

# LOW 25-HYDROXYVITAMIN D LEVEL IS ASSOCIATED WITH HIGHER OVERALL MORTALITY AFTER KIDNEY TRANSPLANTATION

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## INTRODUCTION

Vitamin D (VD) is getting more and more popular for its pleiotropic effects – renal protection, immunomodulation, stimulating protective immunity, blood pressure and diabetes control. The aim of our study was to assess the influence of 25-hydroxyvitamin D (25VD) as a marker of VD status on general mortality in kidney transplant recipients (KTRs).

## MATERIALS AND METHODS

### Study protocol

- 395 KTRs were tested for 25VD during their regular visits in our transplant center (May 2012 - Nov 2012).
- The KTRs were divided into two groups – survivors and dead within 12 months after testing for 25VD.
- The two groups were matched for gender, month of sampling for 25VD and body mass index (BMI).
- Several factors were assessed in the two subgroups – age, duration of kidney transplantation (KTx), 25VD level, renal function (eGFR), proteinuria, BMI and diabetes mellitus (DM) prevalence.

### Exclusion criteria

- KTx duration less than 6 months
- performed parathyroidectomy
- unstable kidney function
- concomitant intake of calcineurin inhibitors and mTOR inhibitors
- advanced liver disease
- VD supplementation

### Methods

- Descriptive statistics
- Mann-Whitney U test
- Fisher's exact test
- SPSS version 22.0
- Level of significance adopted: p<0.05
- Total 25VD determination - validated LC-MS/MS method

## RESULTS

- 111 patients were shortlisted
- 103 survivors, 8 dead
- Causes for death are shown on table 1

Table 1. Causes for death

Cause of death	N
CVD	1
Neoplasia	2
Infection	2
n.a.	3

CVD – cardiovascular disease, n.a. – not available

Table 2. Significantly lower 25VD in dead patients

Factor	Dead N=8	Survivors N=103	P value
Age (years)	48.13±16.63	41.40±12.36	0.188
Duration of KTx <sup>a</sup> (months)	116.13±75.56	87.41±64.44	0.210
eGFR <sup>b</sup> (ml/min/1.73m <sup>2</sup> )	54.50±13.34	64.59±21.02	0.210
Proteinuria (gr/24hours)	0.86±0.43	0.34±0.065	0.083
Diabetes	2/8	9/103	0.180
25VD <sup>c</sup> level (nmol/L)	36.71±13.88	58.43±17.93	0.001

<sup>a</sup>KTx – kidney transplantation, <sup>b</sup>eGFR – estimated GFR, <sup>c</sup>25VD – 25 hydroxyvitamin D

## CONCLUSION

Poor VD status is associated with increased overall mortality risk among Bulgarian KTRs. Adequate VD supplementation may be a reasonable step to improve patients' survival after KTx.

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