

ELECTIVE (SSC5b) REPORT (1200 words)

A report that addresses the above four objectives should be written below. Your Elective supervisor will assess this.

What are the prevalent cardiovascular diseases in Japan and how do they differ from that of the United Kingdom?

The most prevalent cardiovascular disease in Japan are the same as those in the UK. Including Ischaemic heart disease, atrial fibrillation, hypertension, cerebrovascular disease, peripheral artery disease and heart failure. notably the incidence of aortic dissection is higher in Asian populations, with rates being 3 times greater than those seen in Europe.

In Japan the age-standardised mortality rate for ischaemic heart disease in 2001 was 25 per 100,000 population, whereas in the UK it was approximately 100 per 100,000. The UK has however seen an impressive downward trend over the period 2000 - 2010, despite an ageing population, with rates now at 60 per 100,000 however this is still twice that of Japan. In addition it is interesting to note that Japan has not seen any decline in crude mortality rates, though it has a rapidly ageing population demographic. Perhaps the presence of different environmental risk factors, such as diet, is in part responsible for the some of the difference seen in mortality rates, as well as the different healthcare expenditure that is seen between the two countries.

How are Cardiac services arranged in Osaka, Japan? And how do those differ to the organisation of those in the UK?

Osaka University Hospital is a large tertiary centre located in the Suita district of Osaka. It has 50 inpatient beds, as well as a large ITU. Cardiology consists of 3 departments: Intervention, Electrophysiology and heart failure. Cardiothoracic surgery is divided into TAVI, Adult Cardiac and congenital. It is a world leader in implantable ventricular assist devices (VAD) and regenerative medicine. Patients are accepted from throughout Japan from Hokkaido in the North to Okinawa in the far South West, as well as from abroad. It is also one of the 11 centres in Japan with a license to carry out heart transplant surgery.

In cardiology the services were organised in largely the same manner, however in Osaka they are on a smaller scale to that I have seen in Barts Heart Centre. For example there were only 2 catheter labs with another for emergencies, compared to the 10 at Barts Heart Centre. On a national scale there are far more cardiac centres present, whereas in the UK there is a move to concentrate services such as PCI, angiography and cardiac surgery (including transplant) into fewer and fewer hospitals, to save costs and concentrate expertise. This contrasts with Japan where there are more, smaller, PCI centres around the country, with hospitals in the same area competing with each other.

One difference between the Osaka and Barts is the provision of Ventricular Assist Devices, a procedure not currently carried out at Barts Heart Centre. Whilst I was there I saw the the implantation of a VAD with a postauricular drive line, the first time this has been done in Japan, this can lead to reduced infection rates and also allows the patient to swim and take a bath. Which in Japan are a culturally very important. With VADs however with the conventional placement of drive lines in the abdomen renders patients unable to bathe. VAD is extremely expensive, with the mean

cost per QALY being £258,922. VADs are used as a bridge to transplant in the UK however in the UK, where the standard cost of a QALY is 30,000 pounds, it is a long way from being deemed cost effective and their use as a destination therapy may be unlikely due to the prohibitive costs involved. Trials are currently taking place in Japan investigating the use of VAD as a destination therapy in those ineligible for transplant (>65 years old in Japan)

A novel treatment that I observed for the first time at Osaka University Hospital was that of myocardial sheet transplantation. This is where skeletal myocytes are removed from a patient's gastrocnemius then stimulated to develop into cardiomyocytes. These are then implanted onto the patient's epicardium, with the desired effect being an improved left ventricular ejection fraction, and improved cardiac remodelling. Osaka University Hospital is one of the main centres of research into this field, and it was interesting learning about it and the exciting applications it may have in the future.

Finally Osaka University Hospital is one of the 11 in Japan that are licensed to carry out adult heart transplantation. Heart transplantation only began in 2005, with numbers exceptionally low until a change in the law in 2014. Numbers of transplants remain low, in a population of 120 million 51 heart transplants were carried out in Japan in 2016, this compares with 195 in the UK, a country with a population of just over half that and 68 per day in the United States. The issues with low transplant numbers are common to both health systems and are largely due to low number of donors. Donor rates are lower in Japan than in the UK, perhaps for cultural reasons. Like the UK a patient's family can block organ donation even if the patient was previously registered as an organ donor.

How does a partial insurance system affect healthcare provision in Japan?

Whilst it is correct that the majority of the population pay 30% of their health care the reality is much more nuanced than this. The 30% is often covered by employers, if self employed they must find coverage themselves, importantly they cannot be denied coverage. Below the age of 18 there is an upper limit of ¥1000 per month on treatment. Below the age of 5 it is ¥500. In addition elderly patients pay only 10% of their healthcare costs, though there is a recent push to increase contributions in this age group.

As a byproduct of being in a partially private system and increased spending on healthcare in Japan I noted the better staffing levels with respect to both nurses and doctors. A further difference is the complete computerisation of patient records, pharmacy, investigations and anaesthetic record and the seamless integration of all these systems with just one password required to access everything. All of which saves time (locating notes, charting observations) resulting in the doctors being able to spend more time teaching students, in theatres or cath labs or carrying out academic research.

With respect to payment, patients after any treatment are given an A4 slip, this is then taken to a counter where it is converted to a payment slip. Patients must pay for their treatment before leaving

the hospital, whether this is an outpatients appointment, a blood test, or a 2 week admission. Some treatments are fully funded by the government, and patients with have certain conditions are exempt.

The system of primary care is similar to that of the UK with most patients presenting to Osaka University Hospital usually after being referred from a primary care practitioner, they can however present to secondary or tertiary care directly without a referral though they have to have a more for this. The fee varies from between ¥2,000-30,000. Patients however must pay to see the general practitioner, with a typical consultation costing approximately ¥2,000. The reaction of the staff when I told them that almost all healthcare in the UK was free was particularly fascinating, they were largely surprised that this was possible, and they (correctly) stated that it must cause problems at GP and A+E with patients presenting for trivial matters! Furthermore for novel procedures such as the postauricular VAD mentioned earlier there is an assisted purchase scheme. Here the patient meets 50% of the costs of treatment, and the government the other 50%.

In Osaka University hospital the rooms are arranged in a similar format to those in Barts and the Royal London hospital, either individually or in bays of four. However the individual rooms are not just provided on clinical need, such as the requirement for isolation, patients can also pay a supplement of ¥60,000 (approx. 450 pounds) per night to stay in an individual room.

How do cultural differences affect disease presentations and attitudes to ill health in Japan?

It is not just the cost of consultations that may result in patients delaying presenting to primary care. After discussion with some of the Japanese medical staff it became evident that cultural expectations may delay presentation, japan has one of the lowest unemployment rates in the developed world. with Japanese society expecting people to be working. Japanese people in general dislike taking time off sick, seeing it as shameful, their view is that everyone should be doing their part for the whole that is the society in which they live.

Whilst initimidating and a bit overwhelming at first Japan is an incredible country, with distinct differences in their culture and attitudes as well as the healthcare system. I have thoroughly enjoyed my time in Japan and cannot wait to visit again in the future.