Section 8.3 – Clinic Attendance

Lipid Clinic

Fridays February / March **2018**

Prof David Marais & Prof Dirk Blom

We visited the Lipidology Clinic where Prof. Blom and Prof. David Marais sees the referred patients to the lipidology clinic. The patients seen here are referred generally due a suspected disorder of lipid or lipoprotein metabolism. It is a pity that more time cannot be spent mastering the clinical skills of lipidology in this clinic. The main indication for referral to this clinic is when pateints have a total cholesterol >7 mmol/L.

All patients initially gets a lipid electrophoresis (on agarose gel) to classify then according to the Fredericksen Classification (along with their lipogram).

I sat in with Prof. Marais on a few occasions where I learned the importance of thorough, structured history taking, including details of diet and exercise, as well as creating a pedigree to trace the family history. These are particularly important in dyslipidaemias which impacted significantly by both genetics and lifestyle.
Thorough history taking can assist to determine the degree to which each is contributing to the phenotype, and also helps with lifestyle counselling for disease
management. I also learned to appreciate the difference between a normal Achilles' tendon and a thickened one, as well

as examining for sterol deposits around the eyes (xanthelasma), in body folds and around joints (xanthomata).

Lipid Post-clinic case presentations

2018 – 2021

Prof David Marais & Prof Dirk Blom

Each of the clinicians that works in the lipid clinic presents the new patients that they saw, as well as the follow-up cases. The group discusses the new cases and comes to an agreement about the possibilty of familial hypercholesterolaemia, possible genetic background, and which drugs, at what doses, are most appropriate. Owing to Prof. Marais' many years of experience, and ours being the only specialist lipid clinic and laboratory in the Western Cape, Prof. knows many of the families that are affected by FH and which mutations run in those families and in specific genetic pools within our population. A lot of clinical trials involve our patients, so we also hear up-to-date news on the latest developments in therapy.

Endocrine Ward Round

2018

Prof Dave Joel

A colleague and I asked whether we could join Prof Joel Dave on their Friday morning ward rounds. This was a very insightful experience as we could see the daily queries and consultations requested to review by an endocrinologist. We have learnt the importance of managing diabetes mellitus as it was the single most consulted endocrine disorder – also likely the most important non-commnicable disease on the rise. We have seen various cases in almost all the wards of the hospital, ranging from a patient with a recent radio-ablation of the thyroid, various cases of type 2 diabetes, a pregnant patient with diabetes for optimization of the insulin dose and a patient with Grave's Disease. It was amazing to see with which care and confidence the clinicians handle the patients.

Endocrine Patient Presentations – Paper ward rounds

every Friday at 14h00

Prof Joel Dave, Prof Ian Ross

Every Friday, the adult and paediatric endocrinologists come together to discuss patients that present management or diagnostic dilemmas. The chemical pathologists and registrars are invited to assist with the diagnostic element and it's another valuable opportunity for us to have closer contact with the patients. Sometimes, but rather rarely, we do go to see the patients at the bedside. I was involved in the discussion of a few of patients with a variety of fascinating diagnoses and dilemmas, including disorders of calcium metabolism, glycogen storage disease, complex cases of type I diabetes, including the issues that arise in adolescence.

There were cases of various types of Cushing's syndrome, central and nephrogenic diabetes insipidus, disorders of sexual differentiation, lipid metabolism defects, growth hormone deficiency and acromegaly. What I enjoyed about these paper rounds is that we would become thoroughly involved in the discussions and decisions about the next diagnostic step and I feel we really added value in real-time. It was much better than consulting over the phone, because we were able to look at laboratory and imaging results together, and hear all the questions and discussions. When we consult over the phone, we miss out on a lot of that background discussion and problem-solving.

Paeds Endocrine Clinic – Red Cross Children's Hospital

Monday Mornings

Dr. M. Carrihill and Dr. A Ramcharan

I visited the endocrine clinic a few mornings when the endocrinologists had interesting cases. I have become the "go-to" person for organizing urinary steroid profiles in the Western Cape region, with the contacts I have made with laboratorians at the WADA-SADoCoL laboratory in the Free State. Sometimes when children with disorders of sexual differentiation presents, I am consulted on the possibility of sending these special tests for analysis. After a few analyses, we realized that these tests are only useful to confirm 5-alphareductase deficiency in older children, using the testosterone:dehidrotestosterone ratios. The sensitivity of the other urinary analytes, present in low amounts in pediatric urine, namely 5-alpha: 5-beta THF and androsterone :

aetiocholanolone was unfortunately not good enough.

