

ELECTIVE (SSC5b) REPORT (1200 words)

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

1. What are the common presenting renal conditions in Eastern Australia? How do they differ from London?

Kidney conditions can be categorized into two groups: Acute Kidney Injury (AKI) and Chronic Kidney Disease (CKD).

Acute kidney injury (AKI) refers to an 'abrupt decrease in kidney function, resulting in the retention of urea and other nitrogenous waste products and in the dysregulation of extracellular volume and electrolytes' (Patient.co.uk, 2016)

I was exposed to many types of AKI that can be categorized into pre-renal, renal and post renal causes : Post-op hypovolaemia, Glomerulonephritis (IgA, Granulomatosis with Polyangitis), Urethral obstruction secondary to benign prostatic hyperplasia (BPH), Catastrophic Antiphospholipid Syndrome

The prevalence of AKI among patients is highest in males and those aged over 65. The highest hospitalisation and death rates exist in the aboriginal population that can be up to twice as high as the other Australian populations. (Australian Institute of Health and Welfare, 2015). Many of the causes of AKI that exist in Australia are also found in London.

'CKD refers to the Presence of kidney damage (ie albuminuria) or decreased kidney function three months or more, irrespective of clinical diagnosis.' (Levey & Coresh, 2012). The prevalence of CKD increases with age and exposure time to risk factors. The main risk factors of developing CKD include (Longmore et al., 2010):

- 1. Age**
- 2. Hypertension**
- 3. Diabetes Mellitus**
- 4. Obesity**
- 5. Heart disease**

A recent Met-analysis by Hill et al. showed that Europe had a higher prevalence of CKD than Australia (18.4% vs 14.7%) (Hill et al., 2016). Possible reasons for this difference may lie in the greying population or the increasing rate of obesity, diabetes or hypertension in the European countries (National Kidney Federation, n.d.). In London specifically, CKD is present in 50% of the population aged over 75, this is similar to Australia where 42% of patients that age suffer from the disease. In Australia there is a large variation in the prevalence of CKD between the indigenous and non-indigenous populations where the indigenous are twice as likely to develop early kidney disease and four times more likely to develop end stage kidney disease. (Australian Bureau of Statistics, 2014). Possible causes may be due to inadequate nutrition, alcohol abuse or poorer living conditions (Collier, 2013).

2. How does the healthcare service in Eastern Australia differ with that of the UK?

Australia offers a combination of governmental and private healthcare. The governmental system is similar to that of the UK, where the public pays a tax of 1.5% governmental healthcare system, Medicare, and is funded through a 2% tax. Those earning a salary over 90,000ASD have the option of paying for their healthcare privately, or paying an additional surcharge of up to 1.5% to receive healthcare through Medicare. This option exists to reduce the burden on the public system and to promote the use of the private system for those who can afford it. Medicare provides free healthcare to all inpatients and subsidises additional primary and specialist care outside of the hospital. Similarly, free healthcare is provided to UK residents through a publicly funded service – the National Health Service (NHS).

The main difference between the two countries is the establishment of private healthcare. Australia has an established private healthcare system, where those who wish to utilize it are exempt from the Medicare taxation. In the UK, patients are still required to pay tax to fund the NHS even if they wish to use private healthcare.

3. To compare the management of the most prevalent renal condition in Australia to the UK

As chronic kidney disease is irreversible, the main aspect of managing the condition lies in treating the precipitating cause, monitoring and protecting the renal function and preventing complications that may occur.

Treating the precipitating cause

The top three causes of renal disease are diabetes, hypertension and cardiac diseases (Longmore et al., 2010). Managing each of these conditions can reduce the progression CKD. Management involves lifestyle changes including diet, exercise, smoking and alcohol intake and medical treatment to treat the precipitating disease.

Monitoring and protecting the renal function

Regular urea and electrolyte (U&E's) are needed to monitor the Glomerular Filtration Rate as a marker of disease progress. Certain reno-protective drugs such as ACE-inhibitors (ACEi)/Angiotensin Receptor Blockers (ARBs) are known to reduce the rate of protein urea (Kidney Health Australia, 2015).

