Living Donor Transplantation Opportunities and Barriers

BC Nephrology Day
October 5, 2006
Issues

• Early referral
• Eligibility for transplant
• Pre-emptive transplant
• Paired donation
• Manpower
• Continuing education
Active Wait List BC 2006

Total = 267**

Data Courtesy of Yvonne Sun BCTS
True Wait List Numbers in BC 2006 = 928

Data Courtesy of Yvonne Sun, BCTS
Early Referral

- Opportunity for live donation with better graft function
- Potential for avoidance of dialysis
- Better physical, emotional, fiscal health
- Refer when GFR approx 25 ml/min
Tx Eligibility

• Requisite data (esp cardiac, background on other co-morbid conditions)
• Malignancy
• Psychiatric/psychologic readiness
• PTH surgery?
Checklist for Accompanying Information

Patient Name: ___________________________ DOB: ___________________________

A) Please include: medical history
- Information regarding medical history (i.e. cancer, CVA, chronic infection).
- Discharge summaries and consult notes.
- Exam results: including cardiac studies, blood work, etc.
- Regular Mammogram/PAP/Prostate/Testicular exam?
- Dental information; i.e. regular exams? concerns?
- Other Specialists involvement? (i.e. endocrinologist, cardiologist, ophthalmologist). Please include notes.
- Psychosocial concerns and notes.

B) In order to accelerate the assessment of your patient, please arrange the following tests as necessary: **Refer to Clinical Guidelines**

- Echocardiogram
- MIBI (Persantine or exercise)
- If Hepatitis C positive or Hepatitis B positive:
  - LFT’s (AST, ALT, Alk Phos, GGT, INR, Protein, Albamin, AFP)
  - Abdominal ultra sound (with doppler, if available), to assess for visceralomegaly and portal hypertension

C) If patient is to be considered for pancreas/kidney transplant, please submit referrals to the BCTS programme c/o Lorraine Blackburn in order to accelerate the process.

D) Have you discussed Living Donation with this patient? Yes ______ No ______

Who are the potential donors? ___________________________
Preemptive Transplant

Theoretical advantages:

• Avoid prolonged renal failure and its concomitants (esp CVS disease)
• Data to support improved patient function and survival
• Link to diminished cardiovascular risks with successful transplantation
• Global economic benefit
Preemptive Transplant

Possible disadvantages:
• Failure to maximize native renal function
• Lose advantage of reduced immunity of uremia
• Potential for earlier than necessary exposure to immunosuppressive agents
• Does not allow potentially non-compliant patients to understand the hardships of dialysis
Preemptive Transplant

• So what’s the evidence?
Preemptive Transplant

- n of 38,836
- Frequency of preemptive tx overall 13.8%
  - 7.7% for DD
  - 24.0% for LD
- These numbers stable over period of observation

From: Kasiske et al; JASN 13: 1358-64, 2002
Preemptive Transplant

- Lower rate of delayed graft function compared to non-preemptive tx for
  DD: 8.4% vs 25.6%; p<0.001
  LD: 2.6% vs 6.1%; p<0.001

From: Kasiske et al; JASN 13: 1358-64, 2002
Preemptive Transplant

More likely if:
• LD available
• Younger than 18 yo
• White; not Hispanic
• Better educated
• Working full time
• Not Medicare
• 0-1 HLA mismatches

From: Kasiske et al; JASN 13: 1358-64, 2002
Data from 1995-1998

Deceased Donor

Patient Survival

Graft Survival

Preemptive (N=1,977)

Non-preemptive (N=23,781)

Living Donor

Patient Survival

Graft Survival

Preemptive (N=1,141)

Non-preemptive (N=9,097)

From: Kasiske et al; JASN 13: 1358-64, 2002
Preemptive Transplant

- Effort to quantify risk of dialysis time pre-tx
- Tried to establish risk independent of donor factors
- Analyzed USRDS database from 1988-1998
- Looked at 2405 paired kidneys from same donor implanted into 2 grps of recipients:
  i) on dialysis $\leq$ 6 mo (incl preemptive)
  ii) on dialysis $\geq$ 2 years

