Disease transmission through live organ donation (a focus on HIV, HCV and HBV): from here to there

The starting point

Work group

- Dan Schwartz: CMS
- Chris McLaughlin: HRSA
- Brian Shepard: UNOS
- Jerry Holmberg: HHS
- David Reich: ASTS
- Bryce Kiberd: CTS
- Tracy Schmidt/Jeff Orlowski: AOPO
- Tim Pruett: ASTS

Premise(s)

- No one wants to a disease to be transmitted through a transplanted organ for lack of attention.
- Live organ donation has been ongoing successfully in the US for more than 50 years
- Maximizing benefit and reducing risk for adverse events of the donation procedure has been a goal of practitioners and the professional societies since live donation began.
- Two very public disease transmissions have recently occurred through live organ transplantation.

What is the actual scope of the problem? What needs to be done about it?

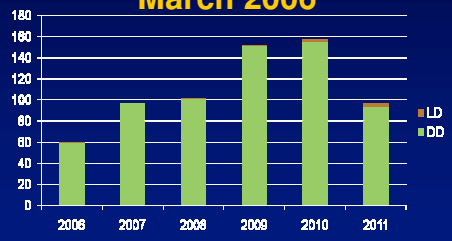
Live organ donation and DTAC 2008-2010

- Since 2008, 19,386 live organ transplants (19,383 donors).
- 4 reports to DTAC re: unexpected risks for disease transmission.
- Not reported to DTAC live organ recipients with HCV (anti-HCV+) or HBsAg +:
  - 624 HCV 9 donors HCV+
  - 332 HBV 99 donors HBsAg+ (data still in clean up)

HBV, HCV and HIV and live donation

- Viral infected recipients are benefited by organ transplantation
- Detection of the virus in a donor does preclude organ donation
- Policy at present is not proscriptive as it relates to processes of detection or transplantation.
- Unsuspecting transmission of a virus to an uninfected recipient is uncommon given current practices and reporting strategies.

Reporting has increased since the Improving Patient Safety Portal was implemented in March 2006



OPTN

Potential Living Donor Derived Disease Transmission Events

- 9 LD Potential Donor-Derived Disease Transmission Reports 2006-2011
  - **5 malignancies**
  - **4 infectious diseases**

OPTN

Living Donor Malignancy Reports

5 malignancies reported to the OPTN

- leukemia
- kidney cancers (various types, 1 transmission)

OPTN

Living Donor Infectious Disease Reports

4 potential disease transmissions reported to the OPTN

- HCV (discussion in the media)
- HBV
- HIV report (Reported in MMWR)

OPTN

Processes to get acceptable outcomes

- Carrot
  - Be true to Hippocratic oath
  - Education
  - Incentives
  - Accolades
- Stick
  - Policy and regulation
  - Fine or discipline for variation
  - Exclusion from the community

Carrot

- Hippocratic oath: "Primum non nocere"
- Training/credentialing
  - ASTS education universe
  - Fellowship programs
- Ongoing professional education
  - National/international conferences
  - Single session meetings: such as this one.

The problem with carrot/reward system is inconsistency and reproducibility

Stick

- Policy implementation often comes as a reaction to an isolated event.
  - Goal to prevent adverse events from happening again.
- To be effective, policy must be enforceable and clear.
- To be relevant, policy must be directed towards an event that is commonplace.
- Kirkland M, "The precautionary principle: a double edged sword?" Cell Tissue Bank (2010) 11:217–224
  - The solution to a problem should not inflict more damage to the system than the problem itself causes.

Live donation POLICY came about after 2006

Policy relating to live organ donation was mostly directed at (uniform) donor protections. Little emphasis was placed upon recipient risks.

OPTN and CMS both have interests in live donation processes

- Complete donor medical and psychosocial evaluation is mandatory (Appendix B/UNOS bylaws and 482.90 includes informed consent)
  - CMS requires compliance with OPTN rules and requirements (482.72)
- CMS with additional conditions of participation
  - QAPI process (482.96)
  - Independent donor advocate to protect donor interests (482.98) and resources for donor risks and informed consent. (482.102)

OPTN Resource: Medical Eval of Live Donor

Evaluation for transmissible diseases: 0.5/13 pages

http://optn.transplant.hrsa.gov/ContentDocuments/Guidance_ProgramSpecificLivingKidneyDonorMedEvalProtocols.pdf

10. Screening for transmissible diseases:

This screening is used to identify the risk of passing an infection or disease to a recipient. This screening may also identify a condition that may require donor treatment or may increase the risk of donation.

