

# CASE 1 (diagnosis/ follow up)

- Habib, 62yo British, middle-eastern origin male. Fit & healthy. Focal Segmental Glomerulosclerosis (FSGS) diagnosed on renal biopsy in Dubai 2008. PMH: hypertension.
  - Creat 132, last known Creat 128, 18 months ago
  - eGFR 52
  - BP 132/87
  - Ramipril 10mg od
  - Urinalysis - negative

# CASE 1

- Staging CKD [classification table –page 1]
- Where should this patient be followed up – primary or secondary care [referral algorithm –page 2]
- What needs to be monitored [on-going management –page 4]

# CASE 2 (diagnosis/ follow up)

- Odane is a 87 year old Jamaican male. Lives alone, mobile & independent. Presumed hypertensive nephropathy, no other medical issues.
  - Cr 178, stable the last 5 years
  - eGFR 36
  - Urinalysis negative.
  - BP 175/95 sitting.
  - Medications: Metoprolol 25mg bd, Enalapril 10mg bd.

# CASE 2

- Staging CKD [classification table –page 1]
- Where should this patient be followed up – primary or secondary care [referral algorithm –page 2]
- What needs to be monitored [on-going management –page 4]
- How would the BP be best managed [ACEi and CKD –page 4]

# CASE 3 (referral)

- Jaywant, is a 68 year born in Maharashtra India, retired building foreman. Dialysis dependent tubulointerstitial nephritis 2010 secondary to erythromycin treatment. Recovered function to eGFR 37, stable since then, with steroid therapy. Otherwise fit and well. Came due to BP 157/95.
- Urinalysis +2 protein, no blood. Medication: nil.
- Came back after 1 week with mean ABPM 150/92, Cre 185, eGFR 34, BP 159/89, uPCR 80

# CASE 3

- Staging CKD [classification table –page 1]
- Where should this patient be followed up – primary or secondary care [referral algorithm –page 2 / referral criteria – page 3]
- How would the BP be best managed [referral algorithm – page 2]
- Investigations required [minimal information required –page 3]

# CASE 4 (referral)

- Myrtle a 47 year old British Caucasian female accountant from Sussex. BMI 23. Single functioning kidney secondary to childhood proteus infection and stone formation resulting in obstructive nephropathy and loss of function.
  - USS: Rt kidney 11cm, Lt kidney 7cm. No stones. No hydronephrosis or obstruction.
  - Cre 65, eGFR>90
  - Urinalysis: ++ protein, + blood, uACR 45, Infection free  
repeat sample + protein, ++ blood, uACR 37.
  - BP 145/93.
  - Medication: nil.

# CASE 4

- Staging CKD [classification table –page 1]
- Where should this patient be followed up – primary or secondary care [referral algorithm –page 2 / referral criteria – page 3]
- How would the BP be best managed [referral algorithm – page 2 / ACEi and CKD – page4]
- Investigations required [minimal information required –page 3]



# CASE 5 (CKD+DM)

- Jagoda, 69 year old caucasian female originally from Poland now living in South Acton. Overweight - BMI 38. Presumed diabetic nephropathy.
  - Cr 160
  - eGFR 35, stable the last 2 years
  - HBA1C 68
  - BP 165/92.
  - Urinalysis: 1+ protein, 1 + glucose. uACR 35, repeat 40
  - Medication: ramipril 10mg OD, irbesartan 75mg bd, simvastatin, aspirin, gliclazide 80mg bd, linagliptin 5mg od.

# CASE 5

- Staging CKD [classification table –page 1]
- Where should this patient be followed up – primary or secondary care [referral algorithm –page 2]
- What needs to be monitored [on-going management – page 4]
- How would the BP be best managed [ACEi and CKD – page 4] Is the current drug regimen appropriate
- How should glycaemia be best managed [Management of individual with DN –page 5]
- Is the eGFR accurate

# CASE 6 (CKD-DM)

- Aelwen 74 year old Welsh female. Obese BMI 32. Lives alone with 3x daily carers. Chair bound. LV ejection fraction 28%. COPD. Type 2 DM on BD insulin regime.
  - BP 92/63
  - Urinalysis: 1+ protein, 1+ glucose, uACR 15
  - eGFR 32. K 5.7. HCO3 19.
  - HbA1C 72
  - Medication: ramipril, frusemide, metolazone, atenolol, simvastatin, novomix, inhalers.

# CASE 6

- Staging CKD [classification table –page 1]
- Where should this patient be followed up – primary or secondary care [referral algorithm –page 2]
- What needs to be monitored [on-going management – page 4]
- How would the BP be best managed [ACEi and CKD – page 4] Is the current drug regimen appropriate – over controlled BP
- How should glycaemia be best managed [Management of individual with DN –page 5]
- Consider issues around bicarbonate and potassium

# Case 7 (CKD- anaemia)

Manaranjani, a 65 year old female patient born in Sri-Lanka

- Known CKD since 2008, DM 2, Hypertension, Hyperlipidaemia, IHD, previous PCI, Retinopathy
- Omeprazole 40mg od, Irbesartan 150mg bd, Amlodipine 10mg od, Bisoprolol 2.5mg od, Simvastatin 20mg od, Aspirin 75mg od, Metformin 1gr bd, Gliclazide 40mg bd
  - Crea 120, eGFR 41
  - K 4.9, Na 142, Ca 2.25, PO4 1.01
  - uACR 50
  - HBA1C 65
  - Hb 104
  - BP 138/85mmHg
  - BMI 28.9

