ALDWORTH
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NEONATAL

Elective Report

Neonatology and Child Health – University Hospital of Wales

Introduction

Historically, the treatment of children in medicine has often revolved around the assumption that they are, in many ways, miniature adults. It was thought that all that was necessary was to scale down the treatment according to the size of the patient, unless the problem was one specific to development. In recent years, this theory has been brought into disrepute, and paediatrics is recognised in its own right as a complex field of medicine. Since we spend only a few weeks with children in medical school, and I have a job in paediatrics later this year, my first learning objective is to learn more about the treatment of children and neonates.

My second objective is to observe the differences in disease patterns between children in Cardiff and central London. These may be subtle, but there are differences between the populations in terms of ethnic variability, and environmental differences such as air pollution levels, housing conditions, etc.

The objectives set by my visiting institution tutor, Dr Warner, are to gain experience in all aspects of acute and chronic child health, particularly neonatology, and to integrate with the existing students.

To meet these objectives I spent five weeks at the University Hospital of Wales, Cardiff, looking specifically at the neonatology department but also other areas related to child health.

Cases of interest and observations

Neonates, particularly those who are premature or unwell, pose additional care challenges to medical staff. Preterm infants, depending on the extent of prematurity, may require respiratory, dietary and temperature support, amongst other things.

Lung development is stifled at birth, since once the lungs are expanded it is more difficult for the alveoli to mature. Also, surfactant is only produced late in pregnancy, necessitating its administration to preterm infants at birth.Sick and or premature babies may require various levels of respiratory support, from oxygen tents, to CPAP, BiPAP, NIPPI and intubation. These carry the risk of long term respiratory damage, since they put pressure on the developing alveoli and bronchioles that would be collapsed in utero.

Dietary problems are also frequent in premature babies, as their gut is immature and the swallow reflex is not competent until around 34 weeks of gestation. They are particularly at risk of necrotising enterocolitis, which can be exacerbated if undigested milk remains in the gut for long enough to grow large colonies of bacteria, or aspiration pneumonia if enteral feeding occurs too early. To reduce the risk of these, parenteral feeding with small enteral feeds via nasogastric tube is used in susceptible neonates.

Temperature support is necessary for all babies, as they are unable to regulate their own temperatures, but particularly premature neonates who have very thin skin. They also, by nature of being small, have a high surface area to volume ratio. Neonatal incubators can help compensate for this by being heated close to body temperature, with added humidity to protect their skin for the first few days after birth if required.

Once the child is stable, any other underlying problems can be worked with. Some of these may be linked to prematurity, such as vulnerability to infection or intracranial bleeding, others may be independent of gestation. In Cardiff I saw a wide variety of unusual conditions, including oesophageal atresia, epidermolysisbullosa, and central hypoventilation syndrome; these babies needed additional specialist attention.

My time in outpatients showed that despite having medical challenges at an early age, many children with neonatal or chronic health problems can pull through to a full recovery, or learn to adapt well to their condition. Some, however, need lifelong care and support for themselves and their families.

Contrast in locations

On first glance it might be assumed that Cardiff and London are similar locations; both being capital cities in the UK, under the National Health Service. However, there are some differences in care.

For a start, the University Hospital of Wales acts as a tertiary centre for a larger catchment area than most London hospitals, although outreach clinics are often run in other areas such as the Gwent Hospital. That said; hospitals in London such as Great Ormond Street Hospital may accept especially sick children or those with unusual diseases from a wider area of the country.

The ethnic diversity of Cardiff is vastly different from London. Cardiff has a white majority population of well over 90%, in contrast to London, which has approximately 70% white population overall.[i] This is of importance for two main reasons; firstly, differences in the ethnic makeup of the population influence the rates of diseases or abnormalities that are more common in certain races. For example, sickle cell disease is more common in people of African descent, and therefore is more likely to be found in patients in London than Cardiff.

Interestingly some conditions considered uncommon in certain ethnicities have been found to occur at the same level as the white British population in second generation immigrants. For example, Crohn's disease and ulcerative colitis were once considered almost non-existant in Asian people, but is now being seen in children born in the UK.[ii]

The other factor of importance is the availability of translators for patients who do not speak English as a first language. In London this is a frequent need, and often there are translators on call for the most frequent languages. In a population in which very few patients require translation, fewer translators are required but they may be more difficult to obtain in an emergency situation.

Integration with local students

Since the elective period took place over Easter, I had relatively little contact with most of the local students. I did however find that those students I came across were very welcoming and helpful.

From an outside perspective, medical education in Cardiff appears similar to that in London, though the curriculum for the paediatrics rotation involves five one-week periods in different areas. I have mostly alternated between the neonatal timetable and the child health outpatients department.

While I was here, I also spent some time with Cardiff University students I knew beforehand, through an online role-playing game, who study other subjects. Highlights of this included an evening of Doctor Who Role Playing, in the style of Dungeons and Dragons.

Conclusion

Spending time in Cardiff has been an educational and enjoyable experience. I feel that I have been immersed in and exposed to many things that will be of help when I start my paediatrics job later in the year. I would recommend Cardiff as a destination to future students at Barts, particularly those who, like me, are wary of travelling alone outside the UK.

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[i] Office of National Statistics, 2004, http://www.statistics.gov.uk/cci/nugget.asp?id=457

[ii] Goh K, Xiao SD, 'Inflammatory bowel disease: a survey of the epidemiology in Asia', *Journal of Digestive Disease*, 2009 Feb: 10(1): p1-6