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Echocardiographic parameters improvement in hemodialysis patients in Reunion Island (Indian Ocean)

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Statement of the Problem: Cardiovascular (CV) disease represents the main cause of morbidity and mortality in End-Stage Renal Disease (ESRD) patients. Left Ventricular Mass (LVM) is constantly growing with the progression of GFR deterioration. Left Ventricular Hypertrophy (LVH) is a powerful predictor of CV events. In Reunion Island (French overseas territory in Indian Ocean) we prospectively studied the trends in LV structure and function and evaluated the risk factors for progression of LVM derived from serial echocardiographic measurements.

Methods: 72 patients from three dialysis centers in southern part of Reunion Island were enrolled at baseline, between May 2009 and September 2017. Eight patients withdrew from the study (transplantation or transfer) and 12 patients died during the follow-up period of minimum 12 months. 52 patients were included in the final analysis (mean age 57.6 years, mean dialysis duration 98.23±42.61 years). Echocardiography analysis was performed at study inclusion and at least once during the follow-up. Biochemical, blood pressure, electrocardiographic parameters and medication history were collected and the mean monthly values were used.

Results: At baseline, 72.4% of patients had LVH (48.6% concentric hypertrophy, 26.4% eccentric hypertrophy and 4.2% concentric remodeling). Serial echo-cardiographies were performed (257 in total). At follow-up (mean period 52.69±29.73 months) only 51.5% had LVH, with only 29.6% concentric hypertrophy, LVM Index (LVMI) lowered from a mean of 163.8 g/m2 to 144.8 g/m2. 56% of patients were considered regressors (delta LVM index<0). Baseline LVMI significantly correlated with age, hemoglobin and albumin levels. LVMI at follow-up correlated to systolic BP and mean level of serum phosphate. Independent predictors for LVMI (multiple regressions) were anemia and mineral metabolism markers.

Conclusion: The rate of LVH and other echocardiographic abnormalities is high in dialysis patients in Reunion Island, but a holistic interventional approach, targeting various pathogenic mechanisms, as per guidelines, can elicit at least a partial regression in LV structural and functional abnormalities in these patients.

Biography

Serban Ardeleanu is an Internal Medicine and Nephrology Specialist from Romania. Since 2013 he works in Reunion Island at Reunion Island at AURAR Dialysis Center. His main interest fields are cardiology and nutritional impact of renal disease in hemodialysis patients. He also is an Assistant Professor at the University of Medicine in Iasi, Romania, with years of experience in research, evaluation, teaching and administration both in hospital and education institutions.

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