Organ Transplantation and HIV Disease

*Necessity* colluding with *Science* to save and improve life

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HIV and Beyond: The Benefits of HIV Research
World AIDS Day 2017
Exponentially rising numbers on the UNOS waiting list as demand continues to outstrip the meagre donor organ supply
Scarce donor organ supply paving the way for the HOPE Act and HIV+ to HIV+ transplantation...

HIV negative donor organs in recipients with HIV infection establishes appropriate HIV+ individuals as potential candidates for transplantation

South Africa: Kidney transplantation with HIV infection in donor and recipient as HIV+ patients with ESRD not candidates for dialysis

The HOPE Act (November 2013): Use of HIV+ donor organs is no longer illegal in the US (NOTA ban from 1988 is lifted)

NIAID-sponsored clinical trials: CCR5 blockade (Maraviroc), HIV+ to HIV+ kidney and liver transplantation
Immunosuppression required for transplantation does not hasten HIV disease progression nor reduce survival

150 kidney TX, 75 liver TX
19 US TX centers
HIV-donors, HIV+ recipients

Assumption: HIV virus destroys CD4 T-cells and host immunity—the interplay of additional IS required for organ transplantation would precipitate AIDS complications

HIV+ Kidney Transplant Volume is taking off in the US

> 40 fold increase over the past 14 years

226 transplants reported in 2015

...from aging, antiretroviral drug (ART) toxicity, HIV infection, and other co-morbidities
HIV+ Liver Transplant Volume is taking off in the US

...from aging, antiretroviral drug (ART) toxicity, HIV infection, and other co-morbidities
Excellent intermediate outcomes in HIV+ to HIV+ kidney transplantation

PL 113-51: The HIV Organ Policy Equity (HOPE) Act

Eliminated the prohibition on acquisition of organs from HIV+ donors, limiting their use to

- Recipients infected with HIV
- Participating in clinical research approved by an Institutional Review Board

Criteria, Standards and Regulations

- Not later than 2 years after the date of the enactment of the HIV Organ Policy Equity Act, the Secretary shall develop and publish criteria for the conduct of research relating to transplantation of organs from donors infected with human immunodeficiency virus (in this section referred to as ‘HIV’) into individuals who are infected with HIV before receiving such organ.
NIAID studies now in pipeline to improve life with an organ transplant in the context of HIV disease

Impact of CCR5 blockade in HIV+ kidney transplant recipients (Stock)

Prospective, multicenter, clinical trial of HIV+ deceased donor kidney transplants for HIV+ recipients (Durand/Segev)

Unlocking the potential of HIV-infected deceased donors for organ transplantation (Tobian) (R01)

Prospective, multicenter, clinical trial of HIV+ deceased donor liver transplants for HIV+ recipients (Durand/Segev) (scientific review pending)
HIV research contribution to organ transplantation...

Law, policy, regulation: HOPE Act
Harmony between new Federal and State laws

Ethics (justice, beneficence), informed consent, patient advocacy, unmet need and disparities in need and access to transplantation

Donor supply, organ allocation, organ discard rate, UNOS waiting list, morbidity and mortality while waiting

Basic and clinic science: immunologic, virologic, clinical outcome
In summary, advances in HIV research are yielding dividends in organ transplantation...