ELECTIVE REPORT

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Elective Report

Introduction

I carried out my medical elective in the Department of Cardiology at Meenakshi Mission Hospital and Research Centre (MMHRC) in Madurai, a vibrant city in the state of Tamil Nadu, South India (Figure 1). One of South India's greatest temple cities, Madurai is particularly famous for its magnificent Meenakshi Amman Temple situated on the banks of the River Vaigai which attracts over 15,000 visitors a day. Madurai has a rich cultural heritage and is the oldest city in Tamil Nadu. Today, Madurai is one of the biggest modern commercial and industrial cities of India and attracts a large number of tourists from within the country and abroad. The city has a population of just over 3 million with Tamil being the main language spoken there.

Figure 1: District Map of Tamil Nadu (South India)

Madurai (circled in red)

With over 750 beds, Meenakshi Mission Hospital and Research Centre (MMHRC) has grown to be a multi-speciality hospital, delivering quality healthcare to patients both in and around Tamil Nadu. The hospital also receives many international patients every year. The Department of Cardiology at MMHRC provides access to world class cardiac health care and 24 hour emergency services, especially to the rural populations in the areas surrounding Madurai. It is very well equipped to manage cases of acute myocardial infarction for primary percutaneous coronary intervention (PCI) and subsequent management. As well as this the department sees many cases of heart failure, valvular heart disease and other common as well as rare cardiac conditions. The department has well-equipped

Cardiac Catheterisation Labs carrying out where many diagnostic and interventional cardiac procedures are carried out daily, such as primary percutaneous transluminal coronary angioplasty (PTCA) for coronary artery disease and acute MI, pacemaker insertion, balloon mitral valvotomy, atrial septal defect (ASD) devices and patent ductus arteriosus (PDA) coil closure for congenital heart disease. There are also 2 Coronary Intensive Care Units equipped with all the required monitors and ventilators for critically ill patients and general cardiology wards for more stable patients.

Throughout my time at MMHRC, I was able to spend time in all units, observing procedures as well as spending time with the department's 4 senior consultant cardiologists, in particular Dr. Sivakumar M.D. DNB (Cardio) who helped me gain an excellent insight into how cardiovascular medicine is practised in India.

1) <u>What are the prevalent cardiac conditions in Tamil Nadu? How does this differ from the UK?</u>

During my time spent in the Department of Cardiology, the most condition presenting at the hospital was coronary heart disease (CHD) and acute myocardial infarction (AMI). CHD is the leading cause of death in India and the leading cause of death worldwide. The condition, previously thought to primarily affect more developed countries such as the UK and USA, now leads to many deaths and disabilities in less developed countries such as India with rates increasing disproportionately compared to well developed countries. The most striking finding during my time spent at the Department of Cardiology was seeing many young patients in their late 20s/early 30s presenting with symptoms of angina indicative of CHD. When discussing this finding with one of the senior consultant cardiologists, he explained how CHD affects people at younger ages in India compared to countries like the UK where patients usually present with symptoms at a later age. This has resulted in a greater economic impact on India due to younger people being affected.

I also observed many cases of rheumatic heart disease, i.e. rheumatic fever causing valvular defects in patients later in their lives, whereas in the UK rheumatic heart disease is a rare finding. Many of these particular patients I spoke to had rheumatic fever as children and presented with symptoms of angina-like chest pain, shortness of breath and syncope as adults. I was able to talk to and follow through many cases of rheumatic heart disease during my time at MMHRC.

2) <u>How are cardiac services organised and delivered in Tamil Nadu? How does this differ from the UK?</u>

The Indian Healthcare System includes public (government) and private hospitals as well as specialised Ayurvedic hospitals offering alternative medicine. Publicly funded government hospitals provide basic health care required by patients but often lack adequate facilities that may be needed in some cases. For this reason, many patients opt for private healthcare. During my time spent at the Department of Cardiology I was able to understand the system used to deliver cardiac services to patients and found many similarities to the system used in the UK. I attended the daily morning ward round where the consultant cardiologist was accompanied by his team and saw all patients, both stable and critically unwell patients to assess their progress or fitness for discharge. There were also daily outpatient clinics where both new and follow-up patients were seen. I noticed the doctors had many more patients to see in clinic when compared to the UK. This was mainly due to the increasing incidence of CHD in India as well as a greater population in India in comparison to the UK. Tests such as exercise ECG, known as Treadmill Test (TMT) in India, and echocardiograms were carried out and reviewed almost immediately if the consulting doctor felt it was necessary. In many cases if the patient was deemed to be high risk for CHD based on the history and investigation findings, the diagnostic procedure of invasive coronary angiography would then be discussed with the patient.

I was able to observe many coronary angiograms being performed and identify lesions indicative of coronary heart disease, i.e. stenosis, which the consultant cardiologist kindly talked me through. Several of these patients

required immediate coronary angiography and PTCA for acute MI brought in directly from the emergency department, which I was also able to observe.

3) What is being done to tackle the rising epidemic of cardiovascular disease in India?

Due to the rapidly increasing incidence of cardiovascular disease, in particular coronary heart disease, much is being done to increase awareness of the risk factors associated with developing the condition. For example, during the outpatient clinics the consultant cardiologists would spend time explaining to the patient and their family about reducing modifiable risk factors, such as improving diet, cutting down smoking and taking regular exercise to reduce risk of developing or to prevent the progression of coronary heart disease. These patients were then told to attend the clinic in 3 months to reassess their symptoms and review their management if necessary.

The relatively low levels of the conventional risk factors for cardiovascular disease in developing countries such as India offers opportunity for early prevention of the condition which are facilitated by the assessment and education of patients in clinics, etc.

4) Develop clinical skills and increase knowledge of the management of common cardiac conditions

During my time spent at the Department of Cardiology I had many excellent opportunities to develop my clinical skills. Through regularly attending ward rounds and spending my own time on the Cardiology Ward talking to patients about their symptoms and management as well as examining patients with a wide range of cardiac conditions, such as coronary heart disease, valvular heart disease (in particular rheumatic heart disease patients) and heart failure I was able to develop my clinical skills. The nursing team looking after the patients during that time kindly helped me get to know patients and talk through the management of each patient. I was also able to work closely with the senior consultant cardiologists, particularly Dr. Sivakumar, who helped me develop and consolidate my knowledge of common cardiac conditions and their management. I also had many opportunities to attend the Emergency Department where I was able to observe the management of acute MI as well as patients presenting with acute heart failure, allowing me to consolidate my understanding of these conditions and observe the similarities and differences to the guidelines applied in the UK for the management of these conditions.

References

1) Figure 1. https://circ.ahajournals.org/content/97/6/596.full

2) Meenakshi Mission Hospital and Research Centre. Cardiology. http://www.mmhrc.in/index.php/speciality/cardiology

3) Mark D Huffman. Coronary Heart Disease in India. Centre for Chronic Disease Control. http://sancd.org/uploads/pdf/factsheet_CHD.pdf

4) Angloinfo (2014). Healthcare System in India. http://india.angloinfo.com/healthcare/health-system/

5) K. Srinath Reddy (1998). Emerging Epidemic of Cardiovascular Disease in Developing Countries. Circulation 97: 596-601