Pathway for Treating Vitamin D Deficiency in Adults

Vitamin D levels should only be checked when patients have one clinical feature of vitamin D deficiency.

Routine testing for at risk groups should NOT be undertaken.

The number of vitamin D tests performed has doubled over 2 years. This document aims to clarify the testing and treatment of vitamin D in primary care and is based on the National Osteoporosis Society vitamin D guidance.

Information from patient.co.uk about vitamin D deficiency can be found here

Does the patient have at least one persistent symptom suggesting vitamin D deficiency? Such as:
- Insidious onset widespread bone pain, tenderness, muscle weakness
- Patients with fragility fracture should follow the secondary care pathway

Tests
- (25 hydroxy) vitamin D level (yellow top serum bottle with routine transport)
- U&E
- calcium
- phosphate
- alkaline phosphatase

Consider:
- Parathyroid hormone (edta tube routine blood transport)
- FBC anaemia may suggest concurrent malabsorption
- ESR/TSH/CK if muscle weakness

Vitamin D levels 0-25 nmol/l or rapid correction of vitamin D deficiency required, such as about to start treatment with a potent antiresorptive agent (zoledronic acid or denosumab) ?

Total of 300,000 IU given over 6-8 weeks (see table 1 for suitable products) then advise OTC vitamin D 800-1000 IU supplementation plus lifestyle advice

Check serum calcium at 4 weeks for hyperparathyroidism.

Still symptomatic after 12 weeks?

- Discuss concordance
- Repeat (25-hydroxy) vitamin D level
- Refer non-responsive patients to secondary care

Caution; this guidance is not applicable to children, pregnant women or adults with renal failure (eGFR<30 ml/min); seek specialist advice.

1600 IU daily for 6 months (see table 1 for suitable products) then advise OTC vitamin D 800-1000 IU supplementation plus lifestyle advice

Review dietary calcium, aiming for >700mg/day and prescribe a supplement if necessary: eg Adcal (600 mg calcium)

Authors Hannah Copus (CCG pharmacist) Kassim Javaid (Metabolic /Rheumatology Consultant)
Approved by APCO July 2015 Version 2.4
Update Alison Jones (CCG pharmacist)
Update approved by APCO September 2016 Version 2.5
Are low vitamin D levels a consequence or cause of ill health?

Recently many other health problems –including cardiovascular disease, type 2 diabetes, several cancers, and autoimmune conditions have been associated with vitamin D insufficiency. However new evidence suggests that low vitamin D levels are more likely to be a consequence than a cause of ill health. Further studies are needed to clarify this issue.

Suitable Products for Treating Low levels of Vitamin D

In addition to the licensed lower dose (800IU) vitamin D products, there are now a number of licensed high dose vitamin D products available and this list is likely to increase further over the next year. See Prescribing Points for updates. If prescribing high dose vitamin D is appropriate then use a licensed and cost effective product.

Table 1: Examples of suitable products for treating low levels of vitamin D

<table>
<thead>
<tr>
<th>Product</th>
<th>Strength IU</th>
<th>Cost</th>
<th>12 week treatment regime (300,000 IU over 6-8 weeks) for vitamin D level 0-25 nmol/l</th>
<th>6 month treatment regime (1600 IU daily for 6 months) for vitamin D level 26-50 nmol/l</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plenachol</td>
<td>40,000</td>
<td>10 caps £15.00</td>
<td>1 capsule weekly for 7 weeks Cost = £10.50</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Plenachol</td>
<td>20,000</td>
<td>10 caps £9.00</td>
<td>2 capsules weekly for 7 weeks cost = £12.60</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Aviticol</td>
<td>20,000</td>
<td>30 caps £29</td>
<td>2 caps weekly for 7 weeks cost = £13.53</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>*Fultium D3 capsules</td>
<td>20,000</td>
<td>15 caps £17.04</td>
<td>2 capsules weekly for 7 weeks cost £15.90</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Invita D3 oral solution 1 ml ampoule</td>
<td>25,000</td>
<td>3x1ml ampoule £4.45</td>
<td>2 ampoules weekly for 7 weeks cost = £20.77</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>*Fultium D3 capsules</td>
<td>3200</td>
<td>30 caps £13.32</td>
<td>1 capsule daily for 12 weeks cost £37.30</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>*Fultium D3 capsules</td>
<td>800</td>
<td>30 caps £3.60</td>
<td>4 capsules daily for 12 weeks cost £40.32</td>
<td>2 capsules daily for 6 months cost £43.20</td>
<td></td>
</tr>
<tr>
<td>Fultium D3 drops</td>
<td>3 drops contain 200IU</td>
<td>25 ml= £10.70</td>
<td>60 drops (4000iu) daily for 11 weeks. Cost £48.23</td>
<td>24 drops (1600iu) daily for 6 months £45</td>
<td></td>
</tr>
<tr>
<td>Desunin tablets</td>
<td>800</td>
<td>30 tabs £3.60</td>
<td>4 tablets daily for 12 weeks cost £40.32</td>
<td>2 tablets daily for 6 months cost £43.20</td>
<td></td>
</tr>
</tbody>
</table>

Plenachol, Fultium D3, Invita D3 and Aviticol are halal. Desunin is not halal.

*Fultium D3 is now manufactured with maize oil and not arachis oil (peanut oil). However as the product has a shelf-life of several years, it is prudent to issue advice to do a visual check of the pack prior to dispensing, in case of peanut allergy.

Authors Hannah Copus (CCG pharmacist) Kassim Javaid (Metabolic /Rheumatology Consultant)
Approved by APCO July 2015 Version 2.4
Update Alison Jones (CCG pharmacist)
Update approved by APCO September 2016 Version 2.5
Low dose vitamin D maintenance therapy

Patients can purchase low dose vitamin D3 maintenance therapy (800iu or 1000iu) from pharmacies and health food stores. The brand will depend on what is available in individual stores.

Other Indications for Vitamin D

<table>
<thead>
<tr>
<th>Condition</th>
<th>Evidence</th>
<th>Prescribing advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cystic Fibrosis</td>
<td>Cystic Fibrosis</td>
<td>On advice of cystic fibrosis specialist</td>
</tr>
<tr>
<td>Muscular Dystrophy</td>
<td>No robust evidence</td>
<td>Do not prescribe pending specialist application to APCO</td>
</tr>
<tr>
<td>Multiple Sclerosis-</td>
<td>No robust evidence</td>
<td>Do not prescribe pending specialist application to APCO</td>
</tr>
</tbody>
</table>

Other patients initiated in secondary care should receive continued vitamin D supplies from the specialist (as per APCO Sept 2011).

In line with NICE PH guidance (Nov 2014), patients who are at very high risk of vitamin D deficiency should either access vitamin D via Healthy Start vouchers if they are eligible or purchase supplementation which is readily available through pharmacies or health food stores at very low cost.

References

1) [https://www.gov.uk/government/publications/vitamin-d-advice-on-supplements-for-at-risk-groups](https://www.gov.uk/government/publications/vitamin-d-advice-on-supplements-for-at-risk-groups)