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GLOBAL LONGITUDINAL STRAIN AND EJECTION FRACTION IN ESRD VS. NON-ESRD PATIENTS:

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Global Longitudinal Strain (GLS) is a more sensitive echocardiographic measure of systolic function than left ventricular ejection fraction (LVEF), particularly in conditions of altered LV geometry (i.e., LV hypertrophy [LVH]), and is more robust to changes in volume status. While reduced LVEF has prognostic significance in ESRD patients, GLS may be better suited to detect subtle changes in systolic function in this population given their high prevalence of LVH and volume status fluctuations.

Among 96 patients (38 ESRD and 58 non-ESRD patients) who underwent speckle-tracking 2D-echocardiography in the UCI Heart Failure Program, we examined associations of decrements in LVEF (Δ-5%) and poor GLS, defined as GLS ≥-18% as the threshold for systolic dysfunction (i.e., more negative values indicate better function) using logistic regression.

In the overall cohort each 5% decrease in LVEF was associated with a 2.4-fold higher likelihood of poor GLS in unadjusted and case-mix models: ORs (95%CI) 2.19 (1.33-3.60) and 2.35 (1.38-4.01), respectively. In stratified analyses, associations were stronger in those with ESRD vs. non-ESRD: ORs (95%CI) 3.70 (1.22-11.2) vs. 1.98 (1.09-3.59) in case-mix analyses.

Further studies are needed to define the clinical applications and prognostic implications of GLS upon the cardiovascular health and survival of ESRD patients.