

Renal Dysfunction - Predictor of Sudden Cardiac Death in Heart Failure



Patients with congestive heart failure (CHF) who have impaired blood supply are at a higher risk of sudden cardiac death (SCD), with an estimated incidence of up to 22%. Current clinical guidelines recommend implantable cardioverter defibrillators (ICDs) to reduce this risk. However, these guidelines are based on studies that did not include individuals with chronic kidney disease (CKD), leaving uncertainty about the efficacy of ICDs in this group, particularly those with mild to moderate CKD.

To fill this gap, researchers led by Associate Professor Yoshihiro Sobue from Fujita Health University, Japan, explored the role of kidney function as a predictor of SCD risk. The study is published in *ESC Heart Failure*.

The study examines risk factors for SCD in over 1,500 patients hospitalised with CHF, categorised by left ventricular ejection fraction (LVEF) and New York Heart Association (NYHA) functional class while evaluating kidney function's role as a risk determinant.

According to the study researchers, recognising renal dysfunction as an independent risk factor is crucial, as existing ICD implantation guidelines do not account for patients with moderate-to-severe renal dysfunction.

The research included 1,676 patients from Fujita Health University Hospital with decompensated heart failure. During the follow-up, 198 patients experienced SCD, with 23% occurring within the first three months post-discharge.

Analysis revealed two key independent predictors of SCD risk after discharge: LVEF (already included in current guidelines) and the estimated glomerular filtration rate (eGFR), which assesses kidney function. Incorporating eGFR alongside LVEF improved the accuracy of SCD predictions. However, the influence of kidney function on predictions was strongest shortly after discharge, aligning with the fact that about a quarter of SCD events occurred within three months of discharge.

Overall, the study highlights the importance of considering kidney function when evaluating the benefits of ICD implantation. Refining ICD implantation criteria by integrating eGFR could significantly enhance SCD prevention and reduce complications from unnecessary ICD placements.

These findings may lead to revised ICD guidelines and improved outcomes for CHF patients, including those with CKD.

Source: [Fujita Health University](#)

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