Additional curative treatments for CKD are available in both the UK and Australia in the form of renal replacement therapy (RRT). RRT includes haemodialysis, peritoneal dialysis and renal transplant (Kidney Health Australia, 2015).

Haemodialysis requires a fistula to be inserted, where blood is removed from the body and a filtered in a dialysis machine then returned back into the circulatory system. Patients are required to attend dialysis 3 times a week for 4-6hr sessions.

Peritoneal dialysis (PD) requires a PD catheter to be inserted into the abdomen. This method uses the natural peritoneal membrane as a filter through which waste substances can be excreted. Patients

can be trained so that they can self manage their dialysis at home saving them time and saving the hospital valuable resources.

Renal transplants require donated kidneys to be surgically inserted into the iliac fossa of the recipient. Transplanted kidneys are at risk of being rejected at any time, however the most common time is within the first 6 months. Patients require lifetime immunosuppressant therapy, which increases their risk of opportunistic infections. Common infections that patients are at risk of are CMV infections and BK viral infections. Additionally, they have a high risk of developing skin cancers such as squamous cell carcinomas and basal cell carcinomas.

Preventing complications

A loss of kidney function can cause many complications within the body (Kidney Health Australia, 2015):

Acidosis – Metabolic acidosis can occur to the reduced excretion of acid forming products together with the reduced production of bicarbonate.

Albuminuria – Acts as a prognostic factor for CKD. Drugs such as ACEi and ARBs are able to reduce the loss of albumin.

Anaemia – Reduced production of erythropoietin results in decreased erythropoiesis.

Hyperkalaemia – Is a complication resulting from the kidneys reduced ability to exchange sodium with potassium in the tubules. Additionally, some medications used to protect the kidneys can increase potassium as a side effect such as ACEi, ARBs and spironolactone. Excess potassium can result in life threatening arrhythmias developing.

Hypertension – a reduced GFR (Glomerular Filtration Rate) results in reduced excretion of water and an increased intravascular volume leading to hypertension. It can also lead to increased risk of cardiovascular complications and strokes.

Hypocalcaemia and bone disease – the reducing function of the kidneys results in less activated Vitamin D leading to reduced gastrointestinal absorption of calcium. Chronic hypocalcaemia can lead to secondary/tertiary hyperparathyroidism that increases mineral resorption from bones and increases the risk of fragility fractures.

4. To reflect on a memorable renal case and discuss how I can use this to improve my skills as a junior doctor.

FM is a 70yo male that was admitted into the renal unit due to bilateral pressure ulcers of the heel secondary to a previous prolonged admission and poorly controlled Diabetes Mellitus (DM). He has a background of DM, Hypertension and End Stage Renal Failure. One of the ulcers developed into osteomyelitis of the calcaneal bone and a discussion with him resulted in a below knee amputation of that leg.

This case has taught me three important values that I would like to apply in the future as a doctor:

1. The effect of prolonged hospital admission

I have always known that prolonged admissions increase the risk of Hospital Acquired Pneumonias (HAP) as this was constantly mentioned in lectures. Additionally, during my respiratory placement in England and Australia I noticed that there were many patients with HAP that needed to be treated. As a result of this I was only aware of HAP being a risk of prolonged admissions, however after this case I realize that pressure ulcers can be just as dangerous and is something that I will be more aware of in the hospital setting.

Additionally, I learnt that sometimes it is better for the patient to be discharged early and recover at home than to stay at hospital where they can develop these complications.

2. The importance of doing a full assessment of patients during ward rounds

I know that patients who are bedbound have the highest risk of developing pressure ulcers, especially if they are elderly. It is up to the team in charge to reduce the risk of patients developing pressure ulcers, which cannot happen if no one looks for them. I like the way that ward rounds are carried out in Australia – where all the doctors assess the lungs, heart, abdomen, calves and skin (like a quick A-E assessment) to ensure there are new changes that have been missed. This is one quality that I would like to apply as a doctor.

3. The importance of patient education

This patient had to have an amputation due to uncontrolled DM. If the patient was more aware of the complications of DM then this may have motivated him to manage his diabetes properly. As a doctor, it will be important for me to educate patients about their conditions so that they manage their conditions and are aware and able to recognize complications if they develop.

Works Cited

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