

Kidney Transplantation



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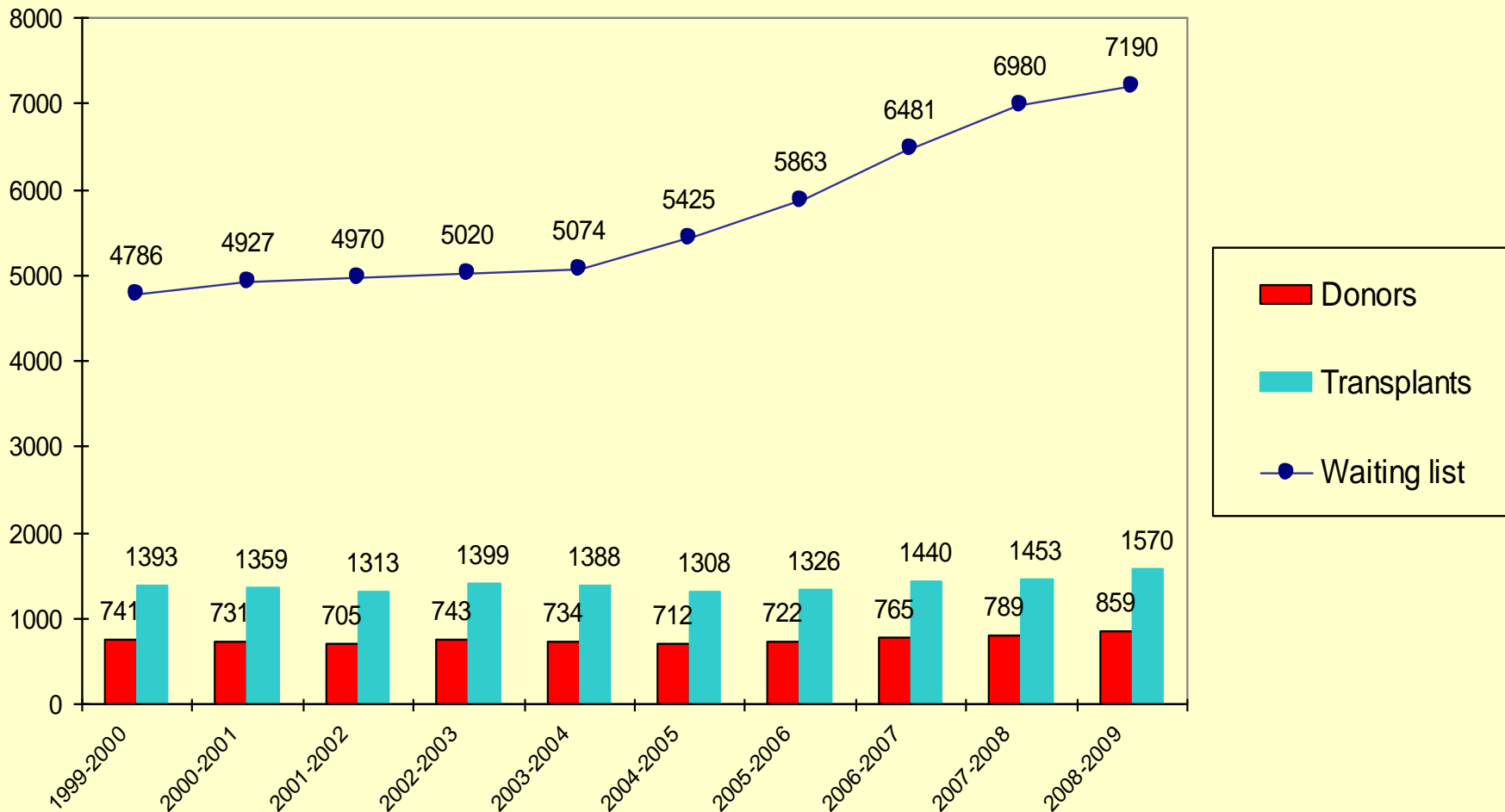
Nottingham University Hospitals

Topics to look at

- Scale of the problem
- Suitability for transplantation
- Getting onto the list
- Kidney Allocation & Matching
- Live donation
- Post transplant issues

Current UK Situation

Data from NHS Blood & Transplant, February 2010



Local figures

- This translates to;
- 313 'Nottingham' patients
 - 291 adults (Notts, Derbys, Leics, Lincs, Staffs)
 - 22 children (+ South Yorks, & Cambs, Northants & Norfolk)
(of whom 40 are currently 'suspended')

