ARTICLE

ASSESSMENT OF UNRECOGNIZED MYOCARDIAL INFARCTION USING CARDIAC MAGNETIC RESONANCE IMAGING IN PATIENTS WITH END-STAGE RENAL DISEASE

Dr. Rupireddy Niharika[1], Dr. Tangalapally Sreeja[2], Dr. Nirmala Devi Chandrasekaran [3]* Dr. Febin S Valiyath[4], Dr. Sagar Ashok Patil [5]

Department of general medicine, *Shri Sathya Sai Medical college and Research Institute, Sri Balaji Vidyapeeth (Deemed to be University), Chennai Campus, Tamil Nadu, India*

[1] Junior Resident, Email: niharikarupireddy@gmail.com, ORCID: 0009-0009-5630-7654

[2]Junior Resident, Email: vincytangalapally@gmail.com, ORCID: 0009-0005-9676-9045

[4]Senior Resident, Email: drfebinsvaliyath09@gmail.com, ORCID: 0009-0008-9598-1759

[5]Senior Resident, Email: sagarashokpatil04@gmail.com, ORCID: 0009-0005-8664-5161

Professor & HOD, Department of General Medicine, Shri Sathya Sai Medical College and Research Institute, Sri Balaji Vidyapeeth (Deemed to be University), Chennai campus, Tamil Nadu India

Corresponding author: Dr. Nirmala Devi Chandrasekaran, Email: reshabshaam12@gmail.com,

ORCID ID:0000-0002-1122-5016

How to cite this article: Niharika R, Sreeja T, Chandrasekaran ND, Valiyath FS, Patil SA., Assessment of Unrecognized Myocardial Infarction Using Cardiac Magnetic Resonance Imaging in Patients with End-Stage Renal Disease. Int J Drug Deliv Technol. 2026;16(77s): 284-285; DOI: 10.25258/ijddt.16.77s.30

To the Editor,

We read with great interest the article by Yuce et al., which evaluated the role of cardiac magnetic resonance imaging (CMRI) in identifying unrecognized myocardial infarction (UMI) and other ischemic abnormalities in patients with end-stage renal disease (ESRD). The authors address a clinically important gap, as cardiovascular morbidity remains the leading cause of mortality in ESRD, and traditional diagnostic methods frequently underestimate subclinical myocardial injury. This study adds value by demonstrating that CMRI identified myocardial scarring and hibernation in 30% of patients, despite the absence of significant abnormalities on electrocardiography (ECG) or cardiac biomarkers. This finding is consistent with earlier evidence showing the low sensitivity of ECG and serum markers for detecting silent infarction, particularly in high-risk populations.[1–2] The observed difference in mortality between high- and low-risk groups further supports the prognostic implications of CMRI-derived tissue characterization. One notable strength of the study is the use of late gadolinium enhancement imaging, which has proven to be the most accurate noninvasive method for detecting myocardial fibrosis and viability.[3] In ESRD patients—who frequently exhibit atypical symptoms, autonomic dysfunction, and microvascular disease—CMRI is uniquely positioned to reveal myocardial damage that would otherwise remain clinically silent. This has important implications for pre-transplant risk stratification, where undetected myocardial scarring may contribute to perioperative adverse events. However, we would like to highlight a few considerations. First, the sample size (n=20) limits statistical power and may affect the generalizability of the results. Second, as the imaging was performed more than a decade ago, updated CMRI techniques—such as T1 and T2 mapping— could potentially enhance diagnostic accuracy and provide quantitative assessment of diffuse myocardial fibrosis, which is highly prevalent in ESRD.[4] Third, although gadolinium-based contrast agents (GBCAs) are generally avoided in severe renal dysfunction due to concerns about nephrogenic systemic fibrosis (NSF), the authors did not specify the type of contrast agent used. Modern macrocyclic GBCAs have significantly lower NSF risk, and clarification on contrast safety would strengthen the study's applicability.[5] Despite these limitations, the study underscores the importance of CMRI as a highly sensitive modality for detecting otherwise unrecognized myocardial injury in ESRD. Its integration into routine evaluation, particularly for renal transplant candidates, could improve risk stratification and potentially influence clinical decision-making.

We commend the authors for addressing this vital topic and encourage further multicenter research incorporating contemporary CMRI techniques to refine cardiovascular assessment in this vulnerable population.

Respectfully,

Dr. Rupireddy Niharika

Dr. Nirmala Devi Chandrasekaran

Department of General Medicine, Shri sathya sai Medical College & Research Institute, Sri Balaji Vidhyapeeth (Deeemed to be university), Chennai,Tamil Nadu,India Email: reshabsham@gmail.com

REFERENCES

1. Sheifer SE, Gersh BJ, Yanez ND, Ades PA, Burke GL, Manolio TA. Prevalence and prognosis of unrecognized myocardial infarction in the elderly. J Am Coll Cardiol. 2000;35(1):119–26.

2. Dehghan a, et al. C-reactive protein levels and coronary heart disease: a prospective study. Jama. 2007;298(14):1690–700.

3. Kim rj, et al. Contrast-enhanced mri to identify reversible myocardial dysfunction. N engl j med. 2000;343(20):1445–53.

4. Edwards nc, et al. Diffuse fibrosis in chronic kidney disease: assessment with cmri t1 mapping. J am coll Cardiol. 2014;63(12):1206–13. 5. Gulani V, et al. Gadolinium-based contrast agents in kidney disease: safety update. Radiology. 2017;285(3):677–88.