ABNORMAL LEFT VENTRICULAR MASS INDEX- A SURROGATE END POINT IN VITAMIN D DEFICIENT CHRONIC KIDNEY DISEASE

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INTRODUCTION

Cardiovascular morbidity and mortality is prevalent in established chronic kidney disease(CKD) with vitamin D deficiency.

AIMS

To evaluate the effect of vitamin D deficiency on cardiac structure and functions in predialysis diabetic and non-diabetic CKD patients.

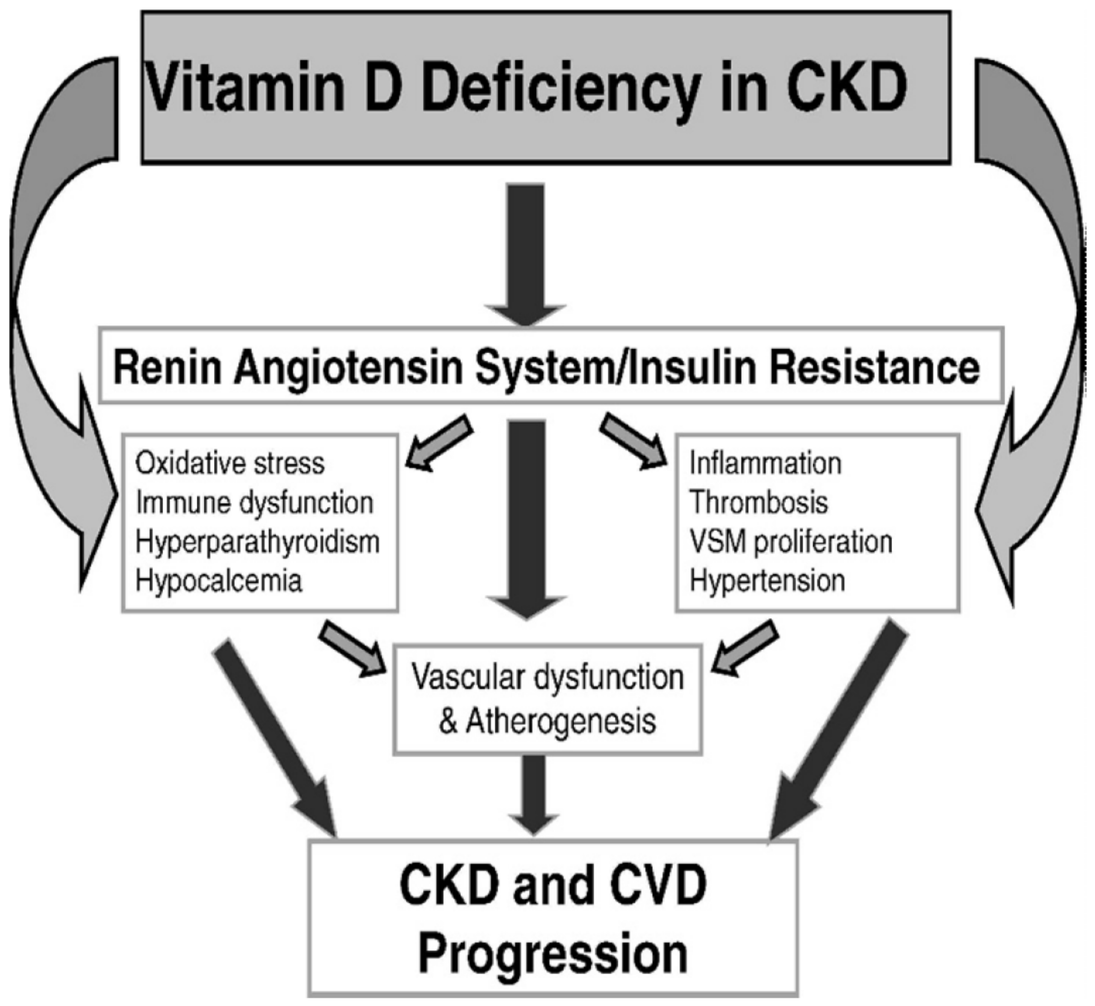
METHOD

All diabetic and nondiabetic CKD stage 3 onwards predialysis patients not on any form of vit D therapy were includedprospectively. Demographical, clinical and laboratory data were analysed.Vit D was measured in all cases and echocardiogram was done and all the parameters was examined. Left Ventricular Mass index (LVMI) was calculated by Devereux's(Penn) formula.More than 134 g/m2in men and 110 g/m2 in female was considered abnormal.

STATISTICAL ANALYSIS

Appropriate parametric and non-parametric statistical tests were performed to check any significant difference, correlation and association of parameters with the disease state. Chi-Squir test used to analysed non-parametric data and calculation of 'p' value, data are also plotted in percentage form wherever needed.

Multiple regression analysis was carried out using back ward selection method, regression criteria being p=>0.05 with vitamin D ,eGFR, ejection fraction and haemoglobin as predictor with LVMI as regressor.



Conceptual model of major pathways through which vitamin D deficiency in patients with chronic kidney disease (CKD) may lead to CKD progression and complications such as premature cardiovascular disease (CVD). VSM – vascular smooth muscle. Adapted from ref 22.

Showing correlation between left ventricular mass index and vitamin deficiency

Vitamin D Level	Standard Error	95% CI
¢30ng/ml	8.012	99.75-104.94
10-30 ng/ml	6.191	26.34-152.16
<10 ng/ml	6.081	42.29-167.54

	Pearson Correlation sig. (2-tailed), N = 150					
	Age	eGFR	LVMI	Vit D	EF	Hb
LVMI	.409	.021*		.011*	.231	.447
VitD	.101	.011*	.011*		.532	.645
EF	.246	.561	.231	.532		.899
Hb	.195	.010*	.447	.645	.899	

*Correlation is significant at the 0.05 level (2-tailed).

RESULTS

About 150 pts were enrolled in one year of them M:F were1.6:1.Mostly belonged to the age group of 41-60yrs(58%). About 96(64%) were diabetic and rest of 54(36%) were non diabetic. CKD III,IV,V comprises of 26%,14%,24% and 4%,12% and 20% respectively. Diabetic CKD patients are more severely deficient of vitamin D than non-diabetic CKD (38% vs 8%).Higher stages of CKD showed severe grade of Vit D deficiency.AmongStage V CKD 14% were grade II and 28% were grade III vitamin D deficient (p=0.07). Among all CKD patients with severe vitamin D deficiency (stage III) 15 (10 %) had moderatelyabnormal(Group II) LVMI and 51(34%) had severely abnormal (Group III) LVMI and among moderate vitamin D deficient (stage II) patients 36(24%) had group II LVMI and 21(14%) had group III LVMI. This correlation is extremely significant (p=0.0163).There is significant correlation between lowVitamin D level and LVMI related inversely with standard error 6.08 with 95% CI (142.2-167.5).

CONCLUSION

Chronic kidney disease with vitamin D deficiency associated with abnormal LVMI which results in widespread risk for CVD in CKD.

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