplant is done.

It is important to note that all registration and work-up of patient for kidney transplant is done by the Department of Nephrology.

II. Donor Registration for transplantation

Patients of ESKD are counseled to bring donor for registration as per existing laws of the country. A detail history is taken, and complete physical examination is done. This is followed by initial laboratory investigations to assess fitness as donor for kidney transplant. Subsequently, detailed tests to assess kidney function and vascular anatomy are done. All these tests are done in stepwise manner so it takes some time. The patient is included in the waiting list once patient's donor is physically examined and initial screening tests are normal. The date of initial registration, when the donor comes with the blood group report and found physically fit on initial screening, is taken for the purpose of seniority. Donor work-up takes

about 4-8 weeks since the tests are done step by step and involve multiple other departments of AIIMS. To save time, some of the tests may be done from other clinics or hospitals, if the donor wishes. However, certain tests must be done in AIIMS only for the sake of reliability.

In case a medically fit living donor is not available in the family, the patient's name is registered in the cadaver (deceased) donor kidney transplantation waiting list. Cadaver list contains basic details and contact number of patients. Waiting time and medical fitness are two most important criteria for consideration of seniority for cadaver transplant. Timing of cadaver transplant is totally uncertain, and this waiting time for cadaver transplant cannot be predicted for any patient. When a cadaver donor is available, patients are called as per their seniority and medical criteria like blood group etc.

III. Who can be Living Donor

By Indian Transplant Act and rules, grandparents, parents, sibling, children, grandchildren, and spouse, so defined as "near relative" can be donor and if any one of these is prospective donor, very few document formalities for kidney transplant are required. If donor is other than this, defined as "other than near relatives" whether distant relative or any friend, then there are other formalities required as per law for evaluation of donor. One of them is identity confirmation from the state appropriate body to which the donor belongs. This also takes some time. Further details can be obtained from medical social service officers, who handle such type of kidney transplant document formalities.

IV. Inclusion in the Dialysis Programme at AIIMS

Since AIIMS has a waiting list for kidney transplant, all patients have to wait for many months and during this time they have to remain on maintenance dialysis. Since facilities for hemodialysis at AIIMS are limited (the department of nephrology as of now has only 13 hemodialysis stations), it is not possible to include all patients registered for kidney transplant with us in our hemodialysis programme immediately. A waiting list of all such patients registered for kidney transplantation is maintained according to the date of registration of the living donor. Patients are included in our dialysis program as per their seniority in the waiting list. Currently we are able to include patients in our dialysis programme only few days to weeks prior to scheduled date for kidney transplantation. Patients in the cadaver donor waiting list have to take dialysis outside AIIMS since their transplant waiting period is unpredictable; and AIIMS cannot dialyse patients for indefinite period of time due to paucity of facilities.

V. Approximate cost of kidney transplantation (for matched blood group donor):

Cost of transplant is dependent upon many factors and for a particular patient the cost cannot be confirmed at the beginning. AIIMS does not provide kidney transplant on some package basis. However, there are various components of cost, which are as follows:

Hemodialysis (3/wk) in AIIMS + Medicines	Rs.20,000/- per month
Donor work-up	Rs.20,000/-
Recipient (Non-sensitized) work-up	Rs.35,000/-
Recipient (Sensitized) work-up	Rs.50,000/-
Induction therapy (if required)	Rs.1,50,000/-
Expenditure at the time of transplantation for surgical disposable	Rs.45,000/-
CMV Prophylaxis	@ Rs. 16000/month
Post transplantation medicines approx. Rs.20,000/month for 1 st Year	Rs.2,40,000/-

Note: The above cost does not include the cost of hemodialysis outside AIIMS, prior to inclusion in the hemodialysis programme at AIIMS.

For ABO incompatible kidney transplantation, additional expense of Rs.3,40,000/- is required.

Additional Cost/s (as needed):

Kidney transplant is a specialized treatment and patients are on specific medications. Because of this, patients are at risk of developing complications, some of them may be serious and requires costly treatment. It is difficult to predict that which patient will develop such complications. There is significant cost involved in management of such complications like

- CMV disease
- Anti-rejection therapy with monoclonal antibodies, plasmapheresis etc.
- Antifungal treatment for fungal infections

VI. Financial Assistance from various government agencies

Poor patients may apply for various government sponsored illness assistance funds or to Ayushman Bharat Scheme of Government of India, for which they should contact the hospital social service officers.

VII. Blood Requirement

Four to six units of blood needs to be arranged for transplant surgery, though all may not be utilized in every case.

VIII. Kidney Transplant Counselling:

All patients with ESKD are explained the various modalities of RRT in the Renal Clinic. Subsequently detailed counselling is given in the Renal Transplant Counselling Clinic (RTCC). Besides, the Department of Nephrology organizes regular public education programmes, including School Health programmes focusing on kidney disease and

transplantation. Public lecture is held on World Kidney Day in second week of March every year.

IX. Waiting period for Living Transplantation

At present AIIMS is doing two to three transplants in a week; and in view of large number of patients registered for kidney transplant, current waiting period is about four to six months and waiting period changes depending on many other considerations.

X. Procedure for Registration in cadaver transplant waiting list:

1. Patients with ESKD on regular dialysis (maintenance hemodialysis or chronic peritoneal dialysis for at least for 3 months) are registered for cadaver transplant. They must first register in the Renal Clinic, AIIMS.
2. Preferably, there should be no suitable living donor available
3. Patients on maintenance hemodialysis have to continue taking hemodialysis outside AIIMS
4. Necessary pre-transplant investigations are done
5. Patients are investigated for associated illnesses. If present, associated illnesses are treated appropriately. Patients with untreated associated illness cannot be registered for cadaver transplant.
6. In order to remain in the active cadaver transplant waiting list, the patients must follow-up in the Renal Clinic, AIIMS **at least once every three months**, or as and when required on medical ground.
7. Patients must report any new illness to the department in the Renal Clinic or RTCC, so that the illness can be assessed and managed. Otherwise, the illness may make the patient unfit for renal transplant.

No specific waiting period can be specified for patents in the cadaver transplantation waiting list, since it is totally unpredictable when a cadaver donor may be available, who is suitable for a particular patient.

Procedure of calling patients at the time of availability of cadaver donor

When there is possibility of cadaver donor, department of nephrology starts contacting patients listed for cadaver renal transplant. For one available cadaver kidney, department usually calls five patients. Patients are contacted as per the blood group of potential donor, and as per the seniority of patients decided from the date of registration for cadaver renal transplant. Those patients who respond to the telephonic call, and are willing for renal transplant at that point of time are required to come to AIIMS urgently.

Once 4-5 patients come to hospital within the stipulated time, they are clinically examined for their fitness for renal transplant. Then investigations are sent to assess their fitness. In the meantime, if patients need pre-operation dialysis, dialysis is started pending arrival of the investigation reports to avoid waste of time. When all investigations

are available, fitness of patients is reassessed. Patient who is unfit is sent back. In the meantime, surgical teams also assess patients from the point of view of surgical fitness. The senior most patient who is medically and surgically fit is given the kidney so as to have the best outcome.

It is possible that a person called for cadaver transplant at one time may not be called next time as patients senior to him may be willing to come in emergency next time when cadaver kidney is available. It basically depends upon the fact that on a particular day, which patients responded to the phone calls and is willing to come for emergency cadaver renal transplant.