Unadjusted graft survival of paired kidneys

Preemptive Transplant

- Also examined “dose” of ESRD in 77,000

Unadjusted graft survival by length of dialysis treatment before transplant

Living donors

Deceased donors

Preemptive Transplant

• **NB** significant loss of LD advantage with time on dialysis

• Even so, further analysis demonstrated survival advantage of successful transplantation compared to those on the wait list

Preemptive Transplant

- Similar findings in earlier single centre studies, in pediatrics
- All support preemptive transplant or transplant vs dialysis for its beneficial effects on graft and patient survival

- Mange et al NEJM 2001, 344: 726
- Meier_Kriesche et al Kidney Int 2001,58: 1311
- Vats et al Transplantation 2000, 69: 1414
- Wolfe et al NEJM 1999, 341: 1725
Organ Donors,\textsuperscript{1} Canada, 1995-2004 (Number)

<table>
<thead>
<tr>
<th>Year</th>
<th>Deceased Donors</th>
<th>Living Donors</th>
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<tbody>
<tr>
<td>1995</td>
<td>437</td>
<td>230</td>
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<td>2004</td>
<td>414</td>
<td>468</td>
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</tbody>
</table>

\textsuperscript{1} Deceased donors are defined as donors originating in Canada where at least one solid organ was used for transplant. Data are from Quarterly Reports provided by Canadian OPOs.

Source: Canadian Organ Replacement Register, Canadian Institute for Health Information (2005)
Kidney Transplants by Health Authority since 2001

Total tx = 761

Region

Data Courtesy of Yvonne Sun BCTS
Percent Preemptive Transplantation in BC

Data Courtesy of Yvonne Sun BCTS
Proportion of preemptive LD transplants

Data Courtesy of Yvonne Sun BCTS
Organ Donors,\(^1\) Canada, 1995-2004 (Number)

1 Deceased donors are defined as donors originating in Canada where at least one solid organ was used for transplant. Data are from Quarterly Reports provided by Canadian OPOs.

Source: Canadian Organ Replacement Register, Canadian Institute for Health Information (2005)
Issues

• LD rates reached a plateau
• Related to:
  - resources (human, $$$)
  - reticence to refer
  - perceived lack of donor
  - perceived incompatible donor
  - economic barriers
  - educational gap
Paired exchange

• Coming soon to a theatre near you …
• Increase donor pool by a few, but still helpful
• Applies to ABO incompatible as well as crossmatch positive donor/recipient pairs
ABO INCOMPATIBLE EXAMPLE

Donor #1
Blood Type A

Recipient 1
Blood Type B

Wrong blood type

Donor 2
Blood Type B

Recipient 2
Blood Type A

Wrong blood type
POSITIVE CROSSMATCH EXAMPLE

Donor #1
Blood Type O

Recipient 1
Blood Type B

Positive Crossmatch

Donor 2
Blood Type B

Recipient 2
Blood Type A

Wrong blood type
Manpower

- Surgical
- Medical
- Coordinator
- Support/clerical
- Ancillary (radiology, laboratory, etc)
- New programs (failing graft clinic)
Continuing Education

• Different models:
  - Plenary
  - Outreach

• Frequency

• Content: Operational vs strictly educational; inbred vs outbred
Summary

- Goal is to increase renal transplantation in BC, both living donor and deceased donor
- Preemptive transplantation offers superior GS and PS and should be the standard
- In CKD clinics, first referral in appropriate patients should be to transplant; should be considered when GFR 25 ml/min
- Will require significant shift in how we do business in BC
Summary -2

- Initiatives underway at local, provincial, and national levels
  - for DD the presence of organ donor coordinators on site
  - economic support for donors (housing)
  - proposal of legislation at federal and provincial levels re tax breaks
- Will require increased resources if successful