# The ABCs of

# Renal Transplant

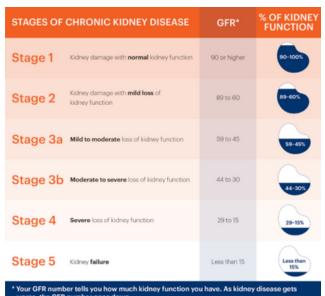
#### UNDERSTANDING THE FACTS BEHIND

#### 1. Definition

- Renal transplant is the curative treatment for End Stage Renal Disease (ESRD).
- Kidneys are usually recovered from deceased donors (70%) but can be obtained from living donors such as family members of the patients
- Deceased donors are either:
  - DBD→ Donation after Brainstem Death
  - DCD→ Donation after Circulatory Death
- The one year survival rate for living donor recipients is about 99% and for DBD donor recipients is about 97%.

## 2 Indications for renal transplant

- Patients with ESRD (stage 5)→ GFR <</li>
  15ml/min
- Those with Chronic Kidney Disease (CKD) (stage 4) → GFR 15-29ml/min
  - Should be considered for transplant is they have rapidly progressing disease



## 3. Contraindications for renal transplant

Absolute	Relative
Untreated malignancy	Co-morbidities, e.g. diabetes
Active infection	mellitus
Untreated HIV infection or AIDS	Age >65 years
Any condition with a life concetency	Obesity
Any condition with a life expectancy	
<2 years	HBV or HCV infection
Malignant melanoma within the	Previous malignancy (depending on
previous 5 years	type)

#### 4. Donor retrieval procedure (DBD/DCD)

- Full exposure of the abdomen to allow assessment of other organs whilst gaining access to the retroperitoneal space
- · Patient is heparinised
- Renal vessels and ureters are identified and isolated
- Kidneys are then removed with the renal artery (containing a patch of the aorta), the renal vein (containing a patch of the IVC) and its ureter.

#### 5. Living donor

- Procedure is commonly done laparoscopically
- Preference for left kidney→ longer renal vein
- No patch of the IVC or aorta is taken

# In both cases the kidney is flushed with preservation fluid as soon as it is removed

#### 6. Recipient procedures

- In some cases the kidney will be arriving from another facility and must be stored in a specific way:
  - In perfusion fluid
  - Inside sterile bags
  - Surrounded by ice
- The kidney is then examined and flushed with preservation fluid to check for and repair any leaks in the vessels or ureter.
  - Iliac vessels are exposed and lymphatics identified and ligated
  - Anastomosis performed:
    - Donor's renal vein → recipient's external iliac vein
    - Donor's renal artery → recipient's internal/external iliac artery
  - Kidney is perfused
  - Ureter anastomosed to the bladder through a ureteroneocystostomy

#### 7. Complications

- Delayed graft function → failure of the transplanted kidney to function immediately
  - Dialysis required within the first week
  - Most kidneys will function eventually but increased risk of rejection → recipient's immune system begins to destroy donor organ
- Vascular
  - Early
    - Renal artery/vein thrombosis
  - Late
    - Renal artery stenosis. Presents months post transplant with uncontrollable hypertension and worsening graft function
- Ureteral
  - o leak
    - Decreased urine output & increasing abdominal pain
  - Urinary tract obstruction
    - Strictures in the distal ureter
- Long term
  - CVS complications
  - Immunosuppression → recurrent infection, malignancy

#### 8. Warm vs Cold Ischemia time

- Warm → time between the cessation of organ perfusion by the donor's blood circulation until perfusion with preservation solution
- Cold → time from the perfusion of the organ with the preservation solution to reperfusion of the organ with recipient blood after the implant's vascular anastomosis.

