High Dose Vitamin D: Improving Vitamin D Deficiency and Identifying Barriers to Effective Therapy

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Introduction & Methods

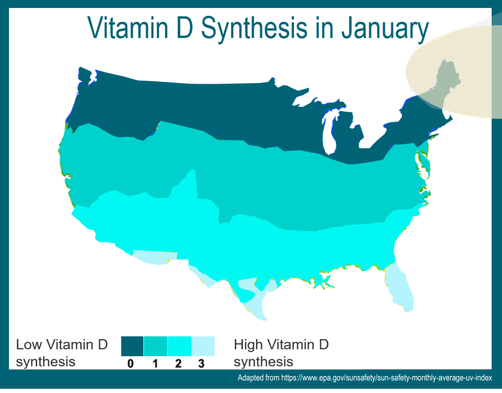
Vitamin D deficiency (<30 ng/mL) is common in people with cystic fibrosis (PwCF) and can lead to poor bone health [1]. A subset of our population has remained vitamin D deficient despite prescribed repletion doses. Utilizing high dose vitamin D supplementation has been shown to be effective in increasing vitamin D levels in PwCF [2].

As part of a regional quality improvement project, the Maine Medical Center (MMC) CF Program incorporated high dose vitamin D supplementation into clinic workflow. Here we describe the experience at MMC.

- Pediatric and adult PwCF with vitamin D deficiency were identified via annual routine laboratory testing
- When vitamin D levels failed to improve despite standard repletion dosing and education (**Visit 1**), patients were offered high dose vitamin D supplementation (cholecalciferol 300,000 or 500,000 international units) provided under observation
- Repeat vitamin D and calcium levels were ordered three months post dosing to monitor for effectiveness and adverse effects such as hypercalcemia (**Visit 2**)
- Surveys were given to both patients and providers before high dose vitamin D implementation to identify barriers around adherence to prescribed vitamin D supplementation

High dose vitamin D supplementation was successfully incorporated into our CF clinic workflow

Shedding light on vitamin D deficiency in Northern New England through a regional QI project!



For more information about our project, scan the QR Code

- Aim Statements
- Process Map with Swim Lane Diagram
- Demographic Table
- Survey tools
- REDCap Screenshot

Results

High dose vitamin D was given to 39 PwCF at MMC

- Among 26 patients with paired data, the median vitamin D level increased from 22.6 ng/mL at Visit 1 to 27.3 ng/mL at Visit 2
- A level of >30 ng/mL was achieved in 30% of those with paired data
- No symptomatic adverse events were identified in 39 participants

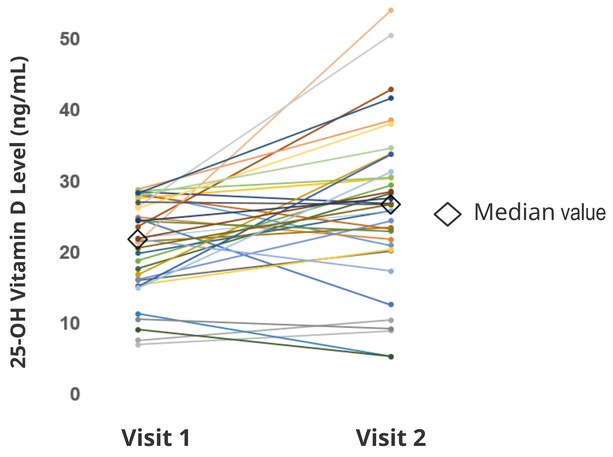
Patient survey results:

- 76% reported they were somewhat/very satisfied with their regimen
- 69% reported their regimen was easy/very easy to complete
- 38% reported taking their vitamin D every day

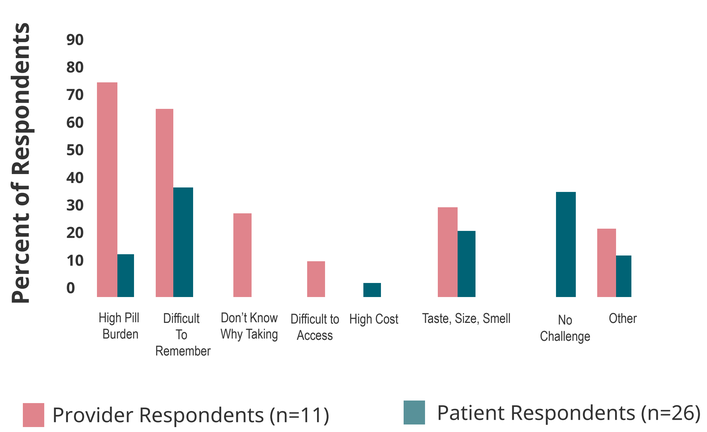
Provider survey results:

- 18% felt that vitamin D deficiency was easy or very easy to treat

Change in 25-OH Vitamin D Level after Stoss Dose



Self-Reported Barriers to Taking Vitamin D



Conclusions

- High dose vitamin D supplementation was successfully incorporated into our clinic workflow
- Of the 39 PwCF identified with vitamin D deficiency, 30% achieved a vitamin D level >30 ng/mL at follow up
- Delays in obtaining follow up vitamin D levels may have affected values at Visit 2
- A greater percentage of providers believed pill burden to be a barrier to adherence compared to PwCF
- Further investigation into discrepancies in perceived barriers may help care teams develop more effective vitamin supplementation strategies to achieve sustained improvement in vitamin D levels

References

1. Daleya T, Hughanb K, Rayas M, *et al*.. J Cystic Fibros 2019; 18 S66-S73.

2. Rovner AJ, Stallings, VA, Schall JI, *et al*. Am J Clin Nutr 2007; 86:1694-1699.

Acknowledgments

Acknowledgements: JP Perdermo, MD; Edmund Sears, MD; Colleen Redihan, CPhT; Cheryl Coyne, RN; Kimberly Violette, MA; Brandon Pearson, MS,LDN; Kathryn S. Rutledge, MD; Brian O'Sullivan, MD; Emily Seamans, PharmD