

# ASSESSING THE VITAMIN D STATUS OF PATIENTS POST RENAL TRANSPLANT AT ST. PAUL'S HOSPITAL



Christine Adair, RD; Simran Fairweather, RD; Anja Webster, RD; Erin Waters, RN; Chelsea Bruce, NP; Vanessa Lewis, RD; Clare Bannon, RN, Katrina Hsu; Sameer Desai, MSc

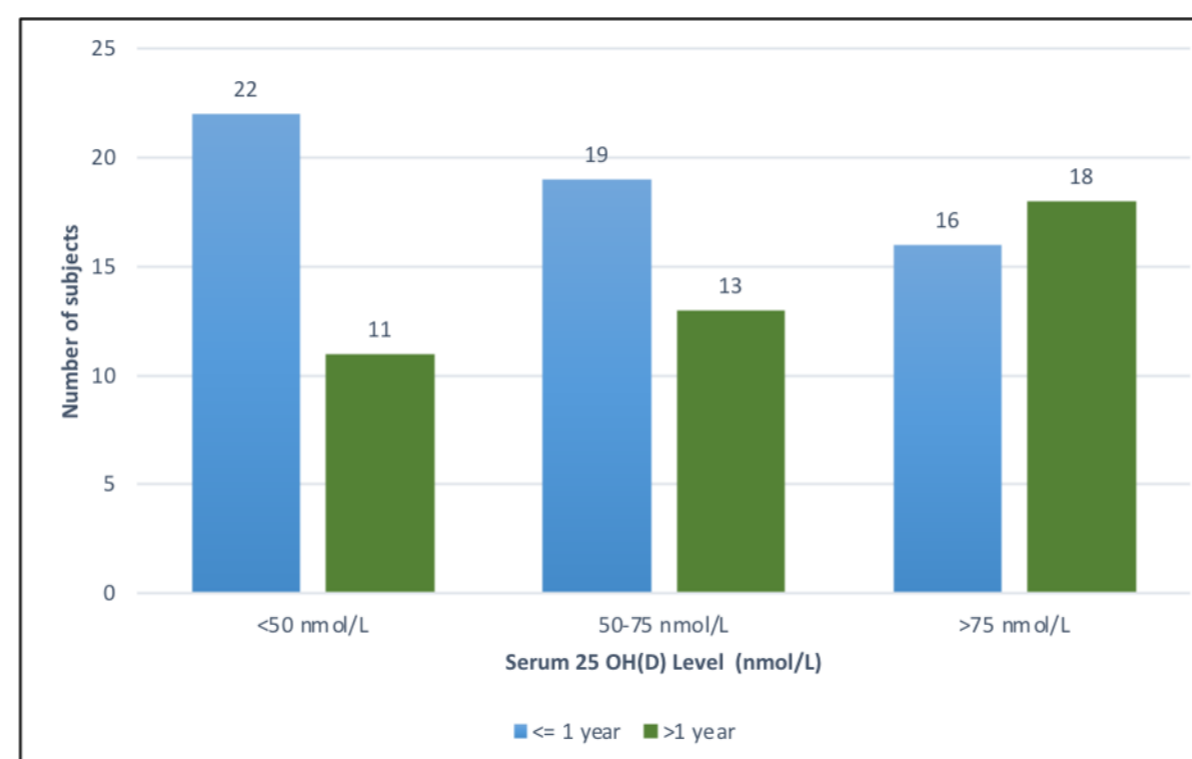
## Introduction

- Bone loss is rapid in the first year post-transplant, characterized by persistent bone resorption and reduced bone quality<sup>1</sup>
- High prevalence of bone mineral disorder and increased fracture incidence contribute to long term morbidity and mortality<sup>2</sup>
- Maintaining adequate serum vitamin D levels may be a modifiable way to assist in prevention of bone disease
- Patients attending the post renal transplant clinic at St. Paul's Hospital are at particular risk of vitamin D deficiency for multiple reasons including:
  - Geographic location
  - Effects of immunosuppressive medications
  - Higher requirements for dietary intake
  - Pre-existing bone mineral derangements of kidney disease
  - Extra sun precaution advised due to skin cancer risk

