

SEASONAL VARIATIONS IN 25-HYDROXYVITAMIN D LEVEL IN KIDNEY TRANSPLANT RECIPIENTS: WHO IS MORE AT RISK?

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Introduction

- Seasonal variation in ultraviolet radiation has a crucial influence on vitamin D (VD) level in moderate climate zones.
- The importance of VD spans beyond mineral bone metabolism
- We decided to assess the seasonal drop in 25-hydroxyvitamin D (25VD) concentrations in kidney transplant recipients (KTRs) and to detect predictors for more significant reduction in this group of patients.

Material and methods

- The KTRs were tested for 25VD twice – the first test was performed between 1.05.2012 and 30.11.2012; the second test – from 1.01.2013 till 30.04.2013.
- At the second stage the seasonal drop was estimated by subtracting the nadir values from the spring/summer ones.

Patients – exclusion criteria

- Kidney transplantation < 6 months
- History for parathyroidectomy
- Concomitant intake of calcineurin inhibitors and mTOR inhibitors
- Advanced liver disease (Child B and over)
- Vitamin D supplementation

Statistical analysis

- Descriptive statistics
- Multivariate regression analysis
- Paired samples T – test
- SPSS version 11.5
- Level of significance adopted – $p < 0.05$

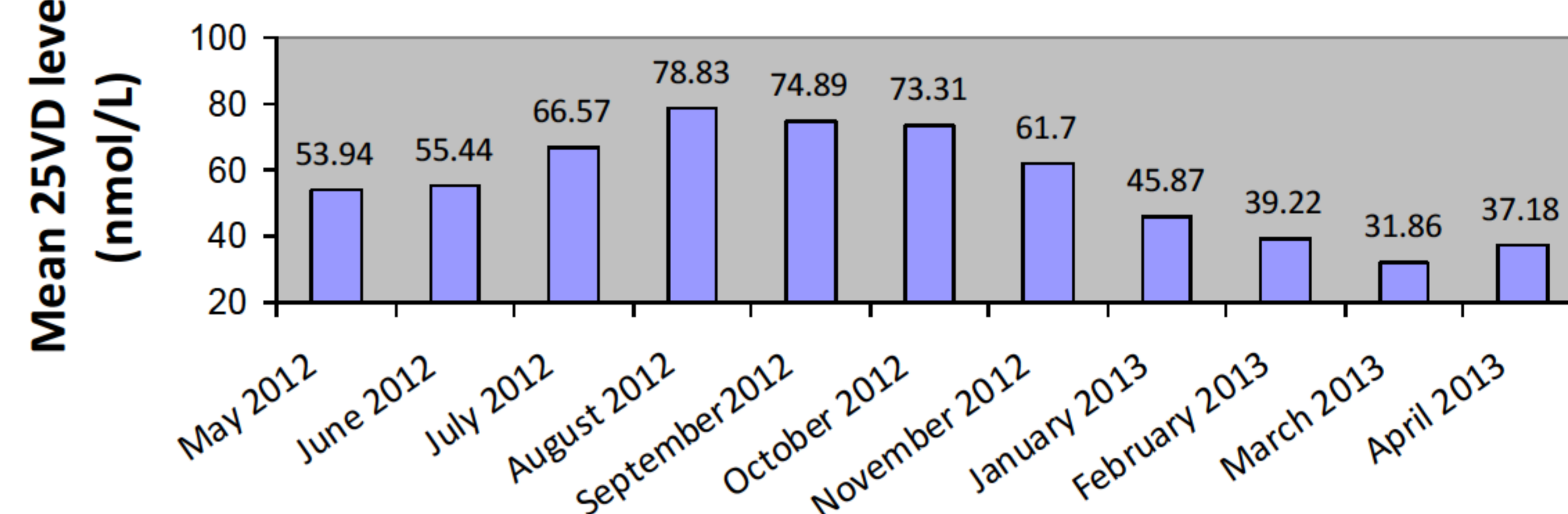
Estimation of 25VD

- Validated LC-MS/MS method
- Total 25 VD (25VD2 + 25VD3)

