

25-HIDROXYVITAMIN D DEFICIENCY AND SUBCLINICAL CARDIOVASCULAR DISEASE IN CHRONIC KIDNEY DISEASE PATIENTS: IS THERE A CONNECTION?

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BACKGROUND

Patients with chronic kidney disease (CKD) are at high risk for cardiovascular disease (CVD). Vitamin D deficiency might be an underestimated nontraditional risk factor for CVD in CKD, as vitamin D has antiatherogenic properties and inhibits cardiac hypertrophy. We aimed to evaluate the relationship between serum 25-hydroxyvitamin D (25OHD) level and markers of subclinical CVD in non-dialysis CKD patients.

METHODS

This cross-sectional, single-center study prospectively enrolled **135** clinically stable CKD patients (median age 61 [58-64] years, 59% male, median eGFR 36 [32-42] mL/min).

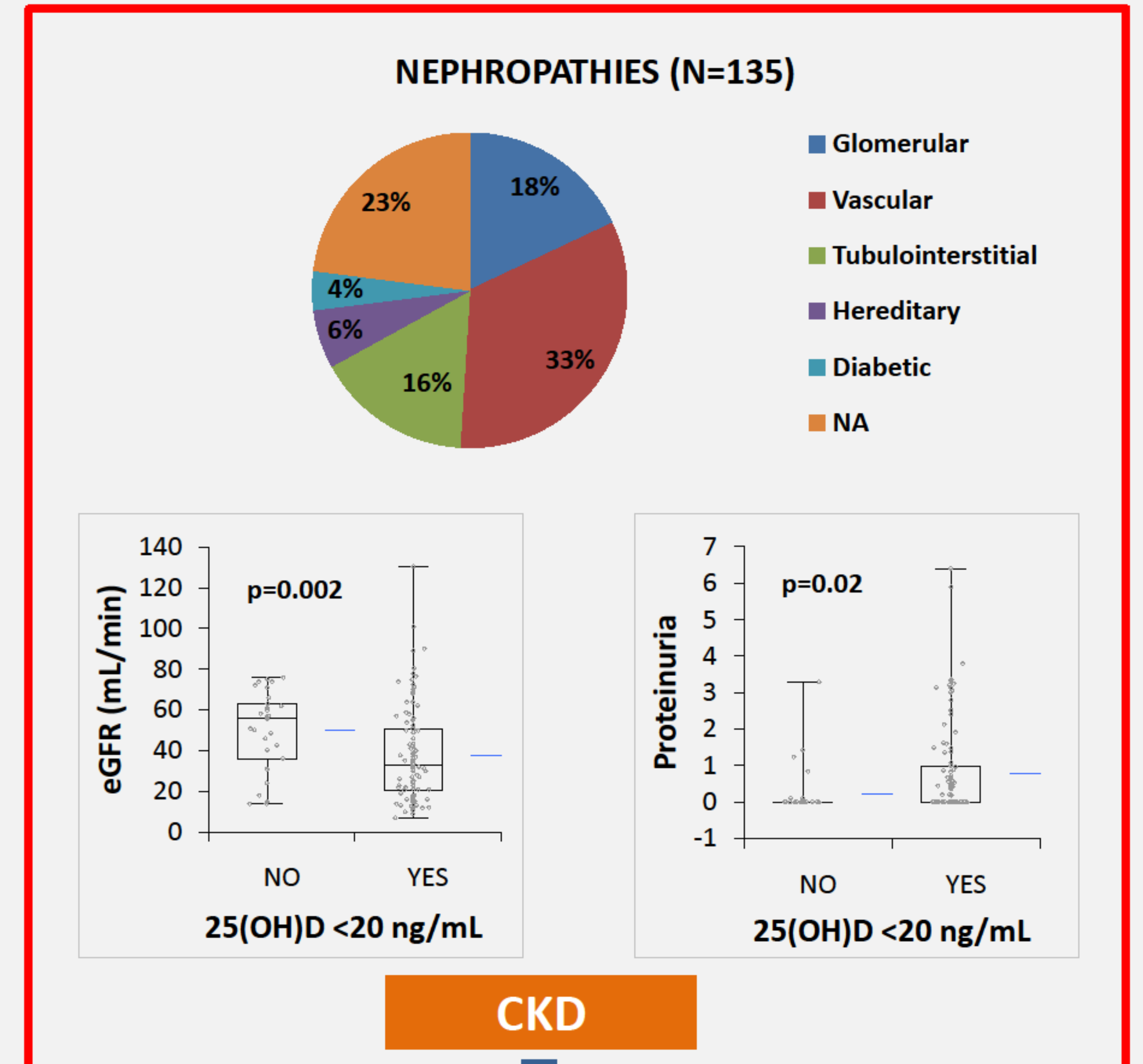
Using the reported **25OHD cutoff value of 20 ng/mL**, comparisons between 25OHD deficient and non-deficient groups were performed.

