The Effectiveness of a Prolonged Course of High Dose Vitamin D Replacement in the Older Person

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Introduction

Vitamin D deficiency has been highlighted as a population wide problem especially in older people. Studies to date have suggested that up to 50% of the general population of the UK is insufficient in Vitamin D whilst 16% are severely deficient [1]. Studies implicate its role in immunomodulation, cardiovascular disease, cancer and bone health. Vitamin D deficiency increases risks of falls and osteoporotic fractures impacting on quality of life.

Objectives

A variety of regimens exist for vitamin D replacement [2]. An audit of our current practice showed that a short two-week course of vitamin D replacement is convenient and effective [3]. However, in those with severely depleted vitamin D stores a longer period of intense vitamin D replacement maybe required. We re-audited our results with an increased length of treatment of three-weeks.

Methods

Elderly patients >65 years with severe vitamin D deficiency (<20nmol/L) attending Princess Royal University Hospital were prescribed a three-week course of ergocalciferol 50,000 IU/day, followed by daily maintenance dose of calcium/vitamin D (1.5mg/400IU). Baseline vitamin D and renal functions were taken and rechecked at least 4 weeks after start of treatment to check adequacy of treatment. Patients with stage 4 chronic kidney disease were excluded.

Results

In total 58 patients were included, with 34 complete sets of data, 24 were lost to follow up. The average age was 83 years with 62% females. The median pre-treatment vitamin D level was 10.5 nmol/L with eGFR 64mL/min. Following three weeks treatment all patients showed improvement in serum vitamin D level, Figure 1, with 68% reaching normal (>80nmol/L) vitamin D levels, and the remainder 32% improving to levels within the insufficiency range (40 – 80 nmol/L), Figure 2. Importantly all patients (100%) reached vitamin D levels above deficiency (>40). The median change was 956%. No side effects or toxicity were reported.

	Pre treatment Vit D (nmol/L)	Post treatment Vit D (nmol/L)	Pre - GFR	post GFR
Min	8.00	42.00	31.00	28.00
Max	20.00	169.00	90.00	90.00
Median	10.50	95.00	64.00	65.50

Figure 1. Max and min values of Vitamin D pre and post 3 week treatment.

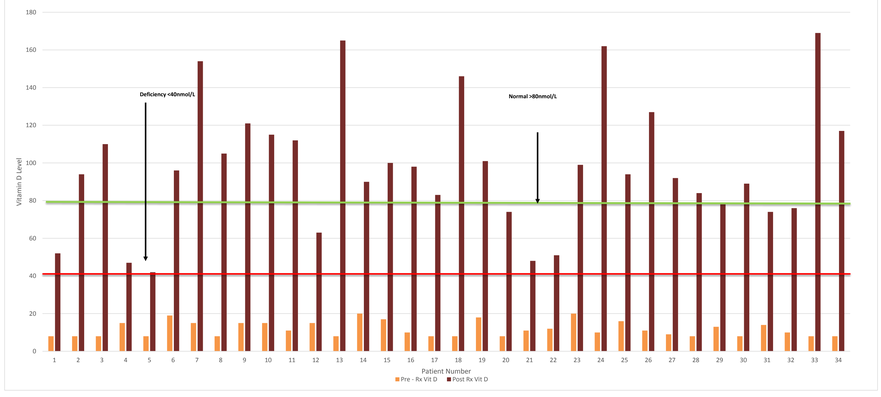


Figure 2. Vitamin D levels pre and post treatment in patients with severe deficiency on 3 weeks ergocalciferol.

Conclusion

- An intense three-week course of ergocalciferol appears to be a safe and effective way of replacing severe vitamin D deficiency.
- A shorter duration of treatment should improve compliance.
- It is hoped that this replenishment of vitamin D will translate into improved function overall and hence allow the benefits of treatment to be gained quicker.

References

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3. A Abdulla, A Garland and J Davies. A simple, effective and convenient reime for treatment of vitamin D deficiency in older people. *Abstract of work presented at BGS Spring Meeting* 2017, pg6.