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Vitamin D deficiency – common in young and old

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TITLE Primary Vitamin D deficiency in adults

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SUMMARY

Vitamin D was first recognised as an essential factor for healthy bone growth early last century. This article highlights the need to remain alert for Vitamin D deficiency. This common condition may present insidiously with non-specific aches, muscle weakness, an abnormal gait, or may not have symptoms. Deficiency is common at all ages. Low levels of Vitamin D are associated with falls and fractures. Vitamin D deficiency may play a role in some cancers, type 2 diabetes mellitus, metabolic syndrome, hypertension, multiple sclerosis, and inflammatory bowel disease.

Measuring serum 25-hydroxy Vitamin D (25-OH-D) levels is recommended as the only sure way of confidently identifying this problem. Fifteen percent of the adult British population (and over a quarter of 19–24 year olds) have been shown to have levels below 25 μmol/L (10μg/l) and are therefore likely to produce overt metabolic and bony abnormalities in the long term. Truly replete individuals may have serum 25-hydroxy Vitamin D levels of over 50 nmol/L. Many of the elderly, some ethnic groups, those housebound or in residential care will have very low levels.

Treatment of the elderly with Vitamin D and calcium compounds has been shown to reduce the risk of falling, hip fracture and other non-vertebral fractures. Compounds containing both Vitamin D and calcium are recommended – evidence of efficacy of Vitamin D alone is weaker. Non adherence to therapy remains a major obstacle in practice. In otherwise healthy individuals, therapeutic doses do not cause toxicity. There may be an increased incidence of kidney stones in postmenopausal women.

COMMENT

The Vitamin D story continues. There may well be a lot more to come.

Vitamin D deficiency is common throughout adult life. Although often thought of as a problem of ageing, it may well have significance throughout life. This 'vitamin' is synthesised from cholesterol in the skin (in April to September in the UK – because of our high latitude.) Its structure and receptor share many characteristics of steroid hormones – and the actions of Vitamin D are also shown to be protean within the body.

Dietary sources of Vitamin D are mainly derived from fish. As scarce fish prices rise, many are unwilling or unable to manage adequate intakes of Vitamin D in their diet. Regular sun exposure is discouraged by some public health messages. The prevalence of this vitamin deficiency may well rise in future – especially if fashions change to favour pale skin. The effects of prolonged Vitamin D deficiency may well manifest in many organ systems – as molecular technology is focused on this compound it appears to be a major player. The nature of long term insufficiency states (25-OH-D 25–50μmol/L) – which our society may be unwittingly giving us insight into – is to be defined. How and when to replace it for optimum wellbeing remains uncertain. How should we best give Vitamin D to minimise fracture and falls?

Clinicians should remain alert for Vitamin D deficiency, particularly in our elderly patients, and should be prepared for future insights into its presentation and treatment.