Chronic Kidney Disease

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Definition

- Defined by the presence of kidney damage **or** decreased kidney function **for three or more months**, irrespective of the cause

Causes of CKD

- HYPERTENSION
- DIABETES
- PCKD

Staging

• Stage 1	Kidney Damage with normal/increase eGFR	>90
• Stage 2	Kidney Damage with mildly reduced eGFR	60-89
• Stage 3	Moderately reduced eGFR	30-59
• Stage 4	Severely reduced eGFR	15-29
• Stage 5	Kidney Failure	<15

KIDNEY DAMAGE

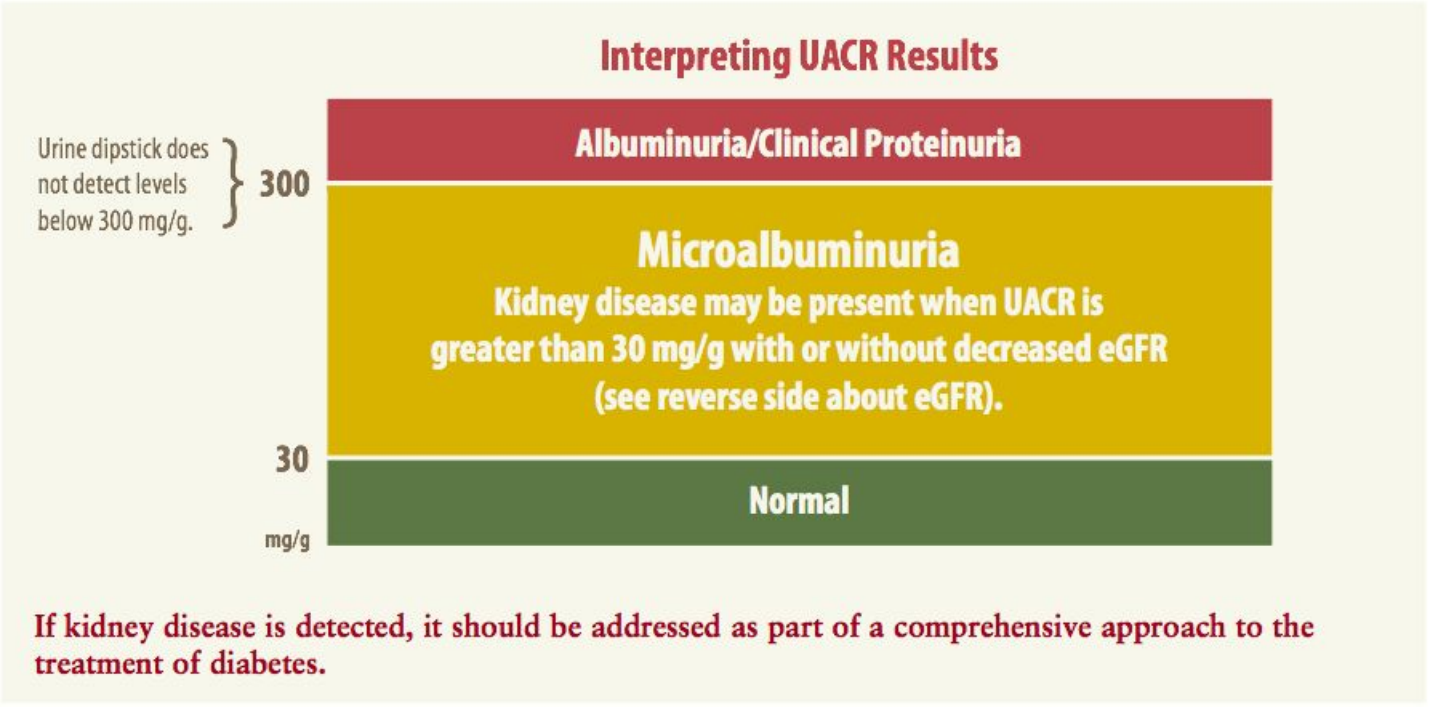
Persistent Proteinuria/Microalbuminuria
Persistent Haematuria
Changes on Renal Imaging (Structural Abnormalities)

Detecting early CKD

- Spot Urine Albumin Creatinine Ratio >30mg/g

$$\frac{\text{Urine albumin (mg/dL)}}{\text{Urine creatinine (g/dL)}} = \text{UACR in mg/g} \approx \text{Albumin excretion in mg/day}$$

UACR is a ratio between two measured substances. Unlike a dipstick test for albumin, it is unaffected by variation in urine concentration.



Presentation of CKD

- **Urea**: Anorexia, Fatigue, Gout, Pruritis, Confusion, N/V, Restless leg, Chest pain (pericarditis)
- **Fluid**: Oedema, Weight gain
- **Acid**: SOB
- **Potassium**: Palpitations, Syncope
- **Vitamin D**: Bony pains, Fractures
- **EPO**: Fatigue, SOB, Pallor
- **B2 microglob**: Peripheral neuropathy

Anorexia
Fatigue
Pruritis
Oedema
Pains
Numb feet
N/V

Investigations

Bloods: FBC
U+E
eGFR
Bone
Urate
PTH

Urine: Dipstick
MC+S
ACR
Urinalysis

Imaging: USS
X-ray KUB

2nd Line Investigations
CT Abdomen
Angiography
Renal Biopsy

Management

- **CONSERVATIVE**

  Education (leaftlet and BKPA)

