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## Prognosis and Prediction in Cardiac Amyloidosis by Cardiac Magnetic Resonance Imaging: A Systematic Review with Meta-Analysis

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**Objective:** This meta-analysis aimed to assess the prognostic role of CMR imaging modalities of left and right ventricle, including both anatomical and functional parameters in a large cohort of patients with [AL](#) and [aTTR amyloidosis](#).

**Background:** Cardiac involvement is the foremost determinant of the clinical progression of amyloidosis. The diagnostic role of CMR in cardiac amyloidosis has been established, but the prognostic role of various right and left CMR parameters (including GLS, LGE and parametric mapping) are still to be delineated, with an undetermined evidence base.

**Methods:** We searched Embase, Pubmed and [MEDLINE](#) for studies analysing the prognostic use of CMR imaging in patients with AL or aTTR cardiac amyloidosis. Primary endpoint of the study was all-cause mortality. A random effects model was used to calculate a pooled odds ratio using inverse-variance weighting.

**Results:** Our analysis included 19 studies with 2199 patients (66% males, median age: 59.7 years [IQR 58-67]). Median follow-up was 24 months [IQR 20-32], during which 40.8% of patients died. We found that both anatomical left heart parameters such as elevated ECV (HR 3.95 [3.01, 5.17]), extension of LV LGE (HR 2.69 [2.07, 3.49]) elevated native T1 (HR 2.19 [95% CI 1.12 - 4.28]) and functional parameters such as reduced LV GLS (HR 1.91 [95% CI 1.52 - 2.41]) and reduced LVEF (HR 1.20 [95% CI 1.17 - 1.23]) had increased HR for all cause mortality. Interestingly, alteration of right ventricular parameters such as RV GLS (HR 2.08 [95% CI 1.6 - 2.69]), RV EF (HR 1.13 [95% CI 1.05 - 1.22]) and TAPSE (HR 1.11 [95% CI 1.02 - 1.21]) also had significantly increased [HR for mortality](#), while presence of RV LGE (HR 3.40 [95% CI 0.51 - 22.54]) was not significantly associated with adverse outcome.

**Conclusions:** In this large meta-analysis, alterations of both functional and anatomical left [ventricular](#) and [right ventricular](#) parameters on CMR imaging are associated with increased risk of mortality in patients with cardiac amyloidosis.

### Biography

Authors NHP and KP are final year medical students at UCL Medical School. They intercalated in Cardiovascular Sciences during their 3rd year of studies and formed a research group with Dr. Ahmad, a well published cardiologist who has a special interest in medical education and Meta-Analyses. Paolo Boretto is another cardiologist with a special interest in Medical Education who works with our team.

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