10. HIV and solid organ transplant

10.1 Kidney/pancreas transplant

- Comparison of PI-based and non PI-based regimen on kidney transplant graft outcomes

- Review article of HIV and transplantation that discusses outcomes in HIV D-/R+ transplantation and HIV D+/R+ deceased/living donor kidney transplantation.

- Prospective multicenter study comparing HIV D+/R+ to HIV D-/R+ patients; Study did notice a trend towards higher rejection rates in the D+/R+ study group

- Retrospective study comparing graft rejection in HIV positive kidney transplant recipients who received maraviroc therapy compared to maraviroc-free antiretroviral regimens; No difference of graft rejection was seen between groups

- Case report of a HIV positive kidney transplant recipient who achieved controlled BKV viremia by switching CNI to sirolimus, discontinuing the steroid, and receiving a short course of leflunomide

- Letter to editor outlining case where donor HIV strains are detected in HIV positive recipient post transplant.

- Retrospective study to characterize comorbidities, viral control and management, viral resistance, and KT evaluation appointment rates in a cohort of KT evaluation-eligible HIV-positive patients.
- First known case report of an ABO-incompatible kidney transplant between HIV+ donor to HIV+ recipient.

- 122 HIV-positive kidney transplant recipients at Hahnemann University Hospital received PCP prophylaxis for 6 months; After a median follow-up of 2.88 years, PCP did not occur in any of the recipients.

- Case series evaluating tacrolimus trough levels in 4 HIV kidney transplant recipients on PI or cobi-based regimens who were converted from capsule formulation to liquid formulation tacrolimus.

- Summary of HIV-recipient positive kidney transplant outcomes and management strategies from 19 cohort studies.

- Case report of HIV positive kidney recipient with stronglyoides hyperinfection, not detected on serology; treated with ivermectin therapy

- Retrospective analysis using SRTR data to evaluate utilization and outcomes of ESW in HIV positive kidney recipients; ESW use was more common with zero HLA mismatch, living donors, and lymphodepleting induction; Acute rejection was more common in the ESW group at 1 year.

- Retrospective review of short-term allograft and HIV-related outcomes following belatacept conversion in 10 HIV positive kidney recipients

- A French national registry study evaluating access to the waiting list and kidney transplantation in 255 HIV-positive individuals noting delayed and reduced frequency in transplantation (HR 0.75, 95% CI, 0.52-1.10).

- Case report of the antiviral effects of sirolimus in an HIV-positive kidney transplant recipient who experienced low-level HIV-1 replication reporting stable graft function with monotherapy immunosuppression.

- Prospective, multicenter single-arm trial in 61 adult patients living with HIV who undergo kidney transplantation aiming to evaluate 6-month clinical acute rejection rates in patients treated with raltegravir, effective HIV therapy and time to transplantation.

- Meta-analysis and systematic review of 27 cohort studies and 1670 case series published between July 2003 and May 2018

- Retrospective study characterizing donor selection of 43 kidneys from 25 HIV-positive deceased donors have been transplanted into patients who are HIV positive in Cape Town, South Africa.

- Overview of the transplantation needs in the HIV population focusing on kidney and liver transplants discussing rejection rates, hepatitis C coinfection, and new donor pool opportunities with HIV(+) donor to HIV(+) recipient donation.

- Case series of nine HIV infected SOT patients (8 kidneys, 1 heart): 6/9 patients contracted disease within 5 years of transplant attributed to sexual acquisition; in 7/9 patients, virologic response and CD4 recovery were achieved within 3 months after starting antiretroviral therapy.

