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What are the prevalent neurosurgical conditions in the United States? How do they differ from the UK?

Broadly, neurosurgical conditions can be divided into 2 groups; cranial and spine. The aetiology of cranial cases that I have observed here in the United States cover various sub-disciplines of neurosurgery including vascular, tumor, epilepsy and congenital malformations. In terms of spine surgeries, most of them are due to degenerative diseases as well as traumatic injuries from road traffic accidents. Some of the most commonly performed procedures include lumbar disc laminectomy and supratentorial craniotomy. Statistically, the breakdown of procedures performed in the US do not differ much from those performed in the UK, and there is a steady rise in the number of spinal procedures performed annually partly due to an ageing population. However, during my time here I have noticed that the volume of surgeries performed here on a daily basis far exceeds those in the UK. This could be due to the difference in population, 300 million in the US versus 65 million in the UK.

How are neurosurgical services organised and delivered? How does it differ from the UK

In the UK, neurosurgical patients are almost always referred to the service through their General Practitioners in the NHS, with the exception of emergency cases. The normal referral wait time could take up to 18 weeks with an expedited 2 weeks referral for oncological cases. Through the NHS, patients are able to obtain free healthcare treatment at the point of use, in which the cost of the treatment funded by the healthcare system through general taxation and the National Insurance system. Patients also have the option of seek private healthcare if they possess insurance, most frequently done to seek 2nd opinion or avoid the long waiting times.

The healthcare system in the US is largely operated by the private sector, with some facilities owned by the federal and state government. A large proportion of the population obtain health insurance through private purchase or their employers. Several federal programmes such as Medicaid (for those with low income and resources), Medicare (those aged over 65 who worked and paid into the system, or those with disabilities, end stage renal disease and ALS) and Tricare (military personnel) also cover a substantial proportion of healthcare provision. However, having healthcare insurance does not necessarily guarantee full treatment without payment. This usually depends on the type of insurance that one has, as there are different tiers with various restrictions depending on the premium paid. These restrictions include certain geographical location, healthcare provider or services such as imaging or tests that are covered by ones insurance. Prior to Affordable Care Act (ACA) in 2010, a significant number of the population in the US remained uninsured, which meant that they had no access to healthcare other than minimal emergency services. This is perhaps the biggest difference from the

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system in the UK, where every citizen or permanent resident no matter of what race or background are entitled to healthcare free at the point of use. Through the ACA, it is hoped that the uninsured rate would be lowered and that more affordable healthcare insurance are available to the public.

Personal objectives

I chose to undertake my electives in neurosurgery because I aspire to specialise in this field after finishing medical school. This elective served to broaden my knowledge base and experience in the field of neurosurgery which is hardly covered as part of the core curriculum. It allowed me to gain confidence and develop my knowledge on how to diagnose and manage neurosurgical conditions. I specifically chose to come to the US because I intend to apply for residency training here in the near future and having clinical experience in this country would be advantageous to my application. UCLA is a prestigious institution and highly ranked in the national hospital table. The community in Los Angeles is also very diverse with a great variety of surgical cases to observe and learn from during my time here. It also allowed me to observe the subtle differences in terms of how medicine is practiced in both countries. A routine day starts at 5.30am where the residents will review radiological scans and reports from previous day's emergency and elective cases. This is followed by ward round led by the Chief Resident where patients are assessed by the junior residents and the follow up management plans were discussed and ordered. A teaching session for residents is usually scheduled on Monday morning after rounds, led by the department chief. There is also a departmental meeting every Wednesday morning where cases are discussed and presentations were given by residents or invited speakers.

Surgeries were scheduled to begin at 8am and residents were assigned depending on the cases of the day. In addition to that, there is one junior and one senior resident on call for 24 hours every day to handle emergency cases. The workload of residents here amount to approximately 90 hours a week, more than what is stipulated by the European Work Time Directive of 48 hours. During my time here, I spend most of my time in the day observing surgeries in the OR and assisting with minor procedures at times. In addition to that, I have also taken night calls which in my opinion were the best opportunities to experience neurosurgery in an acute setting, mostly from trauma cases. A particular case that comes to mind is a middle aged man who was transferred from a nearby hospital after collapsing at work and was subsequently found of have a haemorrhaging brain lesion in his right frontal lobe, the lesion of which was never known previously. An emergency craniotomy was performed to remove the entire right frontal lobe and evacuate as much of the lesion as possible. While the procedure was successful, the prognosis remained uncertain.

In summary, I believe that I have had a great time here at UCLA with the opportunity to observe a variety of cases. In addition to that, the residents were very keen to teach at any given opportunity and they were very welcoming of a foreign student into their team. Through this experience and having

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completed the necessary Step exams, I hope that these will benefit my future application for a neurosurgical residency in the US.