RESULTS

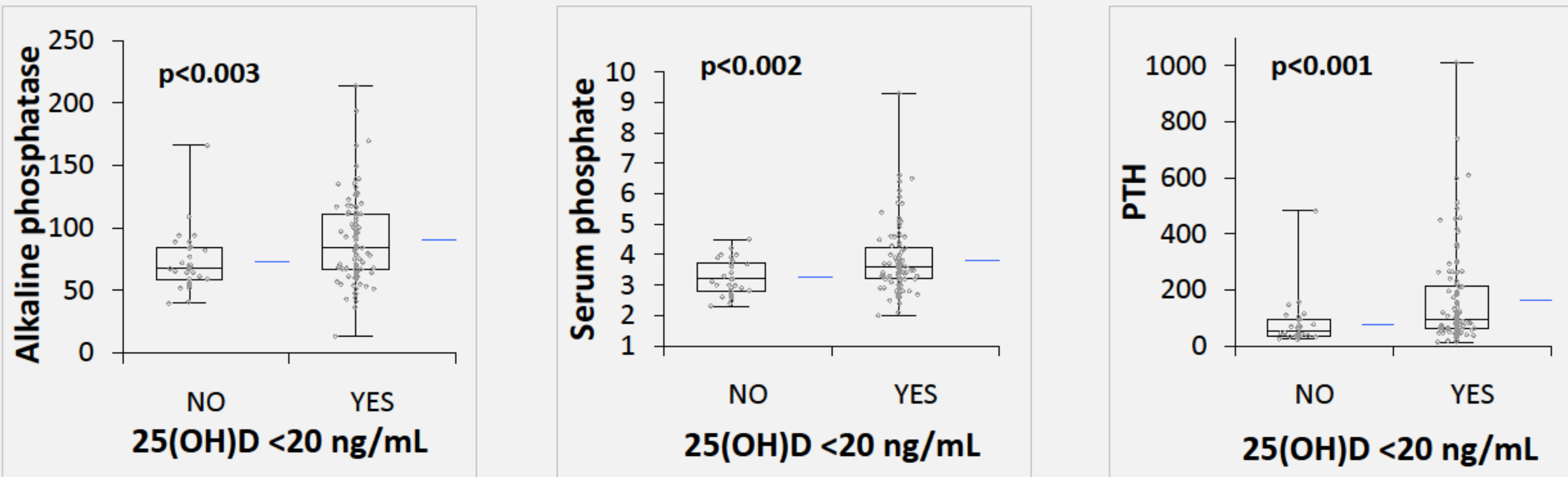
TRADITIONAL RISK FACTORS FOR ATHEROSCLEROSIS

	25(OH)D<20ng/mL n=105	25(OH)D≥20ng/mL n=30	p
Male (%)	57	63	0.5
Age (years)	62 [60-66]	56 [40-60]	0.01
BMI (kg/m ²)	26.7 [25.8-27.8]	25.9 [25-28.1]	0.4
Smokers (%)	14	10	0.5
Cholesterol (mg/dL)	191.3 [182.2-200.4]	194.1 [177.6-210.6]	0.7
Triglycerides (mg/dL)	152 [130-169]	124.5 [83-182]	0.4
MBP (mmHg)	96 [93.3-98.3]	93.3 [90-98.3]	0.4
Diabetes mellitus (%)	27	2.5	<0.01

NON-TRADITIONAL RISK FACTORS FOR ATHEROSCLEROSIS



Calcium-phosphate metabolism parameters



BINOMIAL LOGISTIC REGRESSION (VITAMIN D DEFICIENCY AS DEPENDENT VARIABLE).

	B	Exp (B)	p
PTH	0.98	2.68 [1.39-5.19]	0.003
CRP	1.07	2.93 [1.34-6.39]	0.007
IMT	1.31	3.71 [0.8-17.2]	0.09
ABI	-5.03	0.006 [0.00-0.66]	0.03
Constant	-0.99	0.37	0.71

Variables entered at step 1: gender, age, BMI, renal disease, smoking status, PTH, serum albumin, phosphate, serum alkaline phosphatase, eGFR, cholesterol, triglycerides, mean arterial pressure, ventricular septum, IMT, CAVI, ABI, aortic calcification score.