Suitability for transplantation

- All centres have local protocols, but generally adhere to BTS & Renal Association (RA) guidelines on who should be referred and assessed for transplantation
- RA suggest that 33% of all CKD patients should be offered the opportunity of a transplant
- NSF recommends pre-emptive transplantation if possible, but this is slightly controversial (i.e. when to 'list')

Suitability for transplantation

Standards for Solid Organ Transplantation in the UK,
BTS, 2003

<http://www.bts.org.uk>

Renal Association guidelines

<http://www.renal.org/guidelines/index.html>

Contra-indications to transplant

- Previous malignancy, excluding basal cell carcinoma, within last 2 years (For breast, GI and melanoma should be five years)
- Age >65 years with another significant co-morbid condition apart from renal failure
- Severe vascular (peripheral, cardiac or cerebral) or respiratory disease
- IV drug abuser
- Non-concordance

Possible contra-indications

- Active renal disease e.g. vasculitis
- Active peptic ulceration or other un-investigated upper GI symptoms
- Active infection, which may be occult e.g. TB where patient should be one year from coming off treatment before going on the active transplant list.
- Other significant co-morbid conditions
- BMI 35 or over
- HIV +ve (See BTS 'Guidelines for kidney transplantation in patients with HIV disease' at www.bts.org.uk)

Getting on to the list

- Referral by Nephrologist
- Assessment by Surgeon
- Bloods for group, tissue type, antibodies and virology screen
- Details then sent to National database
- Younger, fitter, diabetics may be referred to Cambridge for 'SPK'

Whilst on the list

- Up to date patient contact details essential
- Encourage patients to maintain health, not easy in view of potential wait
- All patients reviewed annually
- May suspend temporarily for illnesses, e.g. peritonitis or unavailability
 - Fixed period of time
 - UFN ~ until further notice
- May remove from list if risks become too great, or patients choice

Whilst on the list

- Live donor investigations can run concurrently whilst patient is on the transplant list (or even before)
- If kidney becomes available, patient has a choice
- Will generally come off the list shortly before LD transplant

Kidney Allocation and Matching

- Deceased donors are of two types;
 - Majority are heart beating donors (HBD), death confirmed by brain stem testing
 - Kidneys from these are allocated nationally using an agreed algorithm to ensure fairness
 - An increasing number of ‘non heart beating donors’ (NHBD), i.e. those who do not fulfil criteria for brain stem death, but have non survivable brain injury in whom treatment is to be withdrawn
 - Kidneys from these are allocated locally
 - Slight increase in risk of non function & delayed function

Matching ~ the hypothesis

Knowing the 'Tissue type' of donor and recipient would allow matching of organs to reduce the number and severity of rejection episodes.

Inequalities

- Reduced chance with; antibodies, matchability and age at listing
- Blood group
 - A & AB best chance
 - O next
 - B worst
- Allocation algorithm regularly ‘tweaked’ to attempt to ensure fairness for all

Sensitising events

- Previous transplant
- Blood transfusion
- Pregnancy

- Some antibody specificity can be determined, some not. Patients with specific A/B are registered not to be given these!

Kidney offers

- NHS Blood & Transplant phone on call recipient coordinator
- Details of donor, history & current condition
- 30 minutes to accept or decline kidney
 - Discussion with surgeons & nephrologists

