SERUM 25-HYDROXYVITAMIN D INVERSELY CORRELATES WITH PULSE WAVE VELOCITY (PWV) IN NON-DIALYSIS DIABETIC CHRONIC KIDNEY DISEASE (CKD) PATIENTS

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INTRODUCTION

Cardiovascular disease is common in CKD patients and considered to be one of the most common causes of death. Diabetic CKD patients are at especially high risk for cardiovascular mortality. PWV assesses arterial stiffness and is a predictor of both mortality and cardiovascular outcomes.

OBJECTIVES

To identify predictors of PWV in a prospective cohort of diabetic non-dialysis CKD patients.

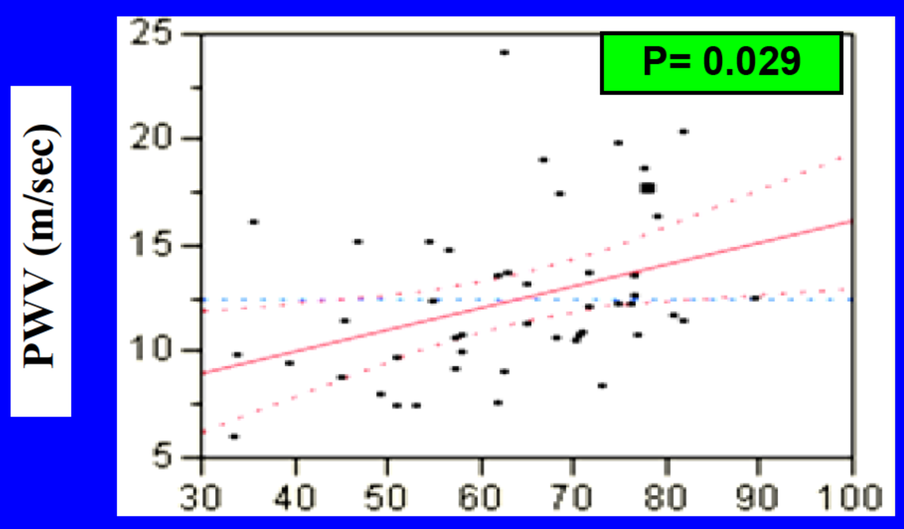
MATERIAL AND METHODS

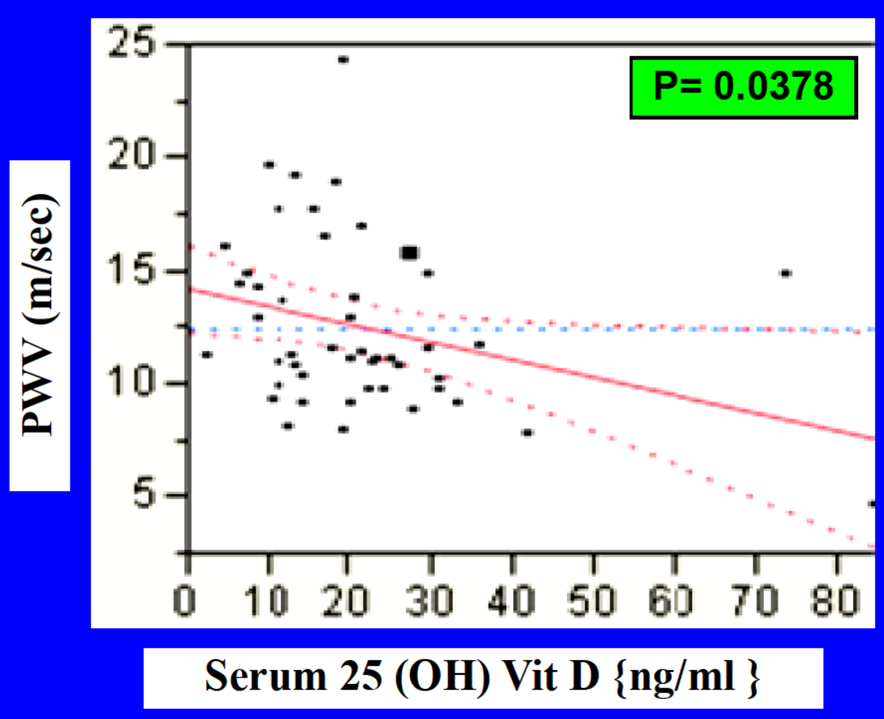
A cross-sectional analysis of a prospective cohort of forty seven diabetic CKD patients (31 males, mean age 63.4±14.3 years). 40 laboratory parameters potentially related to cardiovascular risk and carotid-femoral PWV (SphygmoCor) were prospectively assessed. CKD stage distribution was 7 (14%) stage 1, 16 (34%) stage 2, 10 (21%) stage 3A, 12. (25%) stage 3B and 1 (4%) stage 4. Albuminuria <30 mg/g Cr was present in 13 patients (27%), 30-300 in 9 (40%), 300-1000 in 10 (21%) and >1000 in 5 patients (11%).

