Renal Association Elective Report

I spent my elective at Queen Mary Hospital, Hong Kong. Queen Mary Hospital is one of the largest acute regional hospitals with 1,400 beds and is also a tertiary and quaternary referral centre for multiple specialties, including kidney and liver transplant surgery. Being the main teaching hospital for the University of Hong Kong, it also serves as a training and research ground for medical students and doctors. One of the main attractions of Hong Kong as an elective destination was my desire to 'see' some different medicine. I wanted greater exposure to endemic diseases in the Far East, to explore the dynamics of the doctor-patient relationship as well as to master communication skills in a different language. It was also a great opportunity for networking and familiarisation with the structure of a different public health system.

I was excited with this new adventure and fully immersed myself in all that was offered by the renal team. I attended ward rounds, grand rounds, clinics, MDTs and even observed some renal biopsies. Daily ward rounds started in 6 general wards and ended in the specialist renal unit. The nephrologists were fantastic physicians, and I learned most when we went through the principles of investigation, management and diagnosis of the general medical patients. These were predominantly acute kidney injuries from various specialties, and there was a case of myeloma with suspected Fanconi's syndrome. I also had some great teaching on electrolyte disturbances and fluid management, which will most definitely come in handy when I start FY1! Grand rounds were weekly ward rounds conducted by 3-4 consultants with the whole renal team, i.e. it occurred when you see a congregation of 10-12 doctors trying, but failing, to fit around one patient bed and end up blocking the entire corridor of the bay. Although it made me feel like an 'extra', it was a great opportunity to meet the junior doctors and observe how case presentations were done. The variety of patients on the renal wards were very similar to those that I've seen in the UK and consisted mostly of patients with chronic kidney disease due to primary renal pathology, e.g. glomerulonephritis or transplant complications. One interesting case was a patient who had undergone a combined liver-kidney transplant due to primary hyperoxaluria type 1 (PH1). PH1 is an autosomal recessive disorder and is caused by a deficiency of the liver alanine-glyoxylate aminotransferase (AGT) enzyme resulting in the accumulation of glyoxylate and oxalate. As oxalate is excreted almost entirely by the kidney bound to calcium, excess oxalate predisposes to recurrent calcium oxalate stone formation and nephrocalcinosis. Over time, renal function deteriorates, necessitating the commencement of renal replacement therapy. The liver is the sole organ for glyoxylate detoxification, hence a combined liver-kidney transplant will ensure that excess production of oxalate ceases and a recurrence in the transplanted kidney can be avoided (Cochat & Rumsby, 2013).

Furthermore, time spent in the dialysis centre provided some insight into the day-to-day running of the unit. Due to the endemicity of hepatitis B (HBV), the unit consisted of two separate dialysis bays – one for HBV positive patients, the other for HBV negative patients. Unlike in the UK where patients have a choice between haemodialysis (HD) and peritoneal dialysis (PD), patients in Hong Kong are only offered PD as first line renal replacement therapy on the public system (unless contraindicated) due to the high cost of the HD service. As the ward provides a PD education service, I saw, for the first time, Tenckhoff catheters and the different compositions of PD fluids. However, the higher proportion of PD patients meant that complications such as exit site infections and PD peritonitis were a common occurrence on the wards.

Transplant medicine fascinated me, in particular the immunology of ABO and HLA compatibility. I was amazed at the fact that ABO-incompatible allogenic transplants are now possible! It was also great to have gained a better understanding of the mechanisms of actions of the various induction and immunosuppressive agents. During my time on the transplant ward, I was fortunate enough to have followed a type I diabetic patient through the whole transplant journey from admission to discharge. She had been on HD for over a year and was the best-matched recipient for a donation by brainstem death (DBD) kidney. All patients on the waiting list have an extensive pre-transplantation evaluation which included blood chemistry, infectious profile, cardiac screening and immunologic workup. The operation was unremarkable, but she remained oliguric for over a week. After having ruled out potential pre-renal and post-renal causes, it seemed that the most likely cause was delayed graft function secondary to acute tubular necrosis (ATN), in which the recovery was hampered by calcineurin inhibitors. She eventually required HD (due to hyperkalaemia) whilst the allograft recovered. A transplant biopsy was performed confirming the diagnosis (as well as ruling out acute rejection) and the ciclosporin dose was subsequently reduced. She was discharged when urine output and blood tests were satisfactory. Aside from awareness of the immediate transplant complications, I came across cases where patients presented with late complications in the transplant clinic. As the aetiologies mainly involved intrinsic renal pathology, the diagnoses were made in the renal histopathology meeting. Thanks to the patience of my consultant, I gradually began to pattern-recognise and started to be able to distinguish a tubulitis (suggestive of acute rejection) from interstitial nephritis (suggestive of BK nephropathy – the SV40 staining helped of course!).

I was also made aware of some special programs for living donor transplantation in cases where willing kidney donors are unable to help their loved ones due to incompatibility. One such programme is called a ‘family swap’. This is where two families (A and B) are ‘cross-matched’ so that donor A is compatible with recipient B and vice versa. Another programme called the ‘live donor to deceased donor waiting list exchange’ involves a family member being a live donor to an unrelated individual in exchange for the donor’s loved one to be moved higher up in the deceased donor waiting list.

Hepatitis B (HBV) is an endemic disease. According to the Hong Kong Department of Health, the prevalence of chronic HBV infection is moderate (Viral Hepatitis Preventive Service, Department of Health, HKSAR, 2017). This is heavily reflected in medical practice as there is meticulous HBV testing and most patients are aware of their HBV status. From a renal perspective, HBV has a propensity to cause membranous nephropathy. I recall a medical blunder heavily reported in the news at that time regarding a HBV carrier who succumbed to fulminant liver failure requiring two liver transplants. The patient was reported to have an unspecified nephropathy and was prescribed steroids. Unfortunately, the HBV antiviral entecavir was accidently omitted from the prescription. It was likely that the acute liver failure was a result of HBV reactivation, and the immunosuppressive effect of steroids further allowed the virus to replicate unchecked. As I reflect on the case, it highlighted the clinical significance of the awareness of endemic diseases when one works abroad. Importantly, the heightened vigilance can ensure that we do not cause unnecessary harm to patients. Another example of endemicity is the 10% prevalence of glucose-6-phosphate (G6PD) deficiency in the Hong Kong population. G6PD status is a commonly ordered blood test by junior doctors. This is particularly important in immunosuppressed patients, e.g. after renal transplant, as sulphonamides such as co-trimoxazole are contraindicated to prevent a haemolytic crisis.

My time in Hong Kong far exceeded my expectations. To my delight, I have met my objectives of widening the breadth of my medical knowledge, as well as gained a glimpse of

how differently medicine is practiced in a similarly well-developed country. Furthermore, proofing to myself that I had the ability to speak to patients fully in Cantonese or Mandarin by the end was extremely rewarding. Renal medicine has its place in all clinical specialties as the kidneys can become acutely dysfunctional due to various pathologies. Be it surgical or medical on take, we're bound to encounter a handful of acute kidney injuries or complications of chronic kidney disease on the wards. Suffice to say, regardless of my career decisions, I have taken away some invaluable general principles as well as gained an insight into the variety and opportunities nephrology has to offer.

References

Cochat, P. & Rumsby, G., 2013. Primary Hyperoxaluria. *New England Journal of Medicine,* Volume 369, pp. 649-658.

Viral Hepatitis Preventive Service, Department of Health, HKSAR, 2017. *Hepatitis B.* [Online] Available at: http://www.info.gov.hk/hepatitis/english/hep_b_set.htm
[Accessed October 2017].