  Renal diet

  - Low fluid, sodium, potassium and phosphate

  Avoid renotoxic drugs (but keep ACEi)

  Cardiovascular Risk Factor addressing

- **MEDICAL**

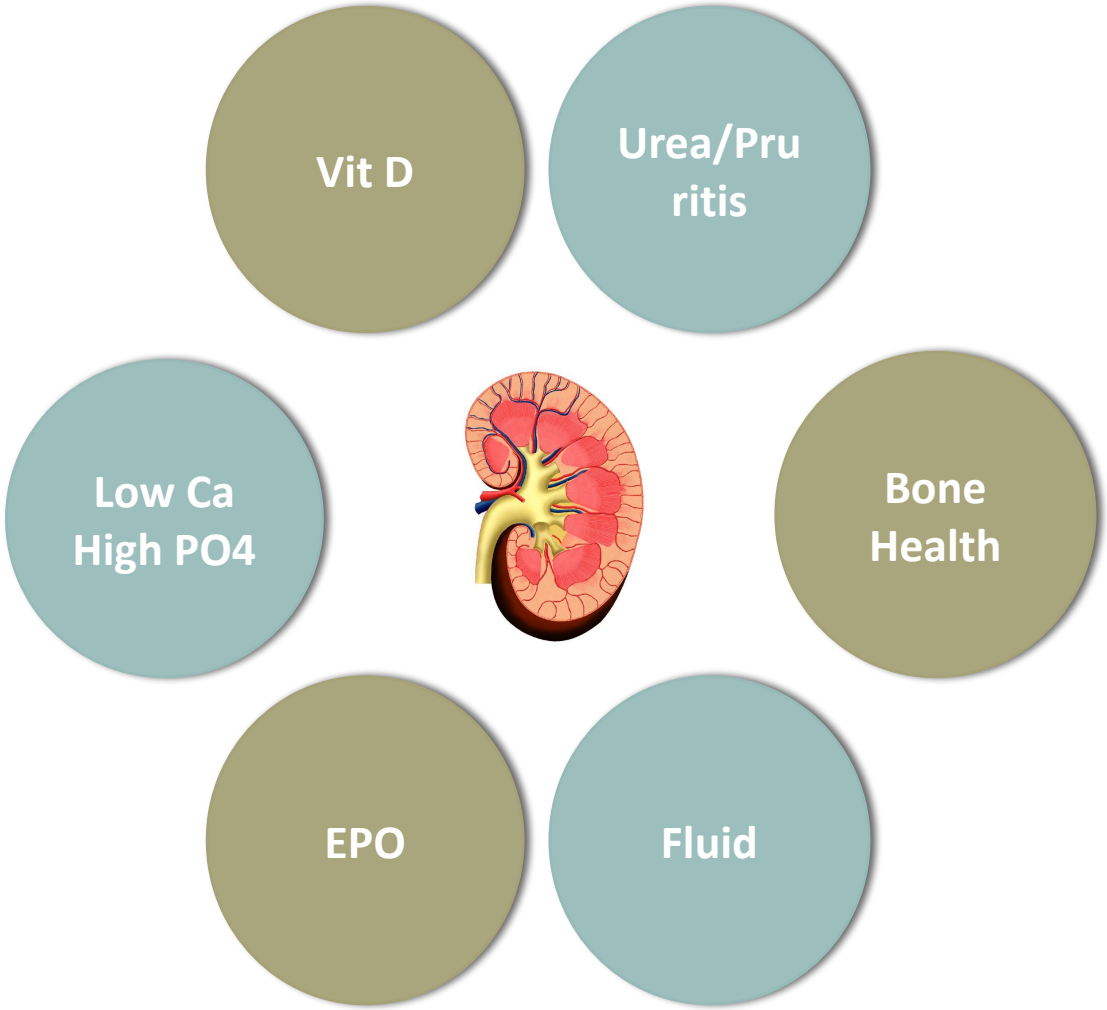
  See Next Slide

- **ESRF**

  Haemodialysis

  Continuous Ambulatory Peritoneal Dialysis

  Transplant



DON’T FORGET CARDIOVASCULAR RISK FACTORS

Specific Treatments to Rote Learn

- CARDIOVASCULAR RISK +++ Statins, ACEi, Advice
- ANAEMIA EPO
- BP CONTROL ACEi (not in RAS)
- OSTEOPOROSIS Bisphosphonates
- VITAMIN D alfacalcidol/Calcitriol
- HYPOCA++ Ca++ Supplements
- HYPERPO4- Calcium Carbonate
- OEDEMA Diuretics, Fluid/Na restrict
- PRURITIS Cholestyramine
- RESTLESS LEG Clonazepam

Note these factors together lead to the parathyroid response responsible for renal bone disease

Renal Replacement Therapy

CAPD

"Peritoneum is used as a semi-permeable membrane"

Instill 3L isotonic fluid 4x/day and allow 30mins for exchange

NB: Infrequently add glucose to dialysate to remove water

PRO's	COMPLICATIONS
Cheaper	SBP
More Convenient	Psychosocial issues
Easy to teach	Hernia
	Infection

Haemodialysis

NB: Uses serial weights to measure water removal

PRO's	COMPLICATIONS
Less frequent	A-V fistula needed
Not DIY	Transport to hospital
Meet other CKD - support	Dysequilibrium Syndrome