Infectious disease testing typically includes testing for the following:

- CMV (Cytomegalovirus)
- EBV (Epstein Barr Virus) – VCA or EBNA antibody test may be performed if the recipient is EBV seronegative
- HIV 1,2 (Human Immunodeficiency Virus)
- HTLV I (Human T-cell Lymphotropic Virus) antibody testing
- HBsAg (Hepatitis B surface antigen)
- HBcAB (Hepatitis B core antibody)
- HBSAB (Hepatitis B surface antibody)
- HCV (Hepatitis C Virus)
- RPR (Rapid Plasma Reagin Test for syphilis)
- Tuberculosis

Other diseases may be tested for depending on program preference and donor risk profile:

- o Strongyloides for donors from endemic areas
- o Trypanosoma cruzi for donors from endemic areas
- o West Nile for endemic areas
- o Toxoplasmosis: Transmission is low if recipients are treated with trimethoprim-sulfamethoxazole

11. Cancer screening:

The screening tests follow the practices advised by the American Cancer Society.
Screenings to be performed depending upon gender, age, or family history include:

- Cervical Cancer
- Breast Cancer
- Prostate Cancer
- Colon Cancer
- Skin Cancer
- Lung cancer screening is not currently recommended by the American Cancer Society, but could be considered in the older patient with a strong smoking history.

6/20/2008

OPTN Policy

- Policy 12.0 "Living Donation" 11/9/2010
  - 12.3 Medical evaluation: ABO must be checked and verified twice
- Other policy
  - 12.5 prospective cross-match (12.5.6 match run for non-directed donor kidneys)
  - 12.6 Only OPTN member must retrieve kidney for txp
  - 12.7 Responsibility for transport of LD organ
    - Packaging, labeling specifications (donor ID, ABO type, date and time organ retrieved)
    - Transplant center responsible for ensuring that organ going outside recovery facility is packaged and labeled appropriately.
  - 12.8 Reporting responsibility
    - 2 year follow-up, any donor death/organ failure, nonutilized organs, redirected organ
  - 12.9 Long-term care/support of live donors
    - Wait list placement for donors needing a txp

OPTN policy regarding Disease Transmission Events

Policy 4.4 Potential recipients must be **informed** of risk for infection or cancer disease transmission through organ transplantation

Policy 4.5 POST-TRANSPLANT REPORTING OF POTENTIAL TRANSMISSION OF DISEASE OR MEDICAL CONDITIONS, INCLUDING MALIGNANCIES. In order to promote prompt notification of potential risk of disease transmission through organ transplantation, **all events** involving unexpected potential or proven transmission of a medical condition, including infections and malignancies, discovered after procurement of a donor organ must be reported to the OPTN Patient Safety System.

Policy 4.5 Reporting Recipient Responsibilities

- **When an organ recipient is suspected to have, is confirmed positive for, or has died from a potential transmissible disease or medical condition for which there is substantial concern that it could be from donor origin,** then the transplant program must notify the Host OPO by phone and provide available documentation to the Host OPO as soon as possible, and not to exceed 24 hours of this knowledge/concern. The transplant center that suspects potential transmission **should not wait for all medical documentation that may eventually be available,** but must inform the Host OPO and/or the OPTN Patient Safety System to transfer knowledge/concern as soon as possible to all other centers that received organs from the same donor.

CMS: "Final Rule" on standards of care and requirements for transplant centers to receive Medicare & Medicaid patients and reimbursement. March 2007 (my italics)

- Section 482.92(c)
  - (c) Standard: Living donor transplantation. (No comparable OPTN policy/bylaw)
  - If a center performs living donor transplants, the transplanting surgeon and at least one licensed health care professional at the transplant center must verify that the donor's blood type and *other vital information is compatible with transplantation of the intended recipient* immediately before the removal of the donor organ(s) and, if applicable, prior to the removal of the recipient's organ(s).

CMS: "Final Rule" on standards of care and requirements for transplant centers to receive Medicare & Medicaid patients and reimbursement. March 2007 (my italics)

- § 482.94 Condition of participation: Patient and living donor management. (No comparable OPTN policy/bylaw.)
  - Center must have *written* donor management policies for the *donor evaluation*, donation, and discharge phases of living organ donation if it performs living donor transplants.

CMS: "Final Rule" on standards of care and requirements for transplant centers to receive Medicare & Medicaid patients and reimbursement. March 2007

- Other sections of the CMS conditions for participation relate to donor:
  - Selection criteria
  - informed consent,
  - independent donor advocate
  - necessary resources for evaluation and management.

Disease transmission: HTLV-1 recently omitted from mandatory screening

- **Case report of HTLV-1 associated myelopathy (HAM) manifested after renal transplantation.** Rinsho Shinkeigaku. 2010;50(4):241-5
- **Transmission of human T-lymphotropic virus type I by bilateral living-donor lobar lung transplantation.** J Thorac Cardiovasc Surg. 2009 Jul;138(1):255-6.
- **Adult T-cell leukemia development from a human T-cell leukemia virus type I carrier after a living-donor liver transplantation.** Transplantation. 2006 Sep 27;82(6):840-3.

Where should we go with live donor assessment and testing?

- Gap analysis: fill in the holes of existing policies.
- Education: minimize heterogeneity of knowledge regarding what testing means and risks for recipients. Raise level of care.
- Policy: define and enforce essential elements of good practice and avoid proscriptions that lead to inefficiencies or conflicting measures.