# CASE 7

- Staging CKD [classification table –page 1]
- Where should this patient be followed up – primary or secondary care [referral algorithm –page 2]
- What needs to be monitored [on-going management – page 4]
- How would the BP be best managed [ACEi and CKD – page 4]
- Is the current drug regimen appropriate How should glycaemia be best managed [Management of individual with DN –page 5]
- How should anaemia be managed [Renal Anemia–page 4]

# CASE 8 (re-referral)

- Tahliil 80 year old Somali male, discharged from secondary care
- Background CKD-3, T2DM (2004), Poor left ventricular function, Rheumatoid arthritis (1980), Asthma/COPD, Bronchiectasis, Self catheterization (Voiding problems), Paroxysmal atrial fibrillation(2003),
- Medication – Perindopril, Spironolactone, Frusemide, Omeprazole, Aspirin, Metformin, Atorvastatin, Inhalers
- Labs
  - Crea 140, stable the last 5 years, eGFR 54, uACR 47
  - Potassium 4.7, HbA1C 62
  - BP 129/85
  - Immunology/Serology - negative
  - Renal Ultrasound – bilateral simple renal cysts, no hydronephrosis, normal sized kidneys

# CASE 8

- Where should this patient be followed up – primary or secondary care
- How do we manage medically unstable patients
- Staging CKD [classification table –page 1]
- Will we be happy to follow up this patient
- What needs to be monitored [on-going management – page 4]
- When patient needs to be referred back to secondary care [refer back to renal clinic –page 4]



# CASE 9 (CKD-CCF)

- An 83yo male - weight has increased rapidly associated with SOB when he walks to the shops.
- PMH stage 3 CKD, impaired left ventricular function (ejection fraction 35%), hypertension, diabetes mellitus and benign prostate hyperplasia.
- Current medications include aspirin 75mg od, bisoprolol 5mg od, ramipril 5mg od, furosemide 40mg od, metformin 1g bd, tamsulosin 400 mcg od and atorvastatin 20mg on.
- OE
  - Slightly tachypnoeic, having just climbed the stairs to your consulting room
  - fine bilateral crackles at both lung bases.
  - jugular venous pressure is elevated at 5cm
  - bilateral pitting oedema to his knees.
  - Heart rate 92 beats per minute, SR
  - Respiratory rate 23 breaths per minute
  - Blood pressure 140/84 mmHg.

# CASE 9

You suspect this is worsening fluid overload, secondary to his left ventricular dysfunction. Should you

- a) Increase his furosemide dose to 60mg po od
- b) Increase his ACEi
- c) Add in metolazone
- d) Increase his furosemide dose to 40mg po bd
- e) Stop his beta-blocker

# CASE 10

- You increase diuretics and arrange a follow up appointment next week.
- Ten days later, he returns to your practice. He reports his breathing has improved and his legs are 'much less puffy'.
- There are no longer audible crepitations on examination of his lung fields and you struggle to locate his JVP.
- He reports passing frequent, large volumes of urine, and feels very thirsty. The patient describes recent onset of postural dizziness.
- His observations are:
  - Heart rate 113 beats per minute
  - Respiratory rate 15 breaths per minute
  - Blood pressure 90/52 mmHg.

# CASE 10

Should you

- a) Stop his ACEi temporarily
- b) Stop his beta blocker temporarily
- c) Stop his furosemide temporarily
- d) Ask him to increase his fluid intake to 2-3L/day but make no changes to medication
- e) Stop his furosemide and ask him to increase his fluid intake to 2-3L/day

# CASE 10

- **Answer. C. Stop his furosemide temporarily**
- The patient has likely been over diuresed. Holding the furosemide for a couple of days and then reinstating at original dose would be a sensible management plan. Stopping the furosemide permanently is likely to lead to symptomatic fluid reaccumulation. The patient described has known left ventricular dysfunction: Both ACEi and Beta-blockers have significant (40% mortality benefit) prognostic benefit in this cohort of patients. Consequently it is important to continue their use. The patient in this scenario is symptomatic of postural hypotension. Had he not been, then it would be appropriate to simply reduce the Furosemide back to the original dose, highlighting the importance of treating the patient, not the numbers. When increasing a patient's dose of diuretics, it can be helpful to arrange a target weight with them. The patient should then monitor their weight daily at home and can resume their original dose of diuretic therapy once this weight is achieved, to help prevent overshooting of diuresis.

# CASE 11

- The patient holds his furosemide dose for two days and then restarts at 40mg once daily. A week later, you review him again, and there is minimal evidence of fluid overload.
- Unfortunately, on reviewing his blood pressure (and the recorded readings he brings in from home), he is persistently hypertensive.
- (For reference, current medications include aspirin 75mg od, bisoprolol 5mg od, ramipril 5mg od, furosemide 40mg od, metformin 1g bd, tamsulosin 400 mcg od and atorvastatin 20mg on.)
- Observations today:
  - Blood pressure 164/102 mmHg
  - Heart rate 81 beats per minute

# CASE 11

Should you

- a) Increase his furosemide dose again
- b) Increase his beta blocker to 7.5mg po od
- c) Increase his ACEi to 7.5mg po od
- d) Add in bendroflumethiazide
- e) Add in a calcium channel blocker

# CASE 12

- You manage to increase his Ramipril up to 10mg daily and recheck his bloods in one week's time. His renal function is as follows:

Date	20/10/15	05/01/16	02/03/16	18/08/16	25/11/16
Creatinine ( $\mu\text{mol/L}$ )	165	174	166	170	200
eGFR ( $\text{mL/min/1.73 m}^2$ )	40	38	40	39	34



# CASE 12

Should you

- a) Stop his ACEi permanently
- b) Temporarily hold his ACEi
- c) Reduce Ramipril back to 5mg od
- d) Do nothing and recheck in 1-2 weeks