

ARTERIAL STIFFNESS IN MINORITIES WITH END STAGE RENAL DISEASE

Kalyani Perumal,¹ Argekar Pushkar,¹ Jerrold Levine,¹ Julio Vijil,¹ Raymond Townsend,² James Lash¹ ¹Section of Nephrology, University of Illinois at Chicago, Chicago, IL and ²Renal Division, University of Pennsylvania, Philadelphia, PA

Cardiovascular disease is the leading cause of mortality in patients with end stage renal disease (ESRD). Although arterial stiffness is now recognized as an independent predictor of cardiovascular mortality in ESRD, there are no data on arterial stiffness in minorities with ESRD or the interaction of stiffness with reflected wave return. We therefore conducted a cross sectional analysis of measures of arterial stiffness (pulse wave velocity, PWV) and reflected wave (augmentation index, AIx and central Pulse Pressure, CPP) in a predominately minority cohort of 59 patients with ESRD on hemodialysis.

PWV, AIx and CPP were determined from arterial waveforms recorded by SphygmoCor® device. 80% of measurements were taken immediately prior to dialysis sessions.

In this group, 71% were African Americans (AA), 24% Hispanics, and 5% were non-Hispanic whites. Mean age was 54 yrs; 68 % were male. Major causes of ESRD were diabetes (39 %) and hypertension (20 %). Mean duration of dialysis was 41 mos. Mean PWV was 11 m/sec in AA and 12m/sec in both Hispanics and Whites. Mean AIx (corrected for heart rate 75 beats/min) was 24% in AA, 25% in Hispanics and 26% in Whites. PWV was significantly correlated with age ($p < 0.01$), diabetic status ($p < 0.0003$), and history of peripheral vascular disease (PVD) ($p < 0.001$). CPP showed strong correlation with PWV (over all $r = 0.57$; AA $r = 0.51$, Hispanics $r = 0.62$).

Using two different measures of arterial compliance we confirmed known correlates of PWV (age, diabetes status, and history of PVD) in our dialysis racial/ethnic subgroups. The novel approach of combining pulse wave analysis (PWA) and PWV revealed a strong correlation of CPP with PWV. This suggests greater wave reflection with increasing stiffness may add to cardiovascular risk and that this may vary between different racial groups when tested in larger numbers.

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