

Novel approach in assessing cardiac function in chronic kidney disease Patients

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End-stage renal disease (ESRD) patients are notorious about high incidence of cardiovascular mortality. The impacts of uraemia and renal replacement therapy on heart function have not been elucidated clearly. A novel tool, speckle-tracking echocardiography with myocardial deformation (strain) analysis may dissolve the complicated and thorny problem for its objective and accurate identities to quantify left ventricular (LV) function. We compared the difference of cardiac function among different stages of chronic kidney disease (CKD) and dialysis patients undergoing haemodialysis (HD) or peritoneal dialysis (PD). We noted that even no significant difference of LV ejection fraction among groups, global peak systolic longitudinal strain and circumferential strain rate decreased in CKD patients. The decline of renal functions paralleled with the deterioration of LV longitudinal contractility. LV systolic function was better in ESRD patients undergoing dialysis therapy than that in advanced CKD patients. However, the HD patients had diastolic dysfunction and high LV filling pressure, demonstrated by mitral $E/e' > 15$. Among HD patients, those with high cardiac troponin T (cTnT > 0.5 ng/ml) had reduced LV systolic function and high mortality. Although LV systolic function was not different in HD and PD groups, the PD patients had lower values of E/e' and procollagen type I carboxyterminal peptide. In conclusion, worsening renal function was associated with deterioration of heart function. After dialysis, LV systolic function was improved obviously, but those with high cTnT level had deteriorated heart function and worse prognosis. Compared to the PD patients, the HD patients possessed more severe cardiac fibrosis and worse diastolic function.

Biography

Dr. Yen-Wen Liu has completed his MD at the age of 25 years from National Cheng Kung University in south Taiwan. After military service in Taiwan, he completed resident training of internal medicine and then cardiology in National Cheng Kung University Hospital. Now, he is a qualified cardiologist, echocardiography specialist, and interventional list of cardiology. He is also an assistant professor of National Cheng Kung University, College of Medicine.