

## **Guidelines For Kidney Transplantation – Living Donor Criteria**

Living Kidney donation is accepted by law, religion and bioethics, provided that the donor is aware of the consequences of his/her act & makes the decision without outside pressure or commercialism.

Living donor evaluation includes a medical history, physical examination, laboratory tests, serologic screening & imaging studies in order to reach following conclusions:-

1. Donor has compatible blood and cross match with recipient.
2. Donor is healthy, with no unacceptable medical or surgical risk after donor nephrectomy.
3. Donor will have stable renal function after donation.
4. Donor does not have transmissible infection or malignancy.
5. Donor has an acceptable renal anatomy.
6. Donor does not have nor will have psychosocial problem.

In order to fulfill the above conclusion, following is the algorithm we follow:-

**Psychosocial Evaluation**



**Blood compatibility \***



**Medical Evaluation**



**Surgical Evaluation**



**Consent**



**Donor Nephrectomy**



**Follow up**

**\* In select cases, the blood group barriers can be breached and mismatched blood group transplant can be undertaken**

The following reasons could exclude a living donor candidate from donating, based upon scientific data for medical risk, surgical risk, psychological assessment and/or consensus.

## **ABSOLUTE EXCLUSION CRITERIA**

- Age <18 years
- Hypertension in someone younger than 50 years old, evidence of end organ damage, or on three or more anti-hypertensive medications
- Diabetes (diagnosis of diabetes) or abnormal glucose tolerance test
- History of thrombosis or embolism
- Psychiatric contraindications
- Obesity: BMI>35kg/m<sup>2</sup>
- Coronary Artery Disease symptomatic Valvular Disease
- Peripheral Vascular Disease
- Symptomatic Valvular Disease
- Chronic lung disease with impairment of oxygenation or ventilation
- Recent malignancy, or cancer with long times to recurrence eg., breast cancer
- Significant Urologic abnormalities of donor kidney
- Proteinuria>300 mg/24hours
- HIV infection

## **RELATIVE CONTRAINDICATIONS:-**

- Hepatitis C Virus Infection
- Hepatitis B Virus Infection
- Age 18-21 years old; elderly donors especially those without significant comorbid disease
- Obesity (BMI 30-35)
- Kidney stones
- Distant history of cancer
- Past history of psychiatric disorder
- Renovascular Disease
- Thin basement membrane disease
- Prior valve surgery
- Moderate Cardiac Valvular Disease with otherwise normal echocardiographic findings
- Mild sleep apnea without pulmonary hypertension

## **COMPATIBILITY OF DONOR**

A well matched kidney from a live donor is one in which the blood type between the donor and recipient are compatible, the tissue typing well defined and hopefully well matched and with negative cross match studies. Thus, following are the recommendations for the blood compatibility:

- ABO blood group typing X2

- Human Leukocyte Antigen (HLA) typing
- Cross match

**PSYCHOLOGICAL EVALUATION**

A comprehensive psychiatric evaluation should be done to ensure that the prospective donor comprehends the risks, benefits and potential outcome of the donation for herself or himself and the recipient.

**LIVING KIDNEY DONOR MEDICAL EVALUATION**

A comprehensive medical evaluation of the donor is mandatory, in order to assess the surgical risk to him/her, to avoid immediate and long term morbidity. This includes:-

**History**

- Significant Medical History \_\_\_\_\_
- Surgical History \_\_\_\_\_
- Urological History \_\_\_\_\_
- Co Morbidities-
 

1. HTN _____	2. CAD: _____
3. DM _____	4. COPD: _____

**Examination**

- |                  |                           |
|------------------|---------------------------|
| 1. GC _____      | 2. Pulse _____            |
| 3. B.P _____     | 4. Pallor _____           |
| 5. Icterus _____ | 6. Peripheral Edema _____ |

**Abdominal Examination**

1. Old scars
2. Hernial Site
3. External Genitalia
4. DRE

**Investigation**

**Hematological**

- |                    |                      |
|--------------------|----------------------|
| 1. HB _____        | 2. TLC _____         |
| 3. Platelets _____ | 4. PT/APTT/INR _____ |

5. Serological Test for Infections:- HIV, HBsAG, HCV,CMV.

### **Urine Analysis**

1. Urine R/E\_\_\_\_\_
2. Urine C/S\_\_\_\_\_

### **Biochemical**

- |                             |                               |
|-----------------------------|-------------------------------|
| 1. S.Creatinine_____        | 2. Na+_____                   |
| 3. K+_____                  | 4. Thyroid Function Test_____ |
| 5. Fasting Blood Sugar_____ | 6. Lipid profile_____         |

### **Imaging**

1. USG KUB\_\_\_\_\_
2. X-ray KUB\_\_\_\_\_
3. CXR\_\_\_\_\_
4. ECG\_\_\_\_\_
5. ECHOCARDIOGRAPHY\_\_\_\_\_

### **Glomerular Filtration Rate Measurement**

- 1.Creatinine clearance test\_\_\_\_\_
2. 24 hour urinary protein\_\_\_\_\_
3. DTPA For differential kidney function\_\_\_\_

### **Cancer Screening**

1. PAP for all women.
2. Mammogram for all women over 40 years or according to family risk.
3. PSA for all men over 50 years.
4. Colonoscopy for all donors over 50 Years old or younger according to family history (Preferable).

## **SURGICAL ANATOMIC EVALUATION**

This includes the assessment of the anatomic features of the donor kidney to determine if nephrectomy can safely be performed, to determine which kidney should be removed & to determine what nephrectomy technique is to be employed.

For many years, Intra Venous Pyelography & renal angiography was used to evaluate renal anatomy, but now Spiral CT has replaced both IVP & MR.

The Left Kidney is preferentially selected for donation because of long left renal vein. The Right Kidney is selected for donation if:

- Left Kidney has more a complex vascular anatomy as compared to Right e.g. multiple vessels.
- Right kidney has only minor renal abnormalities like cyst, UPJ obstruction & left kidney is normal, especially in younger donors.
- In women who may become pregnant.

The kidney removal from a prospective kidney donor is either by an open approach or by a laparoscopic approach.

### **Whatever approach is used, following principles merit emphasis:-**

- Donor safety at all times.
- Adequate exposure.
- Careful handling of the kidney, especially during periureteral dissection.
- Preservation of adequate perihilar & periureteral fat to ensure vascularity to ureter.
- Maintenance of active diuresis, which make prompt post transplantation function more likely.

## **INFORMED CONSENT**

A fully informed consent of the potential living donor and exclusion of coercion and/or commercial practices are not only ethically necessary, but also mandated by most nations. Therefore, it is important to verify that the potential donor is acting voluntarily and altruistically and not under pressure or due to commercialism.

Donors should be made aware of the maximum level of risk that may incur, as well as the fact that they can change their mind at any point before operation.

## **LIVING DONOR FOLLOW-UP**

After donation occurs, the transplant center must follow the living donor for two years. The donor may have the examinations at the center or may choose to visit another facility and have the evaluation results sent to the transplant centre.