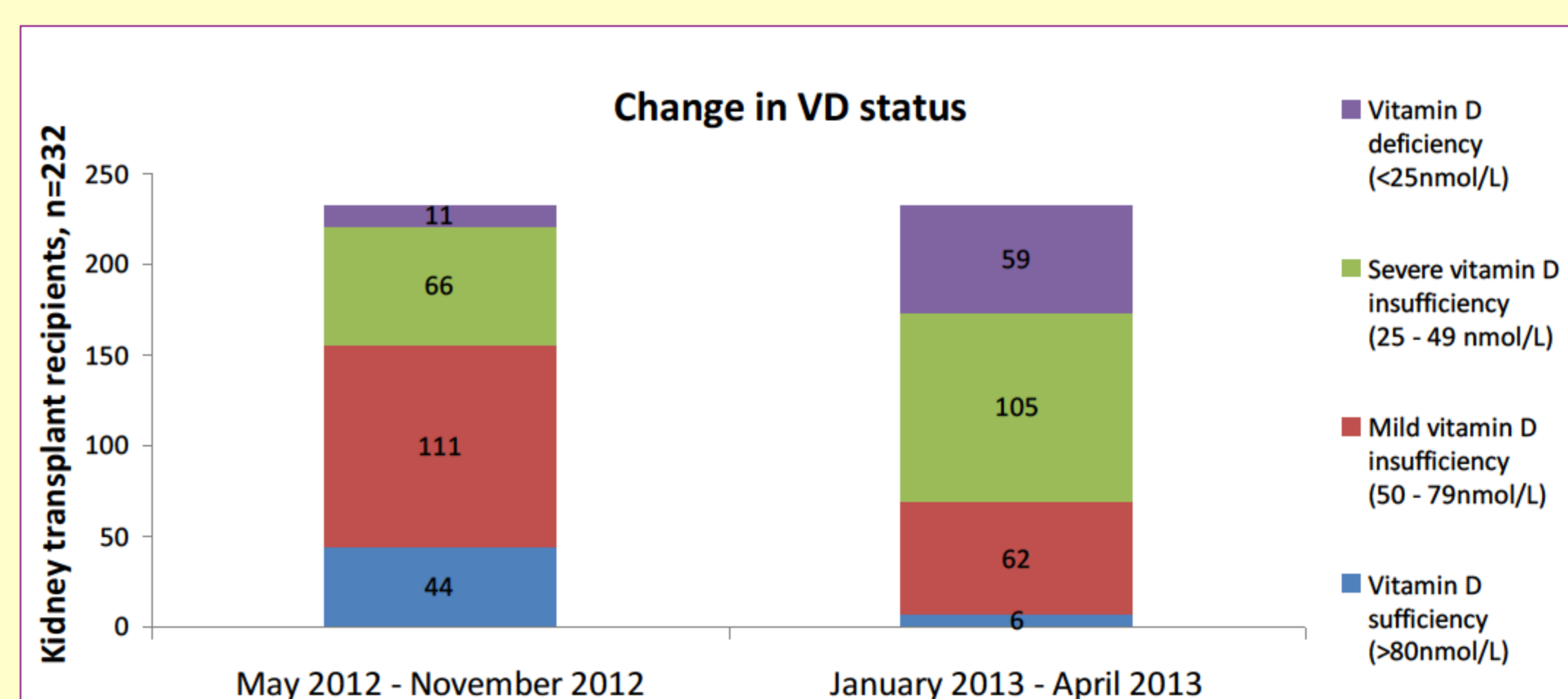
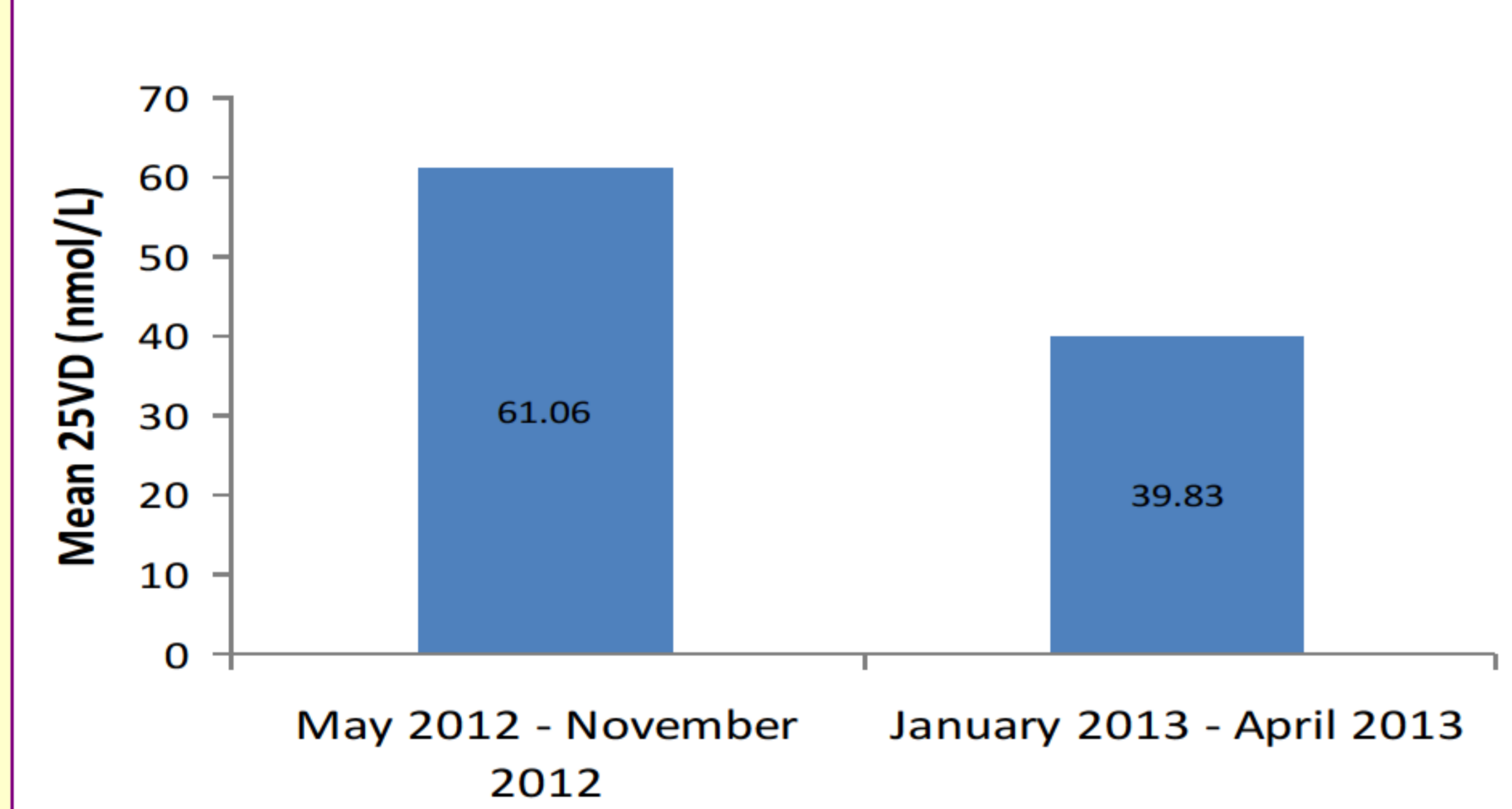
Results – first stage

- 232 patients were shortlisted; Females (F) 79; Males (M) 153
- Mean 25VD level for May 2012 – November 2012 – 61.06 nmol/L
- Mean 25VD level for January 2013 – April 2013 – 39.83 nmol/L
- $p < 0.01$

25VD level - seasonal variation



Seasonal difference



Results – second stage

- The seasonal drop was estimated by subtracting the nadir values from the spring/summer ones
- 206 patients with 25VD reduction were selected (F 70, M 136)
- Multivariate regression analysis was used to detect the factors influencing seasonal drop of 25VD

Factors influencing 25VD seasonal drop

	β	SE	p
Intercept	63.877	17.271	<0.001
Male gender	5.789	1.994	0.004
July	8.763	3.296	0.003
August	22.187	3.012	<0.001
September	20.589	3.161	<0.001
March	8.530	2.291	<0.001
April	8.441	3.535	0.018
ln BMI	-37.194	12.497	0.003

Conclusion

- VD insufficiency is widely detected in our cohort of patients throughout the year
- Poorer VD status is detected during the winter months
- Male gender and lower BMI are independent factors for more pronounced 25VD level reduction
- Adequate VD supplementation is warranted, especially during the winter – spring period

