CARDIOLOGY.

Elective Report 10th June

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With my elective period approaching I had to decide where I would like to spend my time. In order to come up with a shortlist there were several factors I took into consideration.These included, amongst others, primary language spoken in the area, urban vs. rural location and private vs. community hospital. I was certain, however, that I wanted to experience what similar standard of healthcare was like in another country. So, I decided to split my elective into two parts. I spent two weeks at a GP practice in East London and three weeks with the cardiac electrophysiology team at the Ronald Reagan Medical Centre in Los Angeles, United States. In order to make maximum use of my elective I set myself three learning objectives which are as follows:

1. To gain further knowledge and clinical skills in cardiology and intensive care
2. Compare and contrast US and UK healthcare systems
3. Reflect on my experiences during my elective

In Los Angeles I found myself as one of two students whowas incorporated into the cardiac electrophysiology team. I quickly learned that I was part of a very sub-specialist team who mainly dealt with cardiac arrhythmias. As such we were primarily a consult (referral) and outpatient service.Rather than being the primary care physicians for any particular patients, we would be asked to evaluate patients who were queried to have any cardiac arrhythmias. Even Cardiology occasionally referred patients to the electrophysiologists for evaluation emphasising the specialist nature of the team.One of the first things I noticed compared to the UK healthcare system was the variation in terminology used in hospital. This included things such as the names of drugs used, medical terms and positions held by the doctors. Although this was not a particularly major difference, it was still an obstacle to overcome in order to communicate effectively and work efficiently as part of the team. An example of some of these

differences included the names of some commonly used cardiac drugs such as Furosemide and Warfarin.These were referred to as Lasix and Coumadin respectively.

In the United Kingdom healthcare is free at the point of use and subsidised by high taxationat a nationwide level. This is in contrast to the United States where health care is market based and relies primarily on the private sector for funding. Rising medical costs are a problem in both the UK and US. It has been suggested that a potential downside of the UK model of the National Health Service has been how it has resulted in the rationing of patients' time with the doctor. This has often meant that some patients under the National Health System have to wait several weeks to see a specialist for their medical needs or even months for surgery that has been deemed to be elective. Due to the single payer system in the UK, there is little incentive for competition therefore allowing patients to be able to see the best doctors, use the best medical equipment and have the best treatment. In contrastAmericans very often have to pay for health insurance to avoid paying large medical bills if they require medical care. Due to how US health care has been set up, it is conducive to competition and as such patients are able to receive a consultation with a specialist or have elective surgery with little or no waiting time (Schulte, 2009).

During my elective abroad I was able to observe patients undergo electrophysiological studies and learn more about the electrical activity and conduction pathways of the heart. Having never seen one performed before I was keen to learn more about this type investigation. An electrophysiological (EP) study is a minimally invasive procedure undertaken in a cardiac catheterisationlaboratory (cath lab)which is used to investigate the location and origin cardiac arrhythmias. This study can also help to determine the type of arrhythmias present in a patient, the presence of any extra electrical pathwaysand whether the patient would need any myocardium ablated as treatment (American College of Cardiology, 2006). Single or several catheters may be placed into the heart using the venous return to the heart via the groin or arm. These catheters are

then used to measure cardiac electrical activity and stimulate the heart to induce any arrhythmias (Asirvatham, 2009).

During one particular case a 45 year old man with a history of intermittent palpitations and light headedness was being investigated for dysarrythmias. Whilst undergoing the EP study the Cardiac EP team were able to illicit anarrhythmia in this patient. Upon assessment of all the electrodes the patient was diagnosed with a relatively uncommon arrhythmia calledantidromicatrioventricularre-entrant tachycardiawhich occurs in around 10% of patients who suffer with Wolf Parkinson White syndrome (Nair et al, 2010). This is a wide complex tachycardia with electrical waves of depolarisation that travel down the accessory pathway which then allows for antegrade conduction.This therefore allows the electrical impulses to conduct from the atria to the ventricles via the accessory pathway.There is a widened and occasionally 'bizarre' QRS complex due to depolarisation being propagated through non specialised myocardium. Finally the impulse travels in a retrograde direction from the atrioventricular node back to the atria (Esberger et al, 2002). Observing this particular case made me appreciate that more detail can be ascertained from the heart's electrical activity other than just by looking at a 12 lead ECG.

Being part of a consult team we were requested to evaluate patients all over the hospital. This provided me with an opportunity to make a mental comparison with the hospitals in East London. What was most evident was the use of separate rooms for every patient in the Ronald Reagan Medical Centre. This was in contrast to hospitals in London where patients resided in a ward style open environment. However, the trend of individual rooms, one to one nursing and individual doctors' stations was a recurring theme at the Ronald Reagan Medical Centre.

Even as a student I was fully incorporated into the team. If any new patients referred to us I would do a full history and physical (examination) also known as H & P. During the ward rounds I would present my patient with differential diagnoses and formulate a

management plan with the Attending (consultant) or Resident (registrar). A patient I clerked aptly demonstrates my role in the team and shows the speed of service the patients received which was also generally the norm in the Ronald Reagan Medical Centre. Mr Z came to hospital presenting with repeat episodes of light headedness and mild shortness of breath on exertion. He had a coronary artery bypass graft with no complications approximately 6 months earlier. On the second day of his admission he was referred to the cardiac electrophysiology team based on his symptoms, repeat ECGs and observations showing a persistent bradycardia with symptoms. I was sent to take a history and do a physical examination on the morning of the referral. After a discussion with my Attending doctor we felt an elective single chamber permanent pacemaker insertion was the most appropriate next course of treatment for this patient. This was arranged to be undertaken the following afternoon. So the following day I observed the placement of the permanent pacemaker. The patient was sedated during the procedure which involved insertion of the pacemaker wire into the left ventricle via the subclavian vein and once it was in position, the pacemaker was placed in situ superficial to the left pectoralis major muscle, and the incision stitched back up. Later that day we went to see the patients on the ward rounds where it was explained to him that the procedure went well and the Attending explained gave him relevant information about his wound care and dressings. Later the following day, Mr Z was allowed to be discharged.

My experience in Los Angeles has allowed me to appreciate what we do well as doctors trained in Britain but also how working as a doctor here could be made more efficient. E.g. by the implementation of a fully computerised patient system where patient files could be accessed from anywhere if necessary and all quickly accessible if needed. Nonetheless, I can now appreciate that there is more than one model of healthcare that is effective at helping doctors fulfil their role of helping patients with ill health.

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