CNIC scientists identify a biomarker that improves risk prediction in a severe form of heart failure

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The biomarker MR-proADM improves risk prediction in patients with transthyretin amyloid cardiomyopathy (ATTR-CM) and is associated with greater disease severity, mortality, and heart failure events.

The study shows that disease severity and poor prognosis in ATTR-CM are associated with elevated levels of mid-regional pro-adrenomedullin (MR-proADM), a biomarker associated with disease severity across a broad range of conditions, including sepsis. This finding could help identify high-risk patients more precisely. The study was led by Dr. Pablo García-Pavía, leader of the Hereditary Cardiomyopathies group at the CNIC, a cardiologist at *Hospital Puerta de Hierro*, and a member of the Spanish cardiovascular research network (CIBERCV).

ATTR-CM is a progressive disease in which a substance called amyloid protein accumulates in the heart. Amyloid deposits cause the walls of the heart to thicken and become more rigid, and the disease is often referred to as stiff heart syndrome. Disease symptoms include fluid retention, fatigue, and arrhythmias. If untreated, these symptoms progress to heart failure, and eventually to death. ATTR-CM can arise from a hereditary genetic mutation or be age-related. Disease prognosis is poor, with a mean survival without treatment of just three years. Despite the introduction of new treatments in recent years, accurately predicting disease progression in individual patients remains a major challenge.

“One of the biggest challenges with this disease is knowing which patients are at the greatest risk of worsening disease,” explains Pablo García-Pavía. “Our results indicate that MR-proADM can help identify those patients who are at a greater risk of heart failure events and death.”

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The study included patients diagnosed with ATTR-CM at *Hospital Universitario Puerta de Hierro* and *Hospital Universitari Germans Trias i Pujol*. The results were validated in two independent external cohorts: a cohort of 210 patients at centers in the United States and another cohort of 416 patients enrolled in the ATTR-ACT clinical trial.

The study shows that MR-proADM provides information not provided by conventional clinical markers, extending the ability to predict possible disease complications.

“Having access to tools that can fine-tune prognosis is essential for tailoring follow-up and treatment to each patient,” adds study first author Dr. Belén Peiró.

In Dr. García-Pavía’s view, this type of advance “takes us a step closer to a more personalized treatment for heart failure.”

By improving identification of patients at high risk, the incorporation of MR-proADM into patient assessment could have a direct impact on clinical practice, enabling closer follow-up and supporting more precise treatment decisions.

The study, concludes Dr. García-Pavía, supports the use of emerging biomarkers to improve the clinical management of complex cardiovascular diseases and to help move treatment toward more personalized strategies.

- *Peiró-Aventín B, Revuelta-Lopez E, Brandao M, Nuñez J, Fernández-Rojo MA, Carmona RM, Montejo B, Ferrando-Muñoz A, Martín-García A, Gonzalez-Lopez E, Dominguez F, Camblor A, Ruiz-Cueto M, Lupon J, Teryua S, Bampatsias D, Jahan I, Royuela A, Masri A, Maurer MS, Bayes-Genis A, Garcia-Pavia P. MR-ProADM Predicts Mortality and Heart Failure Events in ATTR Cardiac Amyloidosis. **Circulation**. 2026 Mar 31. doi: 10.1161/CIRCULATIONAHA.125.077833. Epub ahead of print. PMID: 41914183.*

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