

A. Pattani

# **ELECTIVE ASSESSMENT**

**ABHISHEK DATTANI**

**Subject: Cardiology**

**Location: Narayana Institute of  
Cardiac Sciences, Bangalore,  
India**

**Dates: 10/04/2014 –  
15/05/2014**

**Supervisor: Dr Sanjay Mehrotra**

## Elective Assessment

### Objective 1: Describe the pattern of cardiovascular disease in India. How do they differ from the UK?

In 2004, the World Health Organization (WHO) reported that cardiovascular disease is the most common cause of death worldwide with 31.5% of female deaths and 26.8% of male deaths being due to a cardiovascular cause. Ischaemic heart disease caused 7.2 million deaths in 2004 and was the single most common cause of death.<sup>(1)</sup>

In India, cardiovascular disease certainly plays a major burden on health of the population. Approximately 25% of deaths in India are thought to be due to cardiovascular disease and it is estimated that within the next 10 years it will be the cause of mortality in 50% of people in India. With a population of 1.2 billion, it is thought, astoundingly, that 60% of cardiovascular disease patients reside in India.<sup>(2)</sup>

When comparing the two countries, UK has a cardiovascular disease age standardised mortality rate of 180 per 100,000, whereas India has a much greater rate of 405 per 100,000. In 2000, coronary heart disease caused 1.18 million deaths and stroke caused 0.45 million deaths. Not only is cardiovascular disease more common in India, but it also seems to be occurring in a younger population. Astonishingly, in India, 50% of deaths due to coronary heart disease occur in patients under 70 years, whereas in the western world, only 22% of the deaths are in patients under 70 years of age.<sup>(2)</sup>

### Objective 2: This hospital provides cost effective healthcare to a relatively poor population and still produces a significant profit. How is this achieved?

Dr Devi Shetty, chairman of Narayana Health, started the hospital in 2001 in Bangalore, India. Currently, there are 10 branches of the

hospital in India with a further 2 in Malaysia and the Cayman Islands. Narayana Institute of Cardiac Sciences in Bangalore is a specialist cardiac hospital that carries out 40 cardiac surgeries per day including both adult and paediatric, as well as doing several cardiac catheterisation and stenting procedures daily.<sup>(3)</sup>

In India, traditionally the government hospitals usually provide care for poor people but the standard of care is usually not very high. This hospital, however, is a private hospital and still manages to provide care to people with low or no income at a very cheap cost. Indeed, some patients are treated without charge if they are not able to pay. Regardless, in 2008-2009 the Narayana Health group made a turnover of Rs. 3,000,000,000 (nearly \$50 million). So how is this done?<sup>(4)</sup>

Dr Shetty has decided to use economies of scale to keep costs low. By building very large hospitals that carry out the same procedures many times per day, they are able to get discounts on the equipment required and thus reduce the cost of the treatment. For example, a normal hospital ICU in India will do 30 blood gas analyses per day, which for the patient costs approximately Rs. 350-400 each. However, at Narayana Health, there are more than 2000 blood gas analyses done each day. The hospital was able to negotiate with the manufacturer of the machine to provide the machines for free and then charge for the individual reagents instead. This would now allow the hospital to charge the patient only Rs 8.50 for each test, making the overall cost of the admission lower.<sup>(4)</sup>

It is by methods such as this that the hospital is able to offer coronary artery bypass surgery at Rs. 95,000 (\$1,583) compared to \$106,385 in Ohio's Cleveland Clinic.<sup>(5)</sup> Narayana Health is also able to offer free treatment to those who are unable to pay because they are able to make enough profit from those who can afford the treatment. This means that patients will pay for their procedures based on what they are able to pay,

resulting in the hospital not having to turn patients away from treatment.<sup>(4)</sup>

**Objective 3: What are the common infective cardiac conditions prevalent in India?**

Rheumatic heart disease is a major cause of valvular heart disease in India. It is caused by an autoimmune response to group A beta haemolytic streptococcus (GAS) pharyngitis. The prevalence of rheumatic heart disease varies between studies but it is estimated to be 1.55 per 1000 in all ages. This is in comparison to a much lower rate in the developed countries where rheumatic fever is thought to be less than 1 in 100,000. The commonest valvular problem caused by rheumatic disease is mitral stenosis but aortic, tricuspid and rarely pulmonary valves can also be affected.

The management is based on first treating the GAS with penicillin. Aspirin or steroids are used to treat the rheumatic activity but they do not cure the disease. Mitral stenosis can be treated with balloon valvotomy or by surgical valvotomy, commissurotomy or replacement. Mitral or aortic regurgitation usually requires valve replacement.<sup>(6) (7)</sup>

Infective endocarditis is another infective condition that is more common in India than in the western countries. Rates in the western countries are thought to range from 1.7-6.2 per 100,000 patient years. However, in India the rate is thought to be much higher with a minimum estimate of 17,000 cases of infective endocarditis seen every year in the country.<sup>(8)</sup>

**Objective 4: To become more confident with my clinical skills.**

One of my goals for this elective was to get more practice at diagnosing heart murmurs and added heart sounds. In the UK, I was exposed mainly to aortic stenosis and mitral regurgitation which I was fairly confident with. However, in India I was fortunate to see several patients

with mitral stenosis as this is far more common than in the UK. I was also able to listen to murmurs of aortic regurgitation during my placement here. Additionally, my consultant was very helpful as he aided me at trying to work out third and fourth heart sounds in patients, which I previously found very difficult. This certainly has improved my ability to recognise these conditions clinically on auscultation so I am pleased that I have managed to reach my goal.

As well as practicing my clinical skills, I was able to witness a large number of echocardiograms and coronary angiograms. This has helped me gain a better understanding of the indications for these procedures and the way in which these are analysed.

## References

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