NOS guidance on vitamin D and bone health – clarity at last?

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The role that vitamin D plays in skeletal health, the importance of vitamin D deficiency as a risk factor for bone disease and the potential benefit of vitamin D supplementation in terms of reducing fracture risk are areas that have been under much scrutiny in recent times. Increasingly, it is realised that vitamin D is no longer just a nutritional supplement but is an important sterol hormone with receptors found across a wide variety of cell types.[1] As such, its importance in disease is increasingly being established in cancer, diabetes, vascular disease and neurological disorders.[2]

Despite these emerging areas of interest, it is in relation to bone health that clinicians are most in need of clear, practical and evidence-based guidelines to determine which patients require assessment, biochemical testing and treatment.

To date there has been a lack of clarity and consensus with regards to the clinical and biochemical criteria necessary for the diagnosis of vitamin D deficiency. In the UK, this lack of clarity combined with historical problems in sourcing appropriate preparations of vitamin D and an absence of national guidance have all contributed to the confusion. There has also been concern in many areas about a significant rise in laboratory requests for the measurement of 25-hydroxy-vitamin D (25OHD), leading to escalating laboratory costs and uncertainty in the clinical interpretation of results.[3]

Against this background it is most welcome that a practical guideline discussing bone health and vitamin D has become available on behalf of the National Osteoporosis Society (NOS).[4]

Defining sufficiency

There is much to commend in these guidelines such as the recommendation of treatment with colecalciferol (vitamin D_3) rather than ergocalciferol (vitamin D_2) and a pragmatic approach to the request for 25OHD concentrations together with the avoidance of combined calcium and vitamin D products for the treatment of deficiency.

One of the main tenets of the guidance is to declare a 25OHD concentration of above 50nmol per litre as that which reflects adequacy. As the guidelines recognise, this is controversial as other guidance recommends the higher 25OHD threshold of above 75nmol per litre (30µg per litre).[5] This higher level is based on the interpretation of histomorphometric data[6] and arguments persist regarding the legitimacy of these levels.[7] Until further studies are published, it is difficult to make a firm conclusion of which threshold, if any, is actually correct.

The NOS guidance also offers clarity regarding when and in whom a 25OHD assay should be requested. Similarly, the report outlines that there are limited clinical scenarios where repeat testing is required, and some groups including those patients with osteoporosis destined for conventional oral bisphosphonate therapy in combination with vitamin D and calcium supplementation may not require biochemical testing at all. These recommendations are clearly pragmatic from an economic viewpoint.

Vitamin D replacement

Like much guidance currently available from various NHS trusts, the NOS guidance suggests correction of vitamin D deficiency (<30nmol per litre) with a variety of oral loading schedules together with maintenance doses of 800–2000iu daily of vitamin D thereafter.

In this respect the guidance has confined itself to vitamin D deficiency, yet the reader is left somewhat confused as to the treatment of subjects within the 'insufficient/inadequate range' (30–50nmol per litre). Generally, where required, the advice would be to use maintenance doses (800–2000iu daily) rather than high intermittent doses and this should have been discussed.

Similarly, as the guidance suggests, there may also be less reason to use high intermittent doses in some patients with vitamin D deficiency, such as the elderly as a higher risk of falls and fractures is recognised with single high doses,[8] plus daily dosing appears to be more effective in restoration of 25OHD concentrations.[9]

Another area that requires clarification is the need to use suitable vitamin D preparations. Although this may seem rather trite, recent data have emerged revealing that the actual vitamin D content of unlicensed and over-the-counter vitamin D preparations is often unreliable, falling well short of the stated dose.[10,11] Thus it is important that the prescriber can be certain of the quality of vitamin D used if issues of costly repetitive testing and potential toxicity are to be avoided.

For such reasons it would seem sensible that the Medicines and Healthcare products Regulatory Agency (MHRA) stipulates that, in the presence of a licensed product, unlicensed options should not be used.[12]

Conclusion

While the published guidance is a definite step in the right direction with regard to the clinical arena of vitamin D deficiency and bone health, it makes one realise that there is still much to be done. More research is appearing on this fascinating hormone that will, with time, provide answers to the questions raised in both the guidance and this editorial.

References

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Declaration of interests

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