- United States nationwide analysis evaluating the effectiveness of kidney transplantation in 605 HIV-positive recipients by reporting clinical and health care utilization outcomes including infection rates, in-hospital mortality rates, and hospital charges.
10.2 Liver/intestine transplant

- Retrospective review of 62,195 liver transplant recipients between 2008 and 2019 who were identified from United Network for Organ Sharing and Organ Procurement and Transplantation Network data. Analysis showed that there was an increase in utilization of HIV infected recipients over time, with an average annual percentage increase of 9.2%. Graft and patient survival increased over the study period as well. A sub analysis of HCV-infected liver transplant recipients from 2014-2018 showed no significant difference in patient or graft survival between HIV infected and uninfected recipients. Non-viral liver disease was identified as the leading cause of liver transplant in the United States in HIV-infected patients.

- Prospective trial examining the impact of everolimus on HIV persistence and immune responses; Outcomes did not show a significant effect on cell-associated HIV-1 DNA and RNA levels with the use of everolimus in the entire cohort, however, there were significantly lower RNA levels up to 6 months post intervention in patients who had everolimus time-averaged trough levels >5 ng/mL within the first two months of therapy

- Comparison of HIV positive liver transplant recipients between 2008-2015 in Europe and the United States to HIV negative recipients; Improvement of patient and graft survival in HIV-infected liver transplant recipients was observed over time.

- Evaluation of changes in T cell phenotype and polyfunctionality in patients with or without HIV infection receiving liver transplant

- Review of 10 liver transplant recipients who received dolutegravir based HIV therapy post transplantation

- Characterization of T cells and NK cells subsets in HIV positive liver transplant recipients and HIV negative liver transplant recipients

- Retrospective study to identify risk factors associated with early relaparotomies and its impact on overall survival in HIV infected liver transplant recipients.
10.3 Heart/Lung Transplant


- Narrative review of studies published through September 2020 on cardiac transplantation in patients with HIV; Short-term survival is comparable to the general population and HIV status remains stable with post-organ transplantation immunosuppression; Immunosuppression doses are not recommended to be reduced over long-term follow-up due to higher rates of cellular rejection in HIV positive patients.


- Case report of LVAD and heart transplant in patient living with HIV and review of current field


- Case report of first lung transplant in patient living with HIV in Brazil.
- Using data from UNOS dataset, outcomes between HIV positive and negative heart transplants were compared; Rate of acute rejection was significantly higher in the HIV-positive group and there was no difference in short and moderate term survival between HIV positive and HIV negative recipients.

- Case report of a HIV positive heart transplant recipient with giant cell myocarditis

- Case report discussing drug interactions present in heart transplant recipient living with HIV over 11 years of follow-up

- Multicenter retrospective study of 29 HIV infected thoracic transplant recipients from 2000-2016; At 1 year, a rejection rate of 62% was observed for heart transplant recipients

- Retrospective study comparing outcomes of 35 heart transplants between HIV-positive and HIV-negative recipients using SRTR transplant registry data reporting no difference in patient survival, overall graft survival and death-censored graft survival in HIV-positive and HIV-negative heart transplant recipients.

- Case report of a double lung transplant in a 50-year old HIV-positive patient with alpha-1 antitrypsin deficiency with a history of mycobacterium kansasii prior to transplant reporting stable graft function at 15-months posttransplant without initiation of mycobacterium therapy.

- Case report of a 48 year-old HIV-positive male patient who underwent heart transplantation from an HIV-negative donor complicated by disseminated intravascular coagulation.

- Case report of a 48-year old HIV-positive male who underwent successful bilateral lung transplantation in Canada discussing posttransplant HIV management, rejection & infection outcomes, and functional status at one year.
10.4 Concurrent HBV/HCV

- Review article of transplantation of donors with HIV or HCV

- Review article of the transplantation of hepatitis C virus (HCV), hepatitis B virus (HBV) and HIV-positive livers.

- Case report of kidney transplant recipient co-infected with HCV (genotype 2a)/HBV/HIV

- Case series of 6 HIV/HCV co-infected kidney transplant recipients from 2001-2018

- Case report of HIV positive liver transplant recipient (with CD4 52 and VL ND at the time of transplant) who had recurrence of HCV on POD 34

- Multicenter, prospective and retrospective study evaluating sofosbuvir therapy in 42 pre and 26 post liver transplant recipients. 93% of patients achieved SVR and post liver transplant survival was 87.9% at 5 years.