Cox & Snell R 0.25; p=

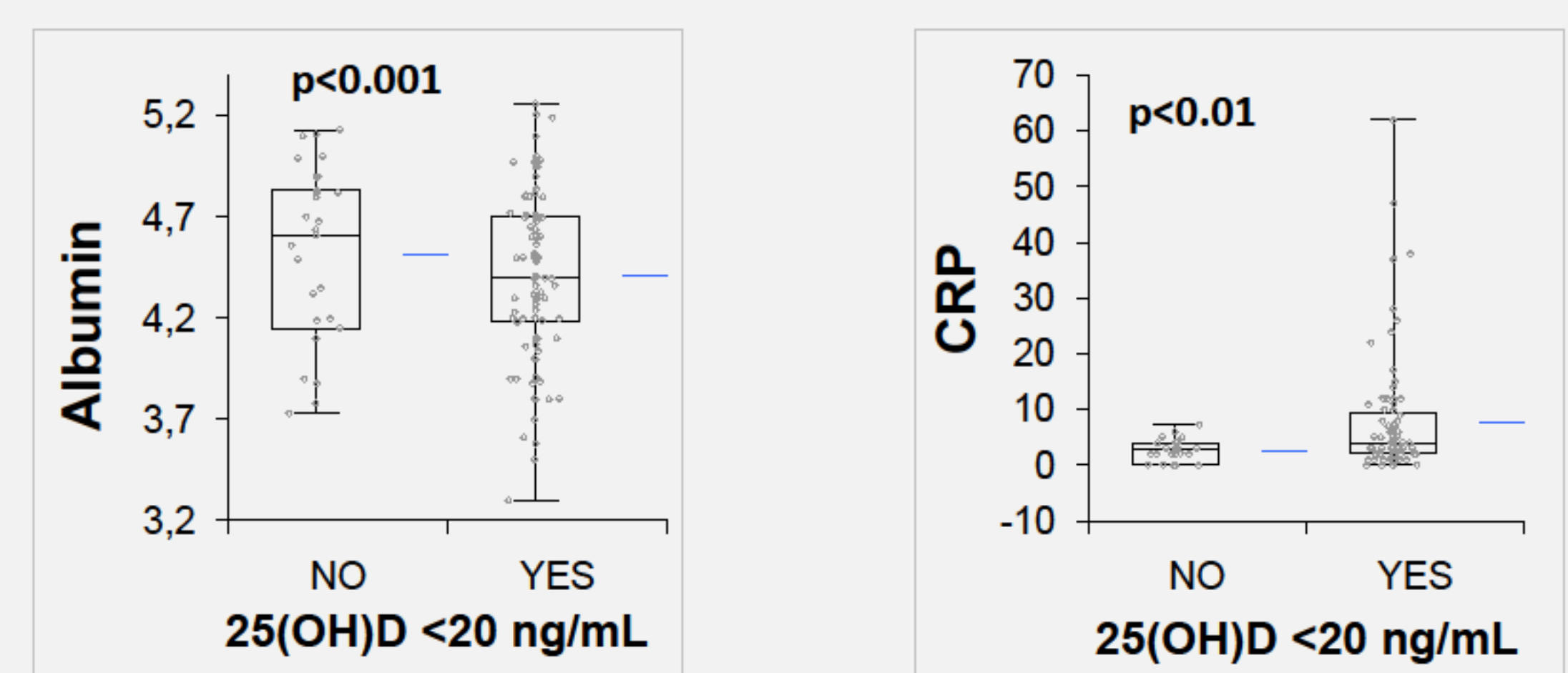
↑ Insulin resistance
Diabetes mellitus

Vitamin D deficiency

↑ PTH

↑ RAAS
Hypertension

Inflammation



ATHEROSCLEROSIS

Non-invasive measurements of atherosclerosis and arterial stiffness

	25(OH)D<20ng/mL n=105	25(OH)D≥20ng/mL n=30	p
Intima media thickness (mm)	0.08 [0.07-0.09]	0.06 [0.05-0.08]	0.005
Cardio-ankle vascular index	10.5 [9.6-11.1]	9.7 [9.1-10.8]	0.2
Ankle brachial index	1.05 [1-1.08]	1.09 [1.06-1.15]	0.03
Aortic calcification score	1 [0-2]	0 [0-0]	0.006
Ventricular septum (mm)	10 [9.3-11]	9.4 [8.1-10.2]	0.06

CONCLUSIONS

Non-dialysis CKD patients with 25OHD deficiency seem to have an increased risk profile for CVD. Moreover, this risk could be due to abnormal function of large arteries, since ABI was independently associated with 25OHD deficiency. The potential benefit of vitamin D on cardiovascular endpoints in CKD patients should be investigated in large randomized clinical trials.

