Australian and New Zealand Paired Kidney Exchange Program

Protocol 3: Living Donor Evaluation Guidelines

Living Donor Evaluation Guidelines

The purpose of these guidelines is to define the appropriate information and/or investigations that must be completed for consideration for entrance into the Australian and New Zealand Paired Kidney Exchange (ANZKX) Program.

The unit who assesses the donor and performs the donor nephrectomy is responsible for ensuring the suitability, safety and the well-being of the donor.

The ANZKX Program does not evaluate donor suitability but rather confirms that the respective Transplant Centre has evaluated and accepted the donor as a suitable candidate. The unit that will perform the donor surgery undertakes the testing and assessment of the donor in accordance to the unit's living kidney donor assessment protocol; this usually involves a multi-step process and the suggested steps outlined in this document are simply a guide and by not an ANZKX directed process. The assessing team is responsible for ensuring that the potential donor is in good health, has normal kidney function and structure and is not a risk to the recipient with respect to transmission of viral, cancer or other infections.

The ANZKX Coordination Centre must provide some key information to the recipient's team on relevant clinical features of the donor that might materially affect the outcome of transplantation. This information should be discussed with the recipient, in a generic manner to avoid identification of the donor, in order to allow informed consent.

To record and audit this information a purposely-designed electronic donor record has been specifically developed for ANZKX in the KPD section of the Clinical Transplantation Portal of OrganMatch.

Registration data entered in the medical information section of the KPD section in OrganMatch does not include ALL of a donor's workup tests, but it is expected that an assessmentof a donor's suitability has been carried out according to internationally accepted criteria. The constraints with regard to donor suitability that are built into the KPD section of the Clinical Transplantation Portal of OrganMatch and won't allow a donor to be registered, are listed in Table 1.

It is the responsibility of the recipient's team to be satisfied that the donor offer that they accept is appropriate for their recipient.

Step 1: Evaluations required prior to registration in the ANZKX Program

The following information needs to be collected to enter into the KPD section of the Clinical Transplantation Portal of OrganMatch:

A. Medical history and physical examination including:

- Age
- Gender
- Height, weight (BMI), blood pressure.
- Relationship to the potential recipient.
- Reason for incompatibility (ABO or positive crossmatch) or entry as compatible pair.
- History of hypertension (no/yes), on current medication (no/yes).
  If yes, number of drugs (1, 2, ≥3).
- Glycaemic status: impaired fasting glucose (no/yes), impaired glucose tolerance (no/yes).
- History of cancer (no/yes).

- History of renal stone disease (no/yes), if yes, recurrent (no/yes), if yes, when last?
- Risk factors for latent TB (LTBI) (no/yes), if yes, follow ANZKX investigation pathway for LTBI donors.

B. Blood tests:

Blood group (Group A donors are required to be subtyped), UEC, LFT, BSL, FBP with differential, coagulation profile.

C. Urine tests:

- Urinalysis and culture, urine protein/creatinine ratio and/or 24hr urine protein excretion.
- OrganMatch has scope to accept a urinary Protein:creatinine ratio <30mg/mmol or a 24 hour urinary protein excretion of <300mg/24 hours.

D. Virology:

- CMV, EBV, HIV, HBV (including Hep B core antibody) & HCV.
- Donors with detectable Hep B core antibody must be Hep B DNA negative by PCR.
- Donors with detectable Hep C antibody must be Hep C DNA Negative by PCR in two consecutive samples.

E. Tissue typing:

HLA typing as per agreed criteria – refer ANZKX Tissue Typing Guidelines.

F. Renal function and anatomy:

- CT Angiogram – refer to Table 1 for recommended guidelines
  - Radioisotope GFR as measured by appropriate technique must be >80ml/min Method must be 51Cr-EDTA or 99Tc-DTPA by slope-intercept technique.
  - A radioisotope GFR of at least 80 ml/min has been agreed to satisfy the minimum requirement of acceptable quality of the donated kidney. The GFR value is an absolute value and NOT per body surface area, as it is a measure of the adequacy of the kidney for a recipient, not the safety for its removal from the donor which has been assessed separately.
- Renal scintigram technique to assess split renal function
  - Split function range should be 45% - 55%, if measured GFR<100 ml/min.
  - A split function <45% - >55% is not an exclusion of donor acceptance, as long as the single kidney function of the donated organ is satisfactory (predicted GFR $\geq$40ml/min).
- Renal cysts should be classified according to the Bosniak renal cyst classification system. Simple (Bosniak 1) cysts are not a contraindication to donation.

G. Cancer screening:

In keeping with transplant unit and national cancer screening protocols, potential kidney donors should be screened for occult malignancy and therefore in Australia if aged >50 years:

- Bowel cancer testing kit
  - Faecal Occult Blood (FOB) x 3 **or**
  - Colonoscopy if this is part of the individual's normal screening regime (eg. known family history of Bowel cancer)
  - Note that FOB screening will not be performed in New Zealand donors.

Additional screening for female donors includes:

- Pap smear (18-69 years) and mammogram (≥50 years)
- If patient has had a hysterectomy please note this on the KPD section of the Clinical Transplantation Portal of OrganMatch in the text box provided, with the date of hysterectomy (as close to date as possible if actual date not known).