Unfortunately it is was not easy to get the time to regularly attend these meetings as we also have our regular Journal club and staff meetings on Mondays.

Dynamic Tests

- OGTT for diabetes
- OGTT for acromegaly
- Clonidine stimulation test
- hCG stimulation test
- Water deprivation test
- Overnight fast for hypoglycaemia
- Low dose dexamethasone suppression test
- Synacthen stimulation test

These dynamic tests are fairly often requested at our laboratory. The chemical pathology registrar on call is responsible for taking the clinician's call, organizing that the clinician is well-informed of which samples should be taken and also to liaise with the clinician if results need to be phoned out, or if additional samples are necessary. We are also responsible to obtain the history and clinical scenario and ensure that the appropriate tests are done, at the appropriate time. These tests, although usually requested by endocrinologists at our laboratory, are often requested by younger clinicians, or clinicians not fully aware of the caveats with doing these tests. To give an example, we have had a few requests for a ADH (vasopresssin) lever. It is unfortunate that we do not have the option to measure this analyte, neither would it likely be very specific to disease due to the short half life. Nonetheless it is then our responsibility to inform the clinician of the water deprivation test and assist with a suitable protocol to

perform the test. Similarly, an overnight fast for hypoglycaemia is usually planned well in advance with us on board with the advisements on minimum sample volumes and ensuring the correct tests be done under the correct conditions and sent to the correct laboratory.

Near-Patient Tests

Sweat Test

The whole procedure of the sweat test from start to finish requires a fair amount of time, so I wasn't able to follow many of these patients. I did spend a day with our technologist at Red Cross Children's hospital, Ms Sandy Kear, when we did sweat tests on 4 patients that day. One out patient and three patients in the ward. It is interesting that such a laborious test remains the gold standard for diagnosing cystic fibrosis. One expects the collection of sweat and manual handling of samples to result in significant variability in results, but clearly the differential in results between normal and abnormal is sufficient to withstand this variability. I was also involved in repairing one of the newer iontophoresis machines for the Macroduct, a variation on the Whatmann paper sweat collection method. See my case of 3D printing in the laboratory for more information. I was also involved in the EQA for the chloride measurement. See Record of Rotations for more information.

Selective arterial calcium stimulation test (Calcium gluconate infusion test)

Patient experienced hypoglycaemic episodes associated with elevated insulin. CT scan could not localise a tumour. SACST was performed. This procedure is much simpler than a BIPSS in terms of administration, but with all of these procedures, great skill is required in the correct placement of the

catheter to obtain valid results. The results showed an elevated insulin response to calcium infusion in the superior mesenteric artery and splenic artery, but minimal response in the gastroduodenal artery. This suggested an adenoma in the body/tail of the pancreas. Ultrasound-guided surgery was planned, with the intention of a local resection if possible.

Bilateral adrenal vein sampling

Since I have had exposure to the Calcium stimulation test, and due to space restrictions, I could unfortunately not see first-hand this procedure. I was however well informed by the single colleague who was allowed into the CathLab to help with specimen logistics, about the procedure. See my short case on hyperaldosteronism for more details. There were two of these cases on one day. It did appear that the interventional radiologists could not adequately canulate the right adrenal vein, a commonly encountered problem.

Bilateral inferior petrosal sinus sampling

Even though also not directly involved in the theatre, I've been informed by colleagues various times about this procedure which has been done just before I arrived in the department. The patient was diagnosed with Cushing's disease via a private laboratory. Colleagues assisted by preparing all the tubes and ice before the procedure, and were involved in the coordinated collection of samples at the different time points from each anatomical location. ACTH secretion was stimulated with ddAVP, but the ratio of central to peripheral ACTH secretion was not diagnostic of pituitary Cushing's disease. Therefore, ectopic ACTH syndrome was diagnosed. This appears to be a very involved procedure and requires the presence of a multidisciplinary team to ensure everything is done correctly. After the Calcium stimulation test I have assisted Prof. Beningfield with, I wish I could see this procedure from him

too – one of the legends of the radiology department.