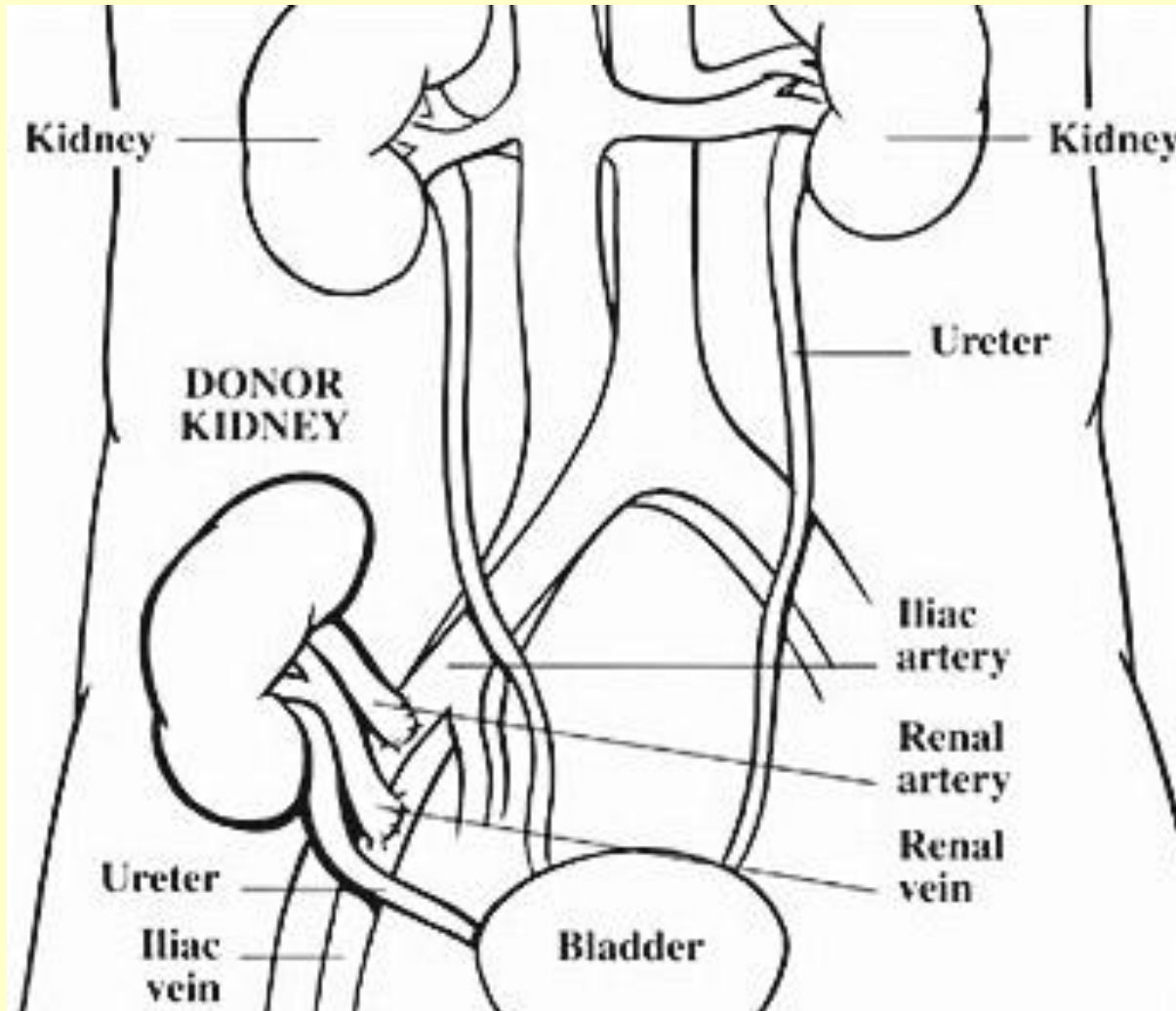
Cytotoxic crossmatch

- Requires recipient blood samples (usually use historical samples too) and donor cells (lymph nodes & spleen taken at retrieval)
- Performed at National Blood Service lab in Sheffield
 - Takes 4-5 hours (+ travelling time)

?Transplant

- When results of cytotoxic crossmatch available, patient to theatre asap
- Minimise CIT
- Kidney has 24 hour shelf life
 - Consider travelling time, crossmatch time, then the need to find second recipient if necessary
- Must never waste a kidney!!