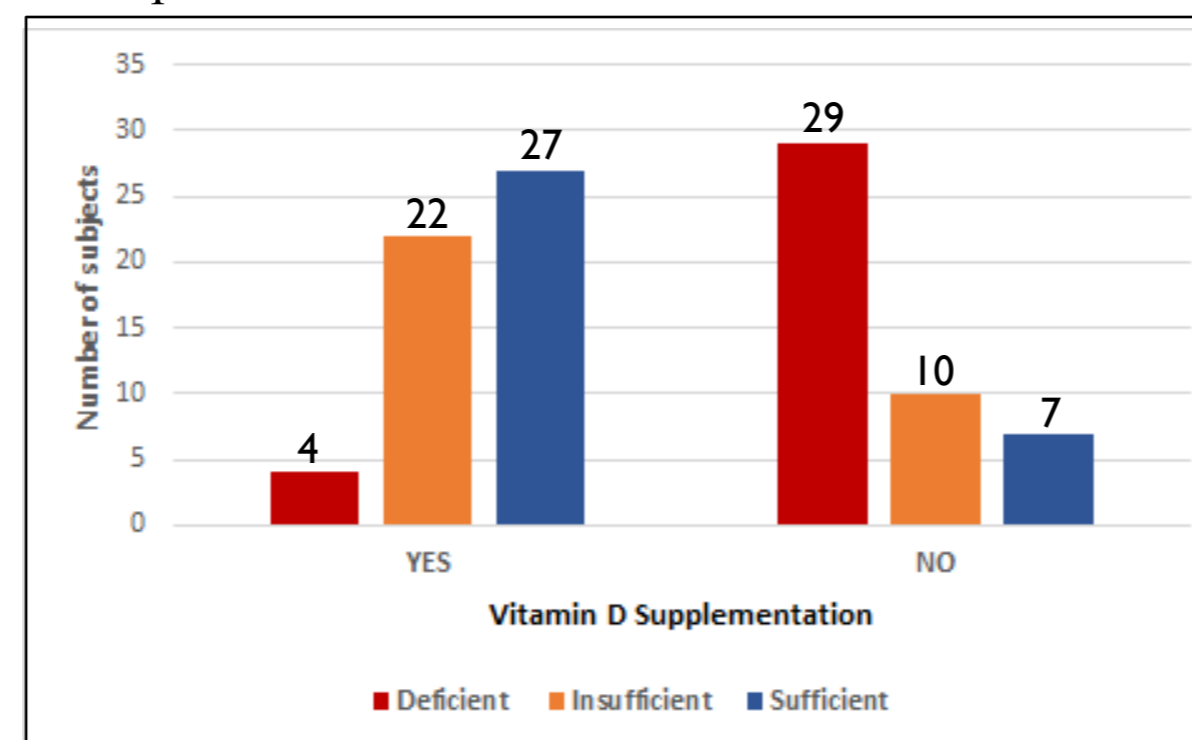
## Methods

- Cross sectional, descriptive study
- Serum 25OH (D) levels added to routine blood work
- Questionnaire used to assess vitamin D supplementation and sun exposure
- Levels were categorized as:<sup>2,3</sup>
  - sufficient (> 75 nmol/L)
  - insufficient (50-75nmol/L)
  - deficient (<50nmol/L)

## Results



**Figure 1:** Vitamin D status stratified by time post transplant.



**Figure 2:** Vitamin D supplementation is correlated with sufficient serum 25OH (D) levels

Variable	Deficient	Insufficient	Sufficient	P- value
Race n (%)				<0.001
Caucasian	6 (18.2%)	17 (53.1%)	23 (67.6%)	
Asian	17 (51.5%)	6 (18.8%)	4 (11.8%)	
Other	10 (30.3%)	9 (28.1%)	7 (20.6%)	
Donor Category, n (%)				0.043
Living	10 (31.2%)	14 (43.8%)	21 (61.8%)	
Deceased	22 (68.8%)	18 (56.2%)	13 (38.2%)	
Dialysis, days, mean (SD)	1167 (1053)	814 (851)	527 (528)	0.012

**Figure 3:** Variables that are significantly correlated with vitamin D deficiency (p<0.05)

## Discussion

- Vitamin D insufficiency rate is high (66%)
- We recommend that all transplant patients be considered for treatment with vitamin D and to be assessed in the high risk period post-transplant
- Our results indicate that certain subgroups may be at higher risk of deficiency. These patients may especially benefit from checking serum vitamin D levels for targeted therapy
- Our clinic routinely recommends 1000 IU Vitamin D daily, which may be reducing deficiency, but may not be adequate to maintain optimal serum levels
- Vitamin D supplementation has a high safety threshold, is well tolerated and our patients have serum calcium monitored monthly. But we need to consider the financial cost, complex medication regimens and individual health goals of our patients

## References

1. Bouquegneau A, Salam S, Delanaye P, Eastell R, Khwaja A. Bone disease after kidney transplantation. *Clinical Journal of the American Society of Nephrology : CJASN*. 2016;11(7):1282.
2. Naylor KL, Li AH, Lam NN, Hodsman AB, Jamal SA, Garg AX. Fracture risk in kidney transplant recipients: A systematic review. *Transplantation Journal*. 2013;95(12):1461-1470.
3. Cosman F, de Beur SJ, LeBoff MS, et al. Clinician's guide to prevention and treatment of osteoporosis. *Osteoporosis International*. 2014;25(10):2359.
4. Holick MF, Binkley NC, Bischoff-Ferrari HA, et al. Evaluation, treatment, and prevention of vitamin D deficiency: An endocrine society clinical practice guideline. *The Journal of Clinical Endocrinology and Metabolism*. 2011;96(7):1911-1930.

**Acknowledgments:** The study team gratefully acknowledges funding provided by the Transplant Research Foundation of BC, and support provided by the PHC Research Challenge.

**Correspondence to:** [cadair@providencehealth.bc.ca](mailto:cadair@providencehealth.bc.ca)