TACSM Abstract

Vitamin D Association with Renal Health and Filtration in Healthy Individuals Free of Cardiometabolic Diseases: A Pilot Study

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ABSTRACT

The effect of vitamin D (VITD) on bone, muscle, and over health is well know in renal failure and chronic kidney disease (CKD). However, the influence of VITD on renal health and filtration (RHF) in healthy individuals is unclear. Currently, only serum creatinine concentration (sCr) methods are used to assess renal status in health individuals. However, newer biomarkers like serum Cystatin C (CyC) and urine epidermal growth factor (uEGF) show promise in evaluating baseline RHF. The impact of Vitamin D on filtration in healthy individuals of various ages is still unknown. **PURPOSE:** To determine the impact of VITD on RHF in healthy individuals of middle-aged status. **METHODS:** Thirty-six participants (n = 22 men; n = 14 women; age 37.6 $\pm$ 12.4 yr; BF% 19.2 $\pm$ 7.1%) agreed to participate in the research study. Blood and urine samples were obtained under standardized conditions for all individuals. VITD, CyC, uEGF, urine creatinine (uCr), uCr/uEGF ratio, sCR, and multiple estimates of glomerular filtration rate (eGFR) - modification of diet in renal disease (MDRD), CKD-EPI, CyC equations (CyC only and CyC combined with sCr) were assessed as a whole cohort and grouped (young = 20-39 yrs. (n = 22), older = 40-60 yrs. (n = 14)). Analysis was done using a paired sample *t*-tests, Pearson Correlation to compare VITD concentrations and markers of RHF. Linear regression analyses was performed to examine the relationship between VITD ability to predict RHF. All analyses were performed using SPSS (v. 28.0.1.1). **RESULTS:** There was no significant correlations found between VITD and markers of RHF in the entire cohort. Therefore, no predictive model was performed. The younger group showed strong negative correlation between VITD and MDRD ($r = -0.575$, $p = 0.008$), and that VITD was able to predict MDRD ($R2 = 0.331$, $p = 0.008$). No significant correlation observed in older group. **CONCLUSIONS:** VITD was correlated and able to predict a marker of RHF in healthy younger individuals, but not in older individuals. Based on the sample size and overall outcomes, continued research is needed to more accurately determine VITD effects on RHF in healthy populations.