

ELECTIVE (SSC5c) REPORT (1200 words)

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

Elective Report - Neurosurgery at Cho Ray Hospital, Vietnam

By Amy Bowes

Describe the pattern of neurosurgical disease at Cho Ray Hospital and discuss this in the context of global health?

Cho Ray Hospital is situated within Ho Chi Minh City, Vietnam, harboring a population of around 7.4 million. Cho Ray is one of the largest hospitals within Southeast Asia, with the neurosurgical department undertaking approximately 3750 emergency and 4625 elective operations each year. Currently, 94 542 patients are admitted to the neurosurgical service annually, of which greater than 80% are due to trauma. As motorcycles are the main form of transport within Vietnam, due to a high taxation on cars, it is common to see 3-4 people traveling on a single motorcycle without helmets or protective clothing. The roads within Ho Chi Minh City are extremely busy with 5-10 motorcyclists often seen traveling abreast within a single lane at peak times. Nearly all roads are insufficiently policed; therefore, red-light running and pavement driving occur regularly. Given this, it was not surprising to see that the majority of patients had suffered either head trauma or cervical spine injuries. As you can imagine, these patients were often young adults ranging from 15-40 years old, making the outcomes of such injuries (brain damage, paralysis and death) even more catastrophic.

Describe the pattern of neurosurgical service provisions at Cho Ray Hospital and contrast this with the UK?

Cho Ray is considered to be the leading hospital within Vietnam, accepting referrals from 31 Vietnamese provinces. After undergoing multiple renovations, of which the most noteworthy was funded by the Japanese government in 1974, Cho Ray prides itself on having 38 specialty departments, as well as cutting-edge medical equipment. In general, Cho Ray contains approximately 1,800 beds, although patient numbers often rise to over 2700 in a given day to meet demand. In fact, the hospital is incredibly over-crowded and it is not unusual to see two patients per bed, which are often overflowing onto the ward balconies and hall-ways. Each theatre is equipped to take 2 patients at any one time, with the patients only being a few feet apart. The doctors on the neurosurgical team work six days per week, one of which is a 24 hour on-call shift, subsequently followed by their normal day shift, something that is now unheard of in the UK.

Interestingly, the neurosurgical department at Cho Ray is one of the largest within the hospital, comprising of 36 Doctors, 80 nurses, 48 neuro ICU beds, 80 head trauma beds and 150 neurosurgical beds spanning two wards. Again, most hospital ward areas practice two patients per bed. Therefore, the number of patients being looked after by the neurosurgical service at Cho Ray often surpasses 500 at any single time. Since the end of the Cold War in 1975, Cho Ray has exponentially increased its resources and expertise, acquiring its first stereo tactic frame in 1994, MRI and surgical microscopes in 1998, endoscope in 2002, as well as a Navigation Stealth System in 2005. Therefore, Cho Ray is easily

able to perform many intricate neurosurgical procedures, including brain tumor removals, arteriovenous malformation surgeries and even gamma-knife based operations.

Describe the incidence, methods of assessment and management of traumatic head injury at Cho Ray Hospital?

Cho Ray Hospital encounters a constant stream of head trauma patients who are referred to the specialist neurosurgical service from 31 Vietnamese provinces. Within a single night shift it is not uncommon to see 10-15 head trauma cases, nearly all of which require life-saving surgery in the form of emergency craniotomies and haematoma evacuations. In one year, the neurosurgical team will perform approximately 4000 emergency operations, of which roughly 1/3 of cases are due to head trauma. In practice, Cho Ray Hospital manages head trauma cases in a very similar way to the UK, performing the Glasgow Coma Scale on arrival as well as facilitating immediate CT scanning and timely transfer to theatres. However, once in surgery, there were a number of differences in surgical technique between the UK and Vietnam, mostly due to lack of resources. Firstly, to perform the craniotomy, a "Gigli saw wire" was used to connect several burr holes and remove the bony window. However, UK neurosurgeons commonly use the craniotome, a self-controlled system drill system which stops when the bone is fully penetrated. Also in contrast to the UK, Vietnamese neurosurgeons did not have access to metal plates and screws, which enable the bony window to be replaced after haematoma evacuation. Instead, surgeons would use fine drills to penetrate the cranial flap enabling them to suture the bony window onto the periosteum / subcutaneous connective tissue. Lastly, due to the high number of head trauma cases, there was an extremely quick patient turnover, with Vietnamese neurosurgeons often completing whole craniotomies within 20-30 minutes from start to finish.

Discuss and reflect upon a neurosurgical case that you have encountered whilst visiting Cho Ray Hospital?

Whilst studying at Cho Ray Hospital, I was able to observe a cervical spine decompression surgery resulting from a C5/C6 vertebral burst fracture that occurred after a motorcycle accident. The patient was a 33 year old male and he was completely paralysed from the neck down. During the surgery the patient was positioned within the supine position and a superficial horizontal incision was made above the thyroid cartilage. Important para-spinal structures were then gently positioned to one side (trachea and oesophagus) to reveal the cervical vertebrae. Once the C5/C6 vertebral burst fractures were removed, a bone graft was harvested from the right anterior superior iliac spine, which was then secured within the injured spinal region using plates and screws.

This was indeed an absolutely tragic case. Although there was an obvious language barrier between myself and the patient, it was clear that this gentleman had experienced a life-changing event. He was arguably in the prime of his life before the motorcycle accident, able to earn a reasonable living and fathering a family. Unfortunately, there is currently no cure for spinal cord injury and therefore the major method of protection remains prevention. Within Ho Chi Minh City the use of helmets, protective clothing and road safety is not usually enforced, which could prevent most serious road traumas. As spinal cord injury produces an initial epicenter of neuronal death that is then able to

propagate further tissue damage away from the primary lesion, patients with high cervical spinal injuries often only live for a further few years. As the injury site within the spinal cord enlarges, breathing complications and aspiration ultimately results. Although several pre-clinical trials have tested various pharmacological agents that aim to dampen this toxic secondary inflammatory process, nearly all have proved unsuccessful. At present, decompression surgery combined with intensive physiotherapy provides the mainstay of treatment.