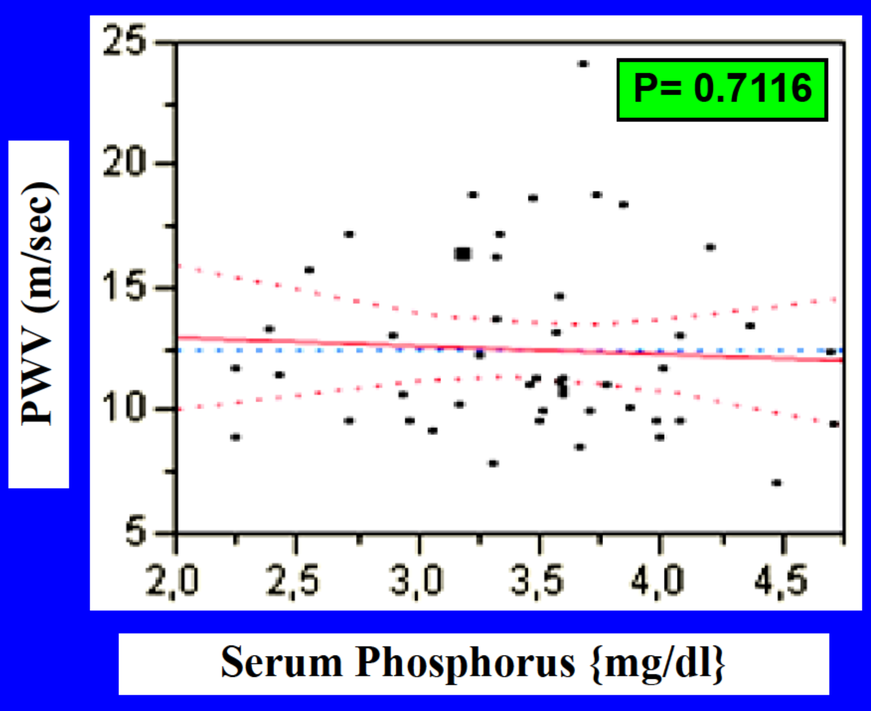
RESULTS

- Mean carotid femoral PWV was 12.47 ± 4.10 m/sec.
- Higher than expected for age values were observed in 23 (51%) patients.
- A univariate analysis showed:
  - A significant positive correlation with age (r=0.405, p=0.0047)
  - A trend towards a negative correlation with serum 25 hydroxyvitamin D (r=0.253, p=0.0860) and with serum phosphorus (r=0.270, p=0.0664).
- A multivariate analysis using those three variables yielded:
  - A model with an r^2 =0.234.
  - Age (t ratio 2.57, p =0.029) and serum 25 hydroxyvitamin D (t ratio -2.14, p =0.0378) significantly and independently contributed to predict PWV.
  - The contribution of serum phosphorus to the model was not statistically significant.

PWV CORRELATIONS







CONCLUSIONS

- Around 50 % of our diabetic CKD patients have high PWV indicating presence of vascular stiffness.
- Multivariate analysis shows a significant negative correlation between serum 25 hydroxyvitamin D and PWV.
- Prospective studies should explore whether nutritional vitamin D supplementation improves arterial stiffness in this context.

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