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25-HydroxyvitaminD Concentration is Not Associated with Central or Peripheral Blood Pressure in Young Black Women

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Vitamin D deficiency is common among U.S. adults and population-based studies have implicated low serum 25-hydroxyvitamin D concentration ([25(OH)D]) in the development of hypertension and other cardiovascular diseases (CVD). Black women (BLW) have a higher prevalence of vitamin D deficiency, hypertension, and CVD than women of other races/ethnicities, and these disparities emerge in young adulthood. Higher brachial (peripheral) blood pressure (BP) has been observed in vitamin D insufficient/deficient ([25(OH)D] < 30 ng/ml) compared to sufficient ([25(OH)D] > 30 ng/ml) older adult BLW. However, not known is if this relation exists in young adult BLW, or if [25(OH)D] is linked to central BP which has been shown to more strongly predict future CVD than the traditionally assessed peripheral BP. **PURPOSE:** To determine if serum [25(OH)D] is associated with peripheral and central BP in young adult BLW. **METHODS:** Participants included young (18-40 years), apparently healthy, nonobese, non-hypertensive, BLW (self-identified). Serum [25(OH)D] was clinically quantified via a fasted venous blood sample. Morning resting supine peripheral BP was measured and central BP was estimated using pulse wave analysis. Pearson Correlation Coefficients were used to evaluate associations between [25(OH)D] and peripheral and central systolic and diastolic BP. **RESULTS:** Fourteen BLW (26±6 years) completed the study. Serum [25(OH)D] ranged between 8.2-55.3 ng/ml. Serum [25(OH)D] was not associated with peripheral systolic ($r = -0.06$, $p = 0.85$) or diastolic ($r = 0.05$, $p = 0.86$) BP, nor central systolic ($r = -0.11$, $p = 0.70$) or diastolic ($r = 0.03$, $p = 0.92$) BP. **CONCLUSION:** Preliminary data suggest low serum [25(OH)D] is not associated with peripheral or central BP in otherwise healthy young adult BLW. A larger sample size is needed to strengthen study findings. **SIGNIFICANCE/NOVELTY:** Vitamin D deficiency and hypertension disproportionately affect young BLW compared to women of other races and ethnicities. Hypertension is one of the strongest independent predictors of CVD, thus, determining if low [25(OH)D] is linked to increased BP in young adult BLW may help mitigate the CVD burden later in life. As compared to investigations in older populations, determining if this relation exists at an earlier age may increase our understanding of associated health risks of low [25(OH)D] in young BLW prior to the development of hypertension and other overt CVDs.