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Long term prognosis in cardiac sarcoidosis under FDG-PET guided immunosuppressive therapy

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ABSTRACT

Background: Cardiac sarcoidosis (CS) is a granulomatous disease that can lead to heart failure and fatal arrhythmias. While ^{18}F-fluorodeoxyglucose–positron emission tomography (FDG–PET) is useful in assessing active inflammation, its role in guiding immunosuppressive therapy and predicting long-term prognosis remains unclear.

Methods: This retrospective study analyzed 36 CS patients who underwent FDG–PET-guided immunosuppressive therapy between 2012 and 2017. FDG uptake was quantitatively evaluated before treatment, at 6 and 12 months, and annually thereafter. Prognostic outcomes, including major adverse cardiac events (MACE) and mortality, were assessed.

Results: Over a median follow-up of 8.2 years, 11 patients experienced MACE, and 7 died. SUVmax at 6 months (six-M SUVmax) and 1 year (one-y SUVmax) significantly correlated with prognosis. Patients with one-y SUVmax >4.5 had a higher risk of adverse events ($p < 0.0001$), while patients with six-M SUVmax >3.5 had a higher risk of adverse events ($p = 0.035$). Lower left ventricular ejection fraction (LVEF <40 %) was also associated with worse outcomes. Those requiring a final prednisolone (PSL) dose ≥10 mg had increased mortality ($p < 0.0001$).

Conclusion: FDG–PET-derived SUVmax at 1 year is a critical prognostic indicator in CS patients undergoing immunosuppressive therapy. Poor response to PSL, indicated by persistent FDG uptake, correlates with worse outcomes. Regular FDG–PET monitoring and personalized treatment strategies are essential to optimizing long-term management.

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