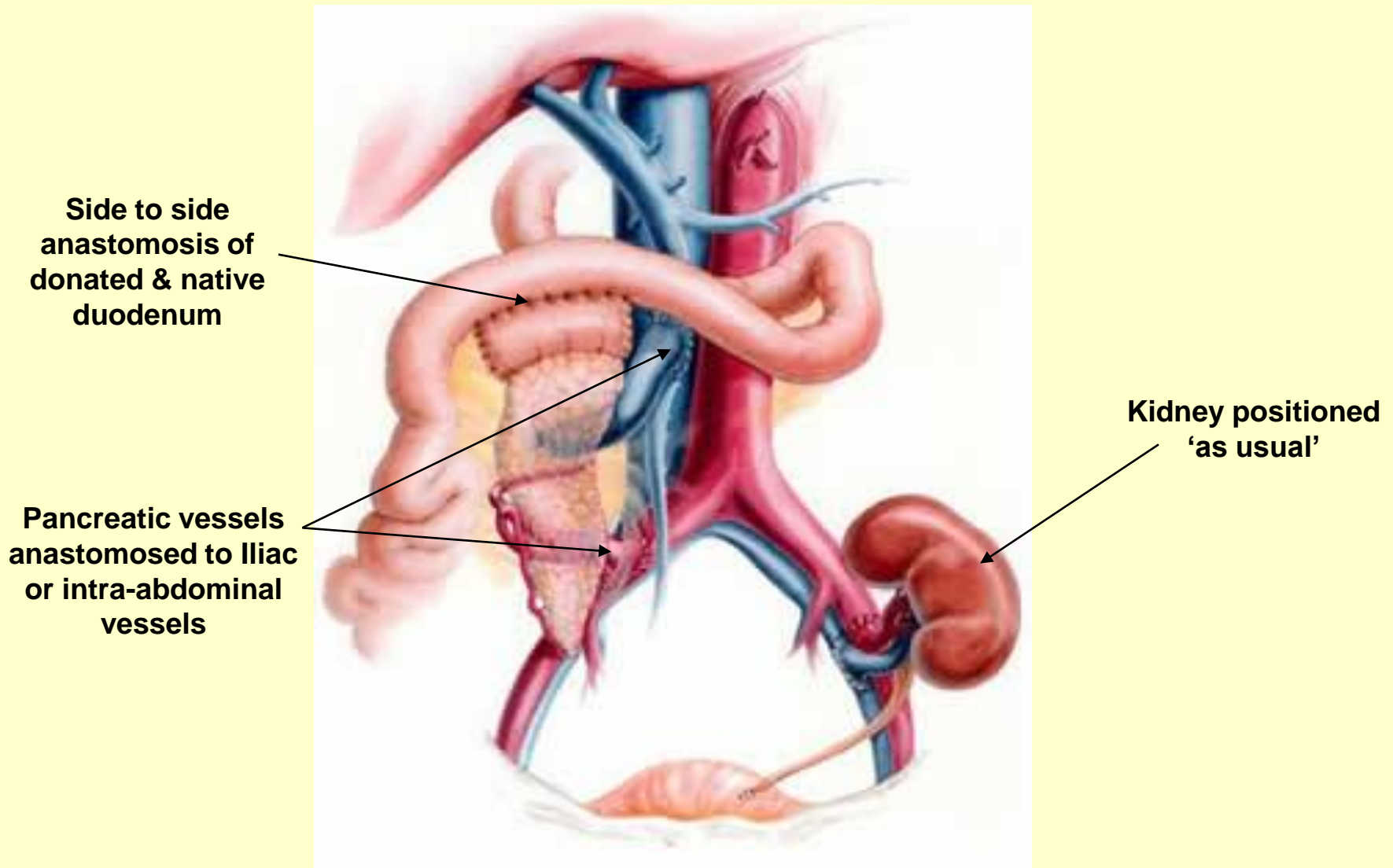
Position of Transplant



SPK ~ simultaneous pancreas & kidney

- Kidney and pancreas from same donor
- Higher risk, only for limited number of patients
- Rigorous selection process
- High rate of 're-laparotomy'
- Very successful on the whole, but early days!

Kidney and Pancreas Transplant



Live Donation

- Possibility mentioned to all patients at very early stage
 - Some refuse, some have many donors
- Related donors
- Unrelated, emotionally related
- Altruistic non-directed
- ‘Paired’ or ‘Pooled’ donors
- De-sensitization

Live Donation

- Begin with basic health check, bloods, ecg CXR etc. + cytotoxic crossmatch
- Next step is Mag 3 scan & GFR
- Then 3-D CT scan (?angiography)
- Independent assessment
- Final crossmatch prior to transplant
 - Up to 6 months or more

Post Transplant

- Usually 7-10 day inpatient stay
- Follow up clinics x 3 per week initially
 - Nurse-led follow up
 - Gradually reduced

Post Transplant ~ causes of initial graft dysfunction

- Arterial/venous thrombosis
 - Usually proceed to graft nephrectomy
- Acute rejection
 - Treat with IV methylprednisolone
- Ciclosporin/Tacrolimus nephrotoxicity
 - Reduce the dose!
- Ureteric obstruction or leak
 - ?nephrostomy or re-implantation

Post Transplant

- Increased risk of skin cancer
 - commonly simple BCC's easily spotted & dealt with
- Increased risk of Lymphoma
 - See next slide
- Side effects of immunosuppression
 - Drug & dose related

Infection risk

- Greatest initially, dose of IS likely to be higher
 - Bacterial, usually straight forward, occasionally more challenging
 - Viral, e.g. CMV disease or BK virus
 - Fungal

Rejection

- Treat with methylprednisolone
- Change IS regime
- Consider plasmaphoresis
- Other options include Anti thrombocyte globulin

Lymphomas

- PTLD occurs in 1-3% of renal transplant recipients and accounts for 21% of all malignancies post transplant.
- The majority are Large cell Non Hodgkins Lymphoma. Ninety percent are B cell and 10% T cell.
- Over 70% are EBV associated. Identified risk factors include:-
 - EBV negative transplant recipients
 - First 12 months post transplant
 - Over-immunosuppression
 - Use of ATG
 - Late switches to tacrolimus

Cost benefits

- Transplant costs on a par with Dialysis in the first year
- 3-4k per annum after this