- Review overview of transplantation in patients living with HIV, with focus on the management of combination antiretroviral therapy in this population including patients with HCV and HIV.

- Monte Carlo microsimulation model of HCV infection and kidney transplantation amount coinfected kidney-only transplant candidates to estimate the cost-effectiveness of pre- vs post-transplant therapy.

- Monte Carlo simulation performed to assess the risk of HIV, HBV and HCV transmission through organ transplantation with parameters including risk of disease acquisition for increased risk
groups, number of virions that multiply to establish infection, virus doubling time, and limit of detection by NAT.

### 10.5 General/Other

- Case series of the characteristics and management of 8 HIV-infected kidney transplant recipients with COVID-19

- Retrospective review of kidney transplant recipients admitted with COVID-19, which found that concomitant HIV infection was associated with increased mortality (87.5% vs 36.1%, p<0.01).

- Evaluation of treatment and outcomes of COVID-19 in 11 transplant recipients infected with HIV

- Case series of 121 incident ALCL cases in HIV (n=86) and transplant (n=35) populations. ALCL risk was elevated in both HIV (SIR 5.43; CI 4.27-6.81) and transplant (SIR 5.96; 4.03-8.49) populations. Risk of ALCL was highest in the first year and after 10 years out from transplant in the solid organ transplant population. Only 12.5% HIV and SOT cases tested positive for Epstein Barr virus, suggesting that ALCL risk may not related to EBV infection.

- Revised version of the 2013 PHS guideline for assessing transplant donors and monitoring recipients for HIV, HBV, and HCV.

- Guidelines outlining considerations for the transplantation of HIV-positive donors and recipients in Southern Africa.

- Updates in organ transplant in the setting of HIV, including donors with false HIV + tests and increased cardiothoracic transplants.

- Case series of two patients diagnosed with COVID-19 in London who were also HIV positive kidney transplant recipients
  
  - Part of the HOPE pilot study; Included 14 kidney transplant recipients and 8 liver transplant recipients from 3 hospitals in the United States who had donor-derived HIV superinfection

  
  - Description of transmission of HIV, HBV, and HCV from organ donors in Australia finding 3/149 had viral transmission (1 HCV, 2 HBV) from donors, all of which were recognized by donation services.

  
  - Updated guidelines from the Infectious Diseases Community of Practice of the American Society of Transplantation review the management of transplantation in HIV-infected individuals

  
  - Retrospective multicenter study from French databases in 7 HIV positive solid organ transplanted patients reporting on the prevalence of Kaposi sarcoma.

  
  - Updated section of the ID AST Guidelines on screening of donor and candidate prior to solid organ transplant to assess risk based on viral history, immunizations and exposures

  
  - Guideline describing criteria to categorize donors at increased risk (increased risk donors [IRDs]) for transmitting these viruses to recipients; It also recommends universal donor testing for HBV, HCV, and HIV.

  
  - Review analyzing the pharmacokinetic profile of these newer antiepileptic agents to assess their potential for drug interactions with antiretrovirals and immunosuppressants.

  
  - The American Society for Transplantation Infectious Diseases Community of Practice guidance on strategies for living safely after SOT which includes potential exposure to others with viral or bacterial illness, potential exposure to food and water sources, participation in recreational activities, resuming sexual activity, living with pets, and opportunities for travel, especially internationally.
- Multi-center semi-structure interview-based study in 15 HOPE independent recipient advocates with the aim to understand the experiences of the first advocates serving in this role.

- Review article on evolution of HIV and solid organ transplant over 30 years with emphasis on recent developments in HIV-infected to HIV-uninfected individuals and their implications.

- HGG in HIV+ solid organ transplant recipients may contribute to infectious complications and other clinical endpoints.

- Multicenter survey study assessing center-level barriers to implementation of the HOPE Act including knowledge, attitudes and planned protocols.