Step 2: Additional evaluations prior to registration in the ANZKX Program

Other evaluations:

- Surgical evaluation.
- Psychosocial evaluation according to normal unit practice.

All of the above assessments must be completed prior to activation in the ANZKX Program.

Step 3: Donor travel

Donor travel to some countries close to the time of donation can be associated with a risk of transmission of infectious diseases such as flaviviruses (including dengue) and malaria. Donors can require screening following their return. Due to this, donors should avoid travel to some countries very close to the time of donation to allow time for screening or incubation periods. Units can discuss this with the ANZKX Coordination Centre if required.

Step 4: Annual nephrology review/tests required for maintenance on Program

Each transplanting unit should ensure that their donor and recipients are medically well to reduce the chance of chain breakdown for medical reasons. Furthermore at each 12 month anniversary date from entry into the program, medical information should be updated ensuring there has been no change in renal function, infection or cancer screen risk.

- Medical history/physical examination/updated medication list.
- UEC, fasting BSL and any other routine blood tests deemed necessary by the unit.
- HIV, HBV, HCV and CMV/EBV as indicated (not necessary to repeat if previous positive CMV or EBV serology).
- Urinalysis and urinary protein:creatinine ratio.
- Other consults as indicated.
- Cancer screening at applicable intervals for individuals >50 years.
  - Pap smear every 2 or 5 years or according to national guidelines.
  - Mammogram at least every 5 years.
  - Colon cancer screen every 5 years (except in New Zealand donors).

Confirmation of compliance with these tests and reviews at each 12-month anniversary of entry into the ANZKX Program must be provided to the ANZKX Program Coordinator by the local transplant unit.

Some tests such as a repeat US might be requested if a donor is matched and previous imaging is more than 2 years old.

This is done by updating the following as applicable on the donor in the KPD section of the Clinical Transplantation Portal of OrganMatch:

- Creatinine level.
- HIV, HBV, HB core antibody, HCV and CMV/EBV.
- 24hr urinary Albumin Excretion Rate OR protein-creatinine ratio.
- Cancer screening.
- Annual review date.

Table 1: Donor suitability constraints preventing registration of potential donors in the ANZKX Program

Medical history and physical examination including:

Age *– Donor age limit is no older than 72 years.*

History of hypertension *– The system will not accept a registration for any donor with treated hypertension on ≥3 drugs.*

Glycaemic status *– The system will not accept a registration for any donor with diabetes.*

History of malignant cancer[1] *– The system will not accept a registration for any donor who had a previous history of cancer other than: colon cancer Dukes A (or T1N0M0 or T2N0M0) >5 yr ago, non-melanoma skin cancer, carcinoma in situ of the cervix. Previously treated prostate cancer and thyroid papillary or follicular carcinoma might be considered on an individual basis and units should discuss any cases with the ANZKX Coordination Centre prior to registration.*

History of renal stone disease[2] *– The system will not accept a registration for any donor who had a previous history of recurrent renal stone disease.*

Laboratory testing:

Proteinuria *– The system will not accept a registration for any donor who has urine protein/creatinine ratio >30 mg/mmol or 24hr protein >300mg/24h.*

Virology[3] *– The system will not accept a registration for any donor who tests positive for HIV, Hepatitis B surface antigen or Hepatitis C PCR positivity.*

Renal function and anatomy:

CT Angiogram *– The system will not accept a registration for any donor with 3 renal arteries or 2 renal artery one of which has early branching <15mm from the aorta on both sides.*

Radioisotope GFR *– The system will not accept a registration for any donor with nGFR <80ml/min not corrected for BSA.*

[1] For some other malignancies the risk of donor derived transmission is sufficiently low to be considered acceptable for live kidney donation. This applies for malignancies with a <0.1% risk of transmission events/organ transplants from donor with specific tumor. We refer to AST guidelines for the suggested risk categorizations for specific tumor types (Nalesnik et al, AJT 2011; 11: 1140–1147).
Use of higher risk donors (>0.1% risk of transmission) is discouraged and should only be considered in recipients at significant risk without transplant and would require informed consent. This would not be acceptable in the ANZKX Program.

[2] The decision to define whether the donor is a recurrent stone former is left to the discretion of the donor team. The natural cumulative recurrence rate of renal stones is reported to be 14% at 1 year, 35% at 5 years, and 52% at 10 years (Uribarri et al., Ann Intern Med. 1989; 111:1006-9). It would seem prudent not to accept those with high rates of recurrence, such as those with cystine or struvite stones. In addition, those with systemic disorders that lead to high rates of recurrence, such as primary or enteric hyperoxaluria, distal renal tubular acidosis, sarcoidosis, inflammatory bowel disease, or other conditions that cause nephrocalcinosis etc., should not donate.

VERSION CONTROL			
Version	**Date**	**Author**	**Comments**
V1.0	Jul 2019	ANZKX Team	AKX transition to ANZKX
V 2.0	Feb 2021	ANZKX Team	Acceptance of Hep C Ab positive donor if Hep C DNA negative by PCR in two consecutive samples
V 3.0		ANZKX Team	MMEx transition to OrganMatch