

## **UK Kidney Offering Scheme**

Working group meeting 30<sup>th</sup> September 2016

Chair: Chris Watson, Attending: Sue Fuggle, Dave Turner, Rachel Hilton, Lorna Marson, Phil Mason, Chris Dudley, Peter Friend, Lisa Mumford, Rachel Johnson, Chris Callaghan

### **Overview of work to date:**

Three working groups were set up, which each reported back to KAG in June 2016. These were:

1. Review of 2006 Kidney Allocation Scheme (2006 KAS) (Chaired by LM)
2. Philosophy of allocation (Chaired by RH)
3. HLA working group (Co-chaired by SF and DT)

### **Review of current scheme:**

Lisa presented slides outlining key objectives of 2006 KAS, and went through each of these in turn.

Key objectives of 2006 KAS.

1. Improved equity of access to transplant (geography, demographics)
2. Reduce the incidence of 'long-waiters' (listed for 5 or more years)
3. Good HLA matching for patients in whom it is important
4. Minimise impact on cold ischaemia time (CIT) and outcome
5. Match graft life expectancy with patient life expectancy

On review of these, the group concluded that the 2006 KAS mainly achieved its objectives, but outstanding challenges remain:

1. Long waiting / highly sensitised patients
2. Blood group and ethnicity
3. Matching donor and recipient quality
4. Centre differences in acceptance criteria

These were each considered in turn, and recommendations made:

#### **Long waiters/HSP**

- There was evidence of declines of kidneys offered to highly sensitised and long waiting patients, which must be flagged with centres. This has been instigated. 16% HSP had received offers that were declined. Education of centres is required to ensure understanding that offers will be limited for such patients. A report from the unit director may be sought if the offer is turned down.
- Consideration be given for highly sensitised patients to accumulate more points from listing, and there was discussion as to the most appropriate level at which priority should be given: should this be from >50% cRF, at which point the waiting time increases, or should it be treated as a continuous variable?

#### **Blood group and ethnicity**

- Consideration should be given to ensure that blood group O recipients are not disadvantaged in future allocation scheme
- BAME improvements in current allocation but remains a challenge, and defaulting of rare antigens do help to reduce disparity

- The view of the group was that attempting to address this disparity through the allocation scheme alone will not solve the problem, but that it requires ongoing investment with the aim of increasing donor numbers from BAME communities.

### **Matching donor and recipient quality**

- New UK Kidney donor risk index (NUKKDI) has been designed, and includes donor age, height, weight, ethnicity, history of hypertension, cause of death, gender and creatinine at time of offer.
- Graft survival curve according to quartiles of NUKKDI, showing that kidneys from high risk donors (NUKKDI > 1.54) are associated with worse survival.
- Kidney recipient index (NUKKRI) has also been designed, and includes recipient age, dialysis status, ethnicity, diabetic status and waiting time as significant factors.
- Transplant survival curves according to NUKKRI show significantly worse survival for recipients in the upper quartile
- Consideration was then given as how best to match donor and recipient quality, and it was suggested that we might aim to match top 25% donors with best 50% recipients, and worst 25% donors into worst 50% recipients. Further will be undertaken to determine how we can gain maximum benefit from such matching.

### **Centre differences:**

- Difference in practice between centres was examined, including a range of centre criteria for donor age, significant variation in offer decline rates, and centre variation in 'donor risk' in transplanted kidneys
- Reasons for decline/non-use not well captured
- Declining offers leads to increased offer times – impacts on many stakeholders, and is likely to result in withdrawal of family consent/authorisation.
- The group felt that there should be no centre differences in criteria for offers, accepting that this may lead to higher decline rates in some centres where practices differ.

### **Philosophy of allocation**

RH summarised the outcome of the working group

- Patients suitable for transplant should have a predicted 50% 5 year survival, acknowledging no clear measure to predict this.
- Lower risk kidneys should be transplanted into longest predicted survivors, with discussion as to whether this should be a threshold or sliding scale, although the latter carries the risk that no high risk recipients would then be allocated kidneys (eg. Diabetics)
- Prioritise HSP for a compatible kidney
- No priority for clinical urgency should be given, although this was not the consensus view. Eg. For access failure, there is concern that this will support centres with a poor access service.
- Priority should be given to those who have previously donated a kidney, with consideration as to how much priority.

- Age: No different priority for the elderly. Children were discussed at some length, without consensus other than the priority should be the same across all organ groups, with the discussion that more priority should be considered for urgent children with access failure, growth or education issues.
- Waiting time starts from point of dialysis commencement, with discussion about points accrued for pre-emptively listing, possible maximum 180 points or no points. Additional points may encourage best practice in terms of listing pre-emptively.

#### **HLA working group recommendations**

- The repertoire of donor HLA typing should be extended to include mandatory typing for HLA-DPB1, DPA1 and DQA1.

#### **HLA matching criteria**

- As the 'Total mismatches' (HLA-A,B,Cw,DR,DQ) increases, there is an increased risk of graft loss at 1 and 5 years. Combined mismatches at HLA-DR & DQ also have a detrimental effect on outcome. In patients where HLA matching is deemed appropriate, i.e. younger patients and non-HSP, all loci should be considered as part of the allocation, with avoidance of HLA-B, DR and combined DR-DQ mismatches.
- The incorporation of 'epitope' matching or "electrostatic charge" matching into allocation will depend on the results of ongoing work. If there is sufficient evidence that epitope matching improves graft survival and reduces sensitisation compared to HLA antigen matching, then efforts should be made to incorporate this into the allocation algorithm when it becomes available.

#### **Highly Sensitised Patients**

- There should be a mechanism to ensure that antibody compatible kidney offers to highly sensitised patients are flagged with the Transplant Units.
- There should be no automatic exclusion criteria based on HLA antigen matching for difficult to match sensitised patients.
- The cRF/matchability points and time from listing at which patients receive priority, together with the scale of priority, needs further consideration.

#### **Listing of unacceptable antibodies and their use in allocation**

- IT developments are required at ODT so that unacceptable HLA-DPB1, DPA1, DQA1 and some alleles can be listed and taken into account in organ allocation.
- One further point that was discussed was whether there is a need for recommendations regarding withdrawal of immunosuppression after graft failure.
- Plan now is to model the effect of increased repertoire and matching. In the first instance, registering of DP type to be undertaken.

#### **Brief outline of early data from ATTOM meeting (LB)**

- Factors affecting transplant survival from waiting list: waiting on dialysis >3y, Obesity, heart failure, cerebrovascular disease, vascular disease

#### **Other points of discussion**

- Concern about high decline rates, resulting in high number of kidneys offered through the fast track scheme.
- Need access to both kidneys for dual transplant, when indicated, with option for offering one centre both kidneys above a specific age/KDI. It has been difficult to define the cut-off.

**Work plan:**

1. Piece of work on declines: model declines, and the reasons for them
2. Look at transplant benefit advantages eg, apply risk index to waiting list
3. Explore effect of matching poor kidneys with poor recipients
4. Factors predicting fast track and potentially making allocation happen sooner
5. Dual kidneys: Offer one centre both kidneys of a high age/KDI?
6. Identify HLA MM (? by epitope or charge MM) that are associated with HLA antibody formation