

Investigating loading doses of Vitamin D used within Sunderland

Royal Hospital and compliance with current guidance



South Tyneside and Sunderland
NHS Foundation Trust

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Introduction

Vitamin D deficiency (VDD) is defined as serum hydroxyl-25 (25-OHD) concentration that is <25nmol/L and vitamin D insufficiency is defined as 25-OHD concentration that is 25-50nmol/L. Sufficiency has many benefits including reduced incidence of rickets and osteomalacia [1]. Vitamin D deficiency has also been linked to other non-skeletal effects such as cardiovascular disease [2] and cancers [3].

Current NICE guidance recommends treating VDD with a total of around 300,000 international units (IU) of vitamin D, followed by lifelong maintenance treatment of 800 IU daily. NICE guidance recommends vitamin D insufficiency is treated with maintenance therapy doses without loading [4].

Aims and Objectives

1. To assess whether patients are receiving the correct loading dose of vitamin D based on current NICE guidelines[4].
 - Standard: 100% of patients to comply with guidelines.
2. To assess and determine if guidance is not being followed that this is being noticed and corrected by discharge.
 - Standard: 100% of patients have the dose of vitamin D corrected by discharge.

Methods

This audit used retrospective data, collecting patient data via a data collection tool, electronic prescribing system and medical notes over a four month period (4/8/20 – 3/11/20). This audit did not require ethical approval but was approved by the Department Research and Audit group.

Inclusion criteria:

- Patients over 16 years old
- Vitamin D level <50 nmol/L
- Patients prescribed loading doses of vitamin D during admission

Exclusion criteria:

- Sufficient vitamin D levels
- Patients already on loading regimens on admission
- Vitamin D level not assessed during admission
- Patients admitted on maintenance colecalciferol but found during admission to need loading
- Vitamin D level assessed but no action taken to correct levels
- Bariatric patients

Results

A total of 169 patients were included: 48 patients with insufficient vitamin D levels and 121 with deficient vitamin D levels. Sixty two percent of patients included were correctly prescribed vitamin D loading doses during their admission. The clinical directorate with the highest compliance to guidelines was Care of the Elderly (COTE) (70%) and the directorate with the lowest compliance was Medicine (54%). Three patients with incorrect dosing had this corrected by discharge. The most commonly prescribed regimen was colecalciferol 20,000IU three times a week for five weeks (40%).

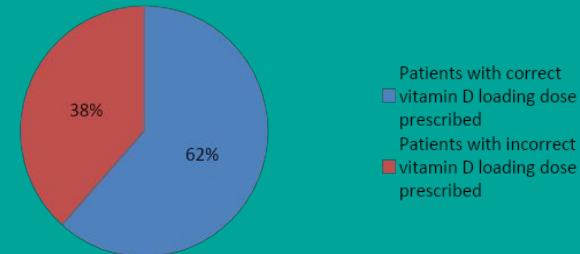


Figure 1) Percentage compliance with vitamin D loading guidelines for all patients.

Conclusion

In conclusion the Trust did not meet the target standard of 100% compliance with guidelines and correction of dosing by discharge. The introduction of a Trust guideline would allow for a single regimen to be set as standard and therefore may reduce the number of incorrect loading courses being prescribed and ensure patients' vitamin D levels are sufficient. Another consideration would be to add a vitamin D loading set to the electronic prescribing system in order to reduce the amount of errors.

References:

1. Pearce S, Cheetham T. Diagnosis and management of vitamin D deficiency. *BMJ*. 2010;340(Jan 11):142-147
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3. Prentice A. Vitamin D and Health [Internet]. Scientific Advisory Committee on Nutrition (SACN); 2020 [cited 21 September 2020].
4. NICE.org.uk. 2021. Overview | Vitamin D: supplement use in specific population groups | Guidance | NICE. [online] Available at: <<https://www.nice.org.uk/guidance/ph56>> [Accessed 21 September 2020].