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CORRELATES OF SMALL ARTERY COMPLIANCE AND BIOIMPEDANCE PHASE ANGLE IN PERITONEAL DIALYSIS PATIENTS.

A.S.Gangji, B. Al-Helal, S. Brimble, D.N. Churchill, P.J. Margetts.

Division of Nephrology, McMaster University, Hamilton, Canada.

Atherosclerosis and inflammation have been implicated in the alteration of pulsatile characteristics of blood vessels. Analysis of the arterial waveform can be resolved into an index of elasticity for both large (LAEI) and small (SAEI) arteries. SAEI is a novel marker of endothelial function and reduced SAEI is prognostic for cardiac events. Phase angle derived from bioimpedance analysis (BIA) is presumed to indicate cell membrane health and decreased phase angle correlates with increased mortality in PD patients. We evaluated 18 stable, established PD patients with both BIA (**Quadscan 4000, BodyStat**) and pulse wave analysis (CR2000, Hypertension Diagnostics Inc). We assayed serum and overnight PD effluent for IL-6 and TNF α by ELISA (R&D Systems). Lipid profile, serum albumin, and CRP were also measured.

SAEI correlated inversely with LDL cholesterol ($r=-0.643$, $p=0.007$). LAEI correlated closely with blood pressure (SBP, $r=-0.828$, $p<0.001$). **Phase angle at 5 Hz correlated with SAEI ($r=0.619$, $p=0.011$)** and showed an inverse correlation with age ($r=-0.637$, $p=0.006$) and history of ischemic heart disease ($r=-0.627$, $p=0.005$). There was a **strong positive correlation with serum albumin ($r=0.744$, $p<0.001$)**. **Both SAEI and phase angle demonstrated a strong inverse correlation with BIA measures of volume expansion (ECW:TBW)**. Neither SAEI nor phase angle correlated with other markers of inflammation (IL-6, TNF α , CRP).

SAEI and BIA phase angle are novel markers of vascular and cellular health. In this cross sectional study they **correlate inversely with volume expansion**. Longitudinal studies are required to evaluate the utility of these novel markers in PD patients.