NHS
Suffolk and
North East Essex

Pathway - management and treatment of vitamin D deficiency in adults[#,1,2]

Health professionals should not routinely test people's vitamin D status **unless**[1]:

- They have symptoms of deficiency
- They are considered to be at particularly high risk of deficiency (for example, they have very low exposure to sunlight)
- There is a clinical reason to do so (e.g. in the high risk groups identified)

Symptomatic or high-risk group:
Consider testing if

- Patient presents with possible symptoms of vitamin D deficiency
- In a high-risk group:
  - Confirmed osteomalacia, osteoporosis.
  - On potent antiresorptive treatment such as bisphosphonates
  - High fracture of risk (FRAX score)
  - Those on high-risk medications -see 'High risk groups' list below

Asymptomatic and at risk of vitamin D deficiency:
Do not routinely test.
NICE recommends vitamin D supplementation throughout the year for the following at risk groups:

- Pregnant or breastfeeding women, especially teenagers and young women
- People aged 65 years and over
- With a gastrointestinal or malabsorption disorder, or following weight loss surgery, resulting in a reduced ability to absorb fat-soluble vitamin D
- People who have low or no exposure to the sun, e.g. those who cover their skin for cultural reasons, who are housebound or who are confined indoors for long periods.
- People taking drugs that increase risk of vitamin D deficiency e.g. antiepileptic treatment
- People who have darker skin, for example people of African, African-Caribbean or South Asian origin, because their bodies are not able to make as much vitamin D

Test serum 25-hydroxyvitamin D (25(OH)D)

Additional tests:

- Bone profile (calcium)
- U&Es, LFTs
- If CKD >3 also test PTH

Serum25(OH)D < 25 nmol/L **Deficiency**

Serum 25(OH)D 25nmol/L- 50nmol/L **Insufficiency**

Serum 25(OH)D>50 nmol/L **Normal range**

Treat deficiency

Rapid correction needed if:

- 25 (OH)D < 25nmol/l and calcium <2.5mmol/l
- Symptoms of vitamin D deficiency

Rapid correction dose*:
Loading regime vitamin D 50,000 units once weekly for 6 weeks
Prescribed as:
Colecalciferol 50,000unit capsules or 50,000unit/ml oral solution or
(for alternative regimes click here)

- Commence maintenance vitamin D therapy 4 weeks after loading as per non-urgent correction below.

Non-urgent correction if:

- 25 (OH)D >25nmol/l
- Colecalciferol 25 (OH)D <25nmol/l and calcium >2.5mmol/l
- Co-prescribing vitamin D supplements with an oral antiresorptive agent, maintenance therapy may be started without the use of loading doses

Non-urgent correction dose:

- 800-2,000 IU (20-50micrograms) vitamin D3 daily, or intermittently at higher equivalent dose**

**Recommend patient purchases maintenance vitamin D after treatment course

Yes

High risk groups
Does the patient have one or more of the following?

- Increased risk of developing vitamin D deficiency - see *Asymptomatic and at risk of vitamin D deficiency above*
- Medication with antiepileptic drugs or oral glucocorticoids
- **Persistent** musculoskeletal weakness, myalgia & arthralgia
- Hypocalcaemia
- Melanoma patients
- Hyperparathyroidism

(Recommend patients in the above groups purchase maintenance vitamin D after completion of treatment course)

- Documented osteoporosis, high risk of fracture, or fragility fracture
- Treatment with antiresorptive medication
- Conditions associated with malabsorption
- Unexplained osteoporosis or osteoporosis refractory to treatment

(Recommend patients in the above groups are prescribed vitamin D after completion of treatment course)

This list is not exhaustive – please refer to NICE

No

Lifestyle Advice

- Safe, regular sun exposure
- Dietary sources
- Recommend self-care prophylaxis with an OTC supplement when appropriate in winter months (if in at risk group of vitamin D deficiency, supplementation should be year-round)
- Give self-care patient information leaflet
- Normal adult dosage 400IU (10micrograms) vitamin D daily.
- Offer free Healthy Start vitamins to all pregnant and breastfeeding women (eligibility criteria apply)

Further monitoring:

- If baseline corrected calcium is >2.5mmol/l, or they have undergone rapid correction, a repeat calcium should be undertaken one month after completion of loading regime, or 12 weeks after initiation of non-urgent correction regime. If repeat calcium ≥ 2.6mmol/l stop vitamin D supplementation, investigate hypercalcaemia (e.g. PTH) and seek advice regarding vitamin D supplementation[2]
- Routine monitoring of serum 25(OH)D is unnecessary but may be appropriate in patients with symptomatic vitamin D deficiency or malabsorption and where poor compliance with medication is suspected. If the patient is still symptomatic after treatment, a minimum of three months treatment must be given before re-testing serum 25(OH)D and it may be more prudent to wait until six months have passed[2].

 # Before prescribing seek secondary care advice if:

- Sarcoidosis and vitamin D levels are low
- Patient has a gastrointestinal or malabsorption disorder resulting in an inability to maintain adequate vitamin D status
- Patient has active renal stones or a history of renal stones
- Patient has severe liver disease or end-stage chronic kidney disease
- Patient is pregnant

For further information please refer to NICE

***Deficiency treatment for breastfeeding women:**

- If loading doses are required for rapid treatment, these are acceptable during breastfeeding. However, infant monitoring is required as a precaution, although side effects would not be expected.
- When loading doses are being used, the infant should be monitored for signs of hypercalcaemia as a precaution, including increased wet nappies, lethargy, gastro-intestinal disturbances, and changes in feeding. The infant should also be monitored for irritability and skin reactions
- Please refer to SPS website[6] for full details

For further information on suitable products for vegetarian and vegan diets please click here.

References

1. NICE. Vitamin D: supplement use in specific population groups. Public health guideline [PH56]. 26 November 2014. Last Revised January 2022. https://www.nice.org.uk/guidance/ph56
2. Royal Osteoporosis Society. Vitamin D and Bone Health: A Practical Clinical Guideline for Patient Management. February 2020. https://strwebprdmedia.blob.core.windows.net/media/ef2ideu2/ros-vitamin-d-and-bone-health-in-adults-february-2020.pdf
3. PrescQIPP Bulletin 275 Vitamin D December 2020 Version 2 https://www.prescqipp.info/media/5338/275-vitamin-d-20.pdf
4. Sunscreen and sun safety - NHS (www.nhs.uk)
5. Vitamin D - NHS (www.nhs.uk)
6. Using vitamin D during breastfeeding – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice
7. NHSBSA Drug Tariff accessed 1st May 2024