

Tinus Du Toit – 2016
Visited Johns Hopkins USA

Background

I have been involved in the HIV positive-to-positive renal transplant project at Groote Schuur / UCT Private Academic Hospital for the past 4 years. Results from this study have not only changed our own practice, but resulted in the acceptance of the HIV Organ Policy Equity (HOPE) Act by the US Senate in November 2013, paving the way for clinical research and the revision of rules on organ donation and transportation in the United States.

As a result of the pioneering work done by Professor Elmi Muller, our unit has an excellent relationship with the Johns Hopkins Hospital in Baltimore, USA. We are currently performing collaborative research, under ongoing U01 funding, to identify virological factors associated with re-emergence of HIVAN in the transplanted kidney. To this end we are determining the incidence, extent and nature of donor-to-recipient HIV-superinfection using drug resistance testing, digital droplet PCR and two distinct next-generation sequencing techniques. Secondly, we are quantifying virus infiltration into the transplanted kidney and investigating virus compartmentalization in the kidney epithelium using laser directed micro-dissection.

The primary aim of my visit was to expand my basic science knowledge / skill set to benefit not only this project, but potentially other HIV positive to positive solid organ transplant programs. In addition, I was interested in gaining clinical exposure in the transplant unit and having discussions with relevant role players on the topics of subspecialist training, research and the potential for future collaborative research projects.

Laboratory exposure

Professor Tom Quinn played a central role in coordinating my visit. He arranged several meetings and introduced me to colleagues that could assist me in reaching my objectives. I am very grateful for his assistance in this regard.

Dr Jeff Quinn, a virologist experienced in laser capsule microdissection (LCM), assisted me with performing LCM on kidney biopsy samples from our study cohort in South Africa. We discussed the technical aspects, advantages and limitations of the procedure with specific reference to virus compartmentalization.

We also performed LCM on hepatocytes and discussed the potential of LCM in the investigation of individuals with Hepatitis B / HIV coinfection.

Infectious Diseases

I had the opportunity to observe and, at times, actively participate in the Infectious Diseases laboratory discussions. Researchers presented the problems they encountered in their own individual projects to the group on a weekly basis, as part of a troubleshooting session. These meetings were attended by Professor Dave Thomas, Director of Infectious Diseases. We discussed the potential for a collaborative research project on Hepatitis B / HIV coinfection and have been in contact since.

Clinical exposure

Despite not being the primary focus of my visit, I attended theatre whenever I could. Under the leadership of Professors Andrew Cameron and Benjamin Philosophe, I managed to observe several living donor hepatectomies, liver transplants as well as a robotic right hepatectomy. I also witnessed two microvascular hepatic artery reconstructions in paediatric liver transplant recipients. Informal discussions about procurement technique, allocation policy and certain technical aspects of liver transplantation, were equally insightful.

Furthermore, it was interesting to observe the theatre staff and theatre environment in general. The regard for patient and staff safety, was striking. The concept of a "Nurse Anaesthetist" was completely new to me.

Subspecialist training

I met with Russel Wesson, one of the transplant surgery fellows at JHMI and a graduate of the University of Cape Town, on a daily basis. From our discussions, it was clear that the transplant fellowship application process was extremely competitive and well organised. The National Resident Matching Program (NRMP) encompasses multiple fellowship matches representing

more than 60 subspecialties. A match allows applicants and program directors to consider each other without pressure, creates an impartial venue for matching applicants' and program directors' preferences.

The above system is not applicable to the South African context, as relatively few subspecialist training posts are available. However, I believe more could be done to ensure that the selection process of subspecialist trainees is more competitive and inclusive.

Research

I scheduled a meeting with Dorry Segev, the Director of Clinical Research in Transplant Surgery at JHMI. He has been instrumental in the acceptance of the Living Organ Donation Act of 2007 as well as the HOPE Act of 2013. In addition, he has published over 200 peer reviewed manuscripts in a number of leading journals, mostly linked to and motivated by his policy advocacy. The main aim of the meeting was to inquire about the prolific research group he has been mentoring for several years, with specific reference to funding, structure and collaboration.

Currently, the research group consists of about 20 MPH and 3 PhD students. Their work mainly revolves around the epidemiological aspects of transplantation and organ allocation. Students / researchers are fully funded through research grants and very few have clinical responsibilities during this time. Some external research grants are currently in place. However, most of the students / researchers are funded through internal funding opportunities. The Hospital generates funds from clinical services rendered and stands to benefit (in terms of patient numbers) from the publicity associated with high profile research at their institution. Therefore, Hospital management constantly seeks to reinvest in research.

I left thinking that, in many ways, collaboration between clinicians and the School of Public Health makes perfect sense. MPH students are often desperate for clinician input to ensure that the project they are driving is clinically relevant. Clinicians are often tied up in clinical responsibilities and might need guidance from colleagues with a stronger biostatistics / epidemiological background.

Conclusion

The visit to JHMI was a thoroughly enjoyable and insightful experience, allowing me to strengthen the already excellent relationship between our centres. The combination of Infectious Diseases and Basic Science exposure granted me the opportunity to identify and discuss future collaborative research projects. I gained insight into the research and funding models of a tremendously successful research unit and will selectively apply these principles, within the constraints of our system.