Background: Late-gadolinium enhancement (LGE) on cardiac magnetic resonance (CMR) is a predictor of adverse events in patients with cardiac sarcoidosis (CS). This meta-analysis evaluated the correlation between LGE and mortality, ventricular arrhythmias (VA), sudden cardiac death (SCD), and heart failure (HF) outcomes.

Methods: A literature search was conducted for studies reporting the association between LGE in CS and the study endpoints. The endpoints are: mortality, VA and SCD, and HF hospitalization. The search included the following databases: Ovid MEDLINE, EMBASE, Web of Science, and Google Scholar. The search was not restricted to time or publication status. The minimum follow-up duration was one year.

Results: A total of 17 studies and 1,915 CS patients (595 with LGE vs 1,320 without LGE) were included; mean follow-up was 3.3 years (ranging between 17 to 84 months). LGE was associated with increased all-cause mortality (OR 6.05, 95% CI 3.16-11.58; \( P < 0.01 \)), cardiovascular mortality (OR 5.83, 95% CI 2.89-11.77; \( P < 0.01 \)) and VA and SCD (OR 16.48, 95% CI 8.29-32.73; \( P < 0.01 \)). The presence of LGE in the right ventricle is associated with higher risk of VT (OR 6.11, 95% CI 1.14-32.68; \( P = 0.035 \)). LGE was associated with an increased risk of HF hospitalization (OR 17.47, 95% CI 5.54-55.03; \( P < 0.01 \)).

Conclusion: LGE in CS patients is associated with increased mortality, VA and SCD, and HF hospitalization during long-term follow up. The presence of LGE in the right ventricle is associated with higher risk of VT.