

## **ELECTIVE (SSC5a) REPORT (1200 words)**

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

### **Discuss the pattern of common radiological findings relating to disease in Cyprus and discuss this in the context of global health**

Cyprus is an island situated in the eastern Mediterranean which comprises a population of 848 thousand people. The population of 0–14-year-olds is approximately 140 thousand, which was the demographic that the Archbishop Makarios Hospital III pertained to as it is a specialised paediatric hospital. Cyprus faces a high preterm (32-36 weeks) birth rate alongside an issue with low-birth-weight infants (< 2500g). The pre-term birth rate is 10.9% within the country, in comparison to the United Kingdom which is 7.7%. The leading cause of death amongst children within Cyprus is due to conditions originating in the perinatal period (37%) whereas in the UK it is due to cancer (21%). **(1)** In terms of radiological monitoring, the most common conditions that require monitoring were congenital malformations. Within the hospital, the prevalent use of radiology was for chronic conditions amongst children either in NICU or the paediatric sub-speciality departments. Conditions that require radiological use usually are congenital abnormalities, bone fractures, meningitis, hypoxic brain injury at birth (e.g., Hypoxic Ischaemic Encephalopathy) and childhood cancers. There is a challenge that comes with radiological imaging in the paediatric population and the principle of ALARA (As Low As Reasonably Achievable) should be followed. **(2)** This is in place to ensure that the harmful effects of ionising radiation exposure within a susceptible population is minimised. **(3)** An interesting monitoring procedure I learnt about during the placement was the use of Umbilical Arterial Catheters (UAC) and Umbilical Venous Catheters (UVC). The UAC is used to continuously monitor the babies blood pressure, take blood samples, and blood gases to determine how well the babies lungs are working. A UVC has the purpose of delivering fluid and nutrition alongside delivering medicines.

### **Describe the pattern of health provision with regards to antenatal care and imaging in Cyprus compared with the United Kingdom**

The antenatal screening programme in Cyprus is almost identical to the route of care offered in the UK to women. The following scans are available during the pregnancy to women. The first trimester scan which is performed between 11-13 weeks aims to identify women with the highest risk of delivering a baby with a chromosomal abnormality. If you are identified as having a high risk of developing a child with a chromosomal abnormality then you are offered the choice of further invasive monitoring which is either Chorionic Villus Sampling (CVS) or amniocentesis, which both have a 1-2% risk of miscarriage hence this should be discussed with your doctor prior to the procedure. Another option is a non-invasive pre-natal blood test which can be performed. There is an anomaly scan which is then performed at 21-24 weeks which enables the diagnosis of any congenital abnormalities. The most common if which are heart defects, neural tube defects (e.g., Spina Bfida and Downs syndrome). Finally, if you wish, you are eligible for a growth scan and a doppler measurement at 32 weeks to approximate the fetal birth weight and ensure that the baby has a normal growth progression.

### **Discuss the public health screening measures taken in Cyprus to reduce the prevalence of Thalassaemia, a common genetic disorder within the country, Compare the social implications of the disease against countries where it is less prevalent**

The frequency of  $\beta$ -thalassaemia carriers is around 18% and  $\alpha$ -thalassaemia is 2%. It has been suggested that Cyprus has the highest percentage of  $\beta$ -thalassaemia carriers in the world (17.2%). Cyprus has had a very successful programme to lower its thalassaemia rate which comprises of public education, premarital population screening, genetic counselling, and antenatal diagnosis. The effectiveness of the programme is due to social acceptance which was very governmental led. During pre-conception, couples have the option to undergo testing for thalassaemia. One in seven people are a carrier of  $\beta$ -thalassaemia in Cyprus and hence there was a 'quasi-mandatory' pre-marital screening programme introduced in the 1980's in collaboration with the Greek Orthodox Church. Non-invasive prenatal testing is also offered which tests the fetal DNA by taking a maternal blood sample.

**To improve my analytical and diagnostic skills within the field of radiology, specifically relating to obstetrics, gynaecology, and paediatric medical conditions and to appreciate the importance of the field within the wider context of a medical team/management decision making**

Throughout medical school we haven't been exposed to very much radiology teaching or exposure hence this placement was very beneficial in expanding my knowledge on the field. Specifically pertaining to paediatric radiology which is a specialised field. Radiological imaging is a highly valuable diagnostic tool in the paediatric population, which enables physicians to determine pathological findings. A key distinction between adult and paediatric radiology is being able to gain the child's trust and co-operation prior to the imaging and throughout the duration of the examination which is difficult to achieve in children who may be critically ill and in pain. Analysing scans and determining positive radiological findings has always been difficult for me due to a lack of a systematic approach hence this experience has benefitted me in improving my diagnostic and analytical skills.

### **Bibliography**

1. Efstathiou E. The child healthcare system in Cyprus. *Türk Pediatri Arşivi*. 2020;.
2. Thukral B. Problems and preferences in pediatric imaging. *Indian Journal of Radiology and Imaging*. 2015;25(04):359-364.
3. Swensen S, Duncan J, Gibson R, Muething S, LeBuhn R, Rexford J et al. An Appeal for Safe and Appropriate Imaging of Children. *Journal of Patient Safety*. 2014;10(3):121-124.