ELECTIVE (SSC5c) REPORT (1200 words)

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

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Medical Elective report 2015

Paediatric Endocrinology

I have undertaken the two weeks elective placement in paediatric endocrinology in Royal London hospital. I did not have any experience in subspecialties in Paediatrics so I found it extremely interesting to find out more about specific conditions.

Objectives 1&3: What are the common paediatric endocrine conditions in the UK? Describe the treatment and management options available in paediatric endocrinology in the UK

One of the most common endocrine conditions in children is Type 1 diabetes mellitus. It affects about 25 000 children in the UK and its incidence is rising for unknown reasons. It usually results from autoimmune destruction of the beta cells of the pancreas, which are responsible for insulin production. Due to this body is unable to regulate the glucose and hyperglycaemia develops. Children with Type 1 diabetes are insulin-dependent and require treatment with exogenous insulin. Most children with diabetes present with polyuria, polydipsia, tiredness and weight loss, however diabetic ketoacidosis is also common on delayed presentation. Type 2 diabetes which is usually due to insulin resistance is also becoming more prevalent due to increased incidence of childhood obesity. 1, 2

Type 1 diabetes and its management takes up the substantial part of paediatric endocrinology workload. New diagnosis of the condition is laborious process. The team of the professionals who manage type 1 diabetes include paediatric endocrinologists, paediatric diabetes clinical nurse specialists, dieticians and clinical psychologists. At first presentation condition is explained to the patients and parents with thorough teaching about pathophysiology, diet and treatment. Education and training about administration of the insulin and emergency treatment is essential and provided before child can be safely discharged home. As mentioned before children with type 1 diabetes are insulin-dependent so they are initiated on insulin treatment immediately. There are many different insulin preparations available. The regimen of insulin treatment is selected individually for each patient with the aim to closely match the physiological production of the hormone. Often basal long acting insulin is administered to provide background cover and short or rapid acting insulin is taken with each meal or snack. Children under 5 years old or ones with poor control of diabetes are usually initiated on insulin pump treatment. Pump avoids the need of multiple daily injections and increases the ability to control blood sugar levels. It provides continuous subcutaneous insulin infusion, usually with rapid acting insulin. Around 19% of children with type 1 diabetes use an insulin pump. Training and education is provided before commencing a child on insulin pump therapy. Patients or parents will need to be able to count carbohydrates in the meals so they can adjust the insulin dose according to that. Cannula or patch, by which insulin is delivered to the body, has to be changed every three days. Insulin pumps allow the diabetic patient to have more flexibility in their diet.3 Monitoring of the type 1 diabetes is essential with multiple daily checks of capillary blood glucose levels and HbA1c test

performed every 2-3 months to check more long term status of blood glucose. Treatment is aimed on maintaining near to normal levels of the glucose to avoid the complications of diabetes. Patients are reviewed regularly and adjustments to the insulin regimens are made to maximise the glycaemic control and also to avoid the hypoglycaemic episodes.

Hypothyroidism is one of the important conditions commonly seen in paediatric endocrinology. Incidence of congenital hypothyroidism is about 1 in 3500 infants. It usually is picked up at birth by national screening programme. Most of the affected babies have absent or ectopic rudimentary thyroid gland and require lifelong treatment with sodium-L-thyroxin. The prognosis for infants with hypothyroidism has improved by introduction of national screening and early treatment.1, 2

The aim of treatment of congenital hypothyroidism is early detection and early thyroid hormone replacement to ensure that infants do not develop irreversible neurological disability. Daily L-thyroxine is given to the effected child to replace lacking thyroxine hormone. Thyroid function tests are monitored regularly and the dose of the treatment is adjusted according to those. T4 is preferably kept in the upper level of normal range which is physiological in children. Children with congenital hypothyroidism are regularly seen and reviewed in endocrinology clinics. Cross-sectional reference growth charts are used to monitor child growth. Also these patients have to be monitored for achieving childhood milestones and mental development. Four areas of mental development need to be reviewed: communication and personality behaviour, language ability, motor ability and adaptive behaviour. If CH is detected early in infants and treatment begun, normal development of mental function can occur.2, 4

Another aspect of commonly encountered problems is growth and puberty disorders. Growth hormone deficiency is often seen as a cause of short stature and early identification and treatment with growth hormone replacement is needed to improve outcome. The goals of treatment are to increase growth in children and restore energy, metabolism, and body composition.2, 5

Congenital adrenal hyperplasia is also commonly seen endocrine condition resulting in excessive growth and early puberty. The aim of treatment is to provide replacement of deficient glucocorticoids and mineralocorticoids and sodium chloride supplementation.6

There are many other endocrine conditions that are relatively rare and require extensive investigations and multidisciplinary input to reach the diagnosis and commence available treatment.

Objective 2: Explain the role of Royal London Hospital in managing the Paediatric endocrine problems

Royal London is the tertiary centre for paediatrics and has the specialist team dealing with paediatric endocrinology only. Hospital covers mainly east London area and many patients are transferred here from other hospitals for more specialised care. Both inpatient and outpatient care is provided. Outpatient care mostly comprises of endocrinology clinics which are held most of the days in a week. Clinics are usually divided into diabetic and general endocrinology clinics. These allows the diagnosis of new patients, regular reviews, further investigations and changes in the management and treatment to be made at the same time. Clinics usually have multidisciplinary approach by many different professionals available and seeing the patients at the same time.

Inpatient care is provided on the paediatric wards after emergency or routine admission. Patients are seen and reviewed every day by different members of paediatric endocrinology team, and care and treatment provided according to the decisions made by the team.

Objective 4: Gain further experience in Paediatrics to explore it as a future career path

Completing the medical elective placement at royal London Hospital has been a beneficial experience for my professional development. During my medical school paediatric attachment there was only general paediatrics placement provided and I received very limited exposure to clinical aspects of paediatrics. I thoroughly enjoyed Paediatric endocrinology placement and started to realise how challenging but satisfying this specialty can be. Even though it was very short attachment I would be seriously considering Paediatric endocrinology as my future carer.

References

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2. Candy D, Davies G, (2001). Clinical Paediatrics and Child Health. London: W.B. Sounders. P197-206.

3. Insulin Pumps. (2015). Available http://www.diabetes.co.uk/insulin/Insulin-pumps.html. Last accessed 5th May 2015.

4. Rull G. (2014). Childhood and Congenital Hypothyroidism. Available: http://www.patient.co.uk/doctor/Childhood-and-Congenital-Hypothyroidism. Last accessed 5th May 2015.

5. Eledrisi M. (2014). Growth Hormone Deficiency. Available: http://www.emedicinehealth.com/growth_hormone_deficiency/page6_em.htm#growth_hormone_deficiency_medications_and_treatment. Last accessed 5th May 2015.

6. Tidy C. (2015). Congenital Adrenal Hyperplasia. Available: http://www.patient.co.uk/doctor/congenital-adrenal-hyperplasia-pro. Last accessed 5th May 2015.