

Policy for the Investigation and Treatment of Vitamin D Deficiency in Adults

Background

- Vitamin D deficiency is common in Scotland.
- Most people are asymptomatic.
- Osteomalacia is rare.
- Measurement of vitamin D is relatively expensive.

Note

For at risk groups where measurement not required (eg. Pregnancy, breast feeding, poor sun exposure) recommend low dose supplements such as

- Healthy start vitamins 400 i.u. per day
- Valupak D3 1000 i.u. per day

When to measure serum vitamin D

- Osteoporosis or low trauma fracture.
- CKD stages 4 or 5.
- Recurrent falls.
- Malabsorption or chronic liver disease.
- Confirmed hypocalcaemia (corrected calcium <2.10 mmol/l) on 2 consecutive measurements.
- Drug treatments that increase risk of deficiency or where deficiency requires treatment prior to initiation.

How to interpret serum Vitamin D (25 OHD)

< 25 nmol/l = deficient
 $25-50$ nmol/l = insufficient
 > 50 nmol/l = adequate

Note

Marked seasonal variation with lowest levels in winter and spring. Patients insufficient in March and April are likely to become 'adequate' in summer and autumn by sun exposure alone.

Treatment of vitamin D deficiency (serum 25OHD <25 nmol/l)

Loading dose

3,200 i.u. Fultium D3
(1 x 3,200 i.u. capsules)
per day for 12 weeks.
Or
50,000 IU Invita D3
(2 x 25,000 i.u. vials oral drops)
per week for 6 – 8 weeks

Maintenance dose

800 to 1,600 IU Fultium D3
(1 to 2 x 800 i.u capsules)
per day indefinitely
Or
25,000 i.u. Invita D3
(1 x 25,000 i.u. vial oral drops)
per month indefinitely.

Note

- Check serum calcium after first 4 weeks of loading dose as can unmask hyperparathyroidism.
- Avoid loading dose if hypercalcaemia or known renal stone disease.

Note

Dose required for maintenance determined by:

- Baseline 25OHD
- Dietary intake e.g. oily fish
- Likely sun exposure
- Whether also taking calcium and vitamin D for osteoporosis (see special circumstances)

Policy for the Investigation and Treatment of Vitamin D Deficiency in Adults

Special circumstances

Osteoporosis

When to Check Serum Vitamin D (25 OHD)

- All patients with confirmed or suspected osteoporosis should have a serum 25 OHD checked **at baseline**.
- If already receiving treatment for osteoporosis +/- calcium and vitamin D supplements measurement only required **if new fracture or hypocalcaemia**.

How to Treat Deficiency

Loading dose course -

- Given as above ideally prior to commencing bone treatment such as bisphosphonates.
- If already taking calcium and vitamin D supplements these must be stopped whilst receiving loading dose vitamin D (12 week course).
- Repeat vitamin D level not required following loading course.

Maintenance following loading dose course -

- Those whose diet is low in calcium or absorption likely to be poor (consider if over age 70, frail, housebound) should be given calcium and vitamin D eg Adcal D3 1 tablet or 2 caplets twice a day (or The iCal D3 once a day) **in addition** to Fultium D3 800i.u. per day for maintenance (this gives 1,600 i.u. vit D plus 1 gm calcium).
- Younger, fit, active patients (generally age 70 or less) whose diet is plentiful in calcium do not require additional calcium (long term excessive calcium may be harmful). For these patients prescribe Fultium D3 1,600 i.u. per day.
- A useful tool for dietary calcium calculation can be found at www.rheum.med.ed.ac.uk/calcium-calculator.php.

Chronic kidney disease

The treatment of vitamin D deficiency in patients with chronic kidney disease is with vitamin D3 as above. Alfacalcidol should be reserved for renal patients with eGFR < 30 ml/min who have secondary hyperparathyroidism.

Malabsorption/chronic liver disease

If vitamin D <25nmol/l recommend Ergocalciferol 300,000 units intramuscularly every 6 months.

Because of potentially exorbitant costs and short half life ideally this is given in OPD.

If given in primary care obtain from hospital pharmacy by request on headed note paper.

Drug treatments that may cause or exacerbate deficiency

Antii-convulsants, Corticosteroids. Cholestyramine, HAART, Rifampicin.

IV Bisphosphonates and SC Denosumab – treat deficiency prior to commencing.

When to repeat vitamin D

Not required on treatment unless specific circumstances (eg malabsorption, suspected poor compliance, new low trauma fracture, drug treatments that may cause deficiency). Levels plateau slowly - repeat testing in < 6months after starting treatment never indicated.