ENDOCRINOLOGY

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SSC 5c Elective Placement Assignment

I carried out my 5-week Elective placement at the Endocrinology Unit at St Bartholomew's Hospital in London. This is an internationally recognised tertiary centre where patients with complex endocrine conditions can be managed and cared for. One of the conditions I saw quite frequently during the placement was primary hyperaldosteronism caused by Conn's syndrome.

1) Describe the pattern of disease of Conn's Syndrome in the population with which you will be working and discuss this in the context of global health

Conn's Syndrome is a form of Primary Hyperaldosteronism, where there is an increased aldosterone level due to an aldosterone producing adenoma on usually one adrenal gland.

Aldosterone levels increase the levels of sodium and water retention, via the renin-angiotensin system, and encourages potassium excretion in the kidneys. This leads to a raised arterial blood pressure and a low serum potassium level. Conn's syndrome is amongst the most common causes of secondary hypertension, with renal disease being the most common.

For many years, primary hyperaldosteronism was thought to be a rare cause of hypertension and was not generally screened for or diagnosed for that matter unless hypokalaemia was present.

On Garrod Ward at St Bart's Hospital, a third of the patients were due to adrenalectomies with a background of Conn's syndrome. One may assume because this is a specialist centre for Endocrinology, it does not best represent the population when trying to estimate how common Conn's syndrome is, as of course anyone who has this rare condition would be treated there.

However, most recent evidence suggests that Conn's syndrome is more common than previously thought. Studies suggest that the majority of Conn's patients are in fact normokalaemic. This means the prevalence in the population was most probably underestimated. Whereas before it was presumed primary aldosteronism accounts for 1% of individuals with hypertension, it now appears that the real prevalence of Conn's syndrome in UK may actually be between 5-13% of hypertensive patients, and up to 20% of those with resistant hypertension. It has been reported to be twice as common in females than males and the highest incidence is in individuals aged between 30-50 years. The condition has been published to have a prevalence of 5% in Spain and 16% in Scotland and Chile.

The fact that the prevalence rates in the population have been underestimated means that many individuals with potentially curable causes of hypertension are not being adhered to.

2) Describe the pattern of health provision in relation to the country in which you will be working and contrast this with other countries/or within the UK. 3) I would be interested to explore the methods of health provision in Conn's syndrome set in place within the UK and research into whether they have been successful so far

Although initially considered a rarity, Conn's syndrome is now considered one of the more common causes of secondary hypertension. The morbidity and mortality associated with primary

hyperaldosteronism, in particular Conn's syndrome, are important in that hypertension that is left untreated for many years can lead to many complications. These include stroke, heart disease and intracerebral haemorrhage. Hypokalaemia, if present, can also put one at risk of potentially fatal cardiac arrhythmias.

There are no known methods to prevent Conn's syndrome from developing primarily, however through early detection, earlier interventions can take place. These include dietary salt restriction, engaging in moderate physical activity, maintaining a healthy body mass index, maintain adequate intake of potassium and consume a diet rich in fruits, vegetables, and low-fat dairy products. These methods of conservative treatment may be able to delay onset of hypertension in these individuals.

For this reason, routine investigations are increasingly taking place in order to screen for hyperaldosteronism in hypertensive patients (regardless of potassium levels).

The aldosterone renin ratio is used as a screening test in the UK and Worldwide to assess for primary hyperaldosteronism. Patients with hypertension and hypokalaemia, or resistant hypertension and normokalemia are screened. If the ratio of aldosterone/renin ratio is more than 800, patients should be further investigated. CT and MRI imaging is then used to locate the source of the aldosterone production.

A study performed by Gordon et al. at Princess Alexandra Hospital, Brisbane, Australia in 2004, wanted to test detection rates of primary aldosteronism when screening all hypertensive patients. When using aldosterone/renin ratio testing, they found a ten-fold increase in detection rates of primary aldosteronism. Also, only 22% of patients diagnosed in this unit since 1992 were hypokalaemic. This highlights that 88% of the hypertensive population were being undiagnosed and not treated. This suggests that screening in all hypertensive individuals would improve overall outcomes, especially when aldosterone-produce adenomas are potentially curable forms of hypertension.

The estimated rates of Conn's syndrome have increased after using this method of screening, suggesting the rates of prevalence were in fact underestimated and the newer screening tests are successful.

When screening has taken place, health provisions must be put in place to control blood pressure conservatively. The goal of treatment is to prevent the morbidity and mortality associated with hypertension and hypokalemia. The use of hypertensives can be helpful for individuals pre and postoperatively, or patients are refuse adrenalectomy.

4) I would enjoy improving my clinical knowledge of different endocrine conditions and how they present.

I have thoroughly enjoyed my elective placement at St Bartholomew's Hospital Endocrinology Centre because of the vast array of rare conditions I have been lucky to see. Not only was I able to improve my knowledge of the clinical presentation of Acromegaly and Gigantism but was also about to speak to patients with Conn's syndrome and Cushings.