

# Additional Fracture Prevention Management of patients with established Chronic Kidney Disease stage 3-5 : 2012 final (review 07/18)

Stage	eGFR
1	> 90
2	60- 90
3a	59- 45
3b	44-30
4	< 15
5	15-30

**KDIGO Stages of kidney disease (measure using Cockcroft & Gault if possible)**

**CKD 1-3:  
+  
no renal disease  
+  
Normal Ca/Phos/  
ALP/PTH**

**Treat as per main secondary prevention pathway**

**CKD 4:  
See CKD 4 pathway**

**CKD 5 / dialysis or transplant:**

**Consider close joint Specialist care**

**Optimize calcium & phosphate as feasible**

**Optimize 25OHD replacement to >-50 nmol/L unless contra-indicated (watch for high phosphate)**

**Target PTH between x2-4 normal range**

**If high re-fracture risk**

**Measure bone specific ALP  
IF ALP not elevated above normal range then consider bone biopsy\* to exclude adynamic bone disease**

**Consider risedronate\*\* or denosumab\*\*\***

\*Double label  
250mg tetracycline tds for day 1-3 then repeat at day 10-12 then biopsy at day 21-27

\*risk of worsening renal function so recheck eGFR 4 weeks after initiation  
\*\*risk of severe hypocalcaemia: check Ca & 25OH before every injection. Aim to normalize 25OHD pre-injection and avoid PTH levels > 4 times ULN. Must ensure daily calcium intake >700mg & monitor serum calcium 1 week post injection at 1 week

## CKD 4

Low risk of renal progression:

Stable eGFR for 6 months  
+ proteinuria <1g/ day

High risk of re-fracture

- 1) Above 75 years or
- 2) Hip or vertebral or *multiple* fracture or
- 3) Current oral glucocorticoid therapy
- 4) Recent fragility fracture

Normal serum Calcium,  
Phosphate &  
Total Alkaline Phosphatase  
with  
PTH (x1 – x2 ULN)

Within  
Parameters

Abnormal

1. Optimize calcium intake (700mg/d) and 25OHD (>50 nmol/L)
2. Consider risedronate 35mg ow\* / denosumab 60mg 6monthly\*\*
3. Repeat eGFR 6 monthly and review if worse

**Raised Phosphate**  
**Raised ALP**  
**PTH > x2 ULN**  
**PTH < ULN**  
**Low Calcium**

\*risk of worsening renal function so recheck eGFR 4 weeks after initiation

\*\*risk of severe hypocalcaemia: check Ca & 25OH before every injection. Aim to normalize 25OHD pre-injection and avoid PTH levels > 4 times ULN. Must ensure daily calcium intake >700mg & monitor serum calcium 1 week post injection at 1 week

# Other points

- Consider bone biopsy if:
  - recurrent fractures
  - unexplained bone pain
  - Hypercalcaemia with low phosphate
  - Prior to anti-resorptive therapy
  - Previous aluminium use
- If high phosphate
  - Refer to renal dietician
  - Avoid calcium based phosphate binders
  - Use of sevelamer, lanthanum, sucroferric as per local guidelines
- If hyperparathyroid
  - Correct 25OH D status
  - Consider alfacalcidol
  - Refer to renal for cinacalcet
  - Consider parathyroidectomy as per local guidelines
- If transplant / on dialysis
  - Review in renal bone clinic