**Supplementary Table S1: Extracardiac organ involvement in the whole cohort, and stratified by relapse status**

| Extracardiac involvement | Whole cohort (*n* = 25) | Relapse group (*n* = 13) | Non-relapse group (*n* = 7) |
|---|---|---|---|
| Lymph nodes | 21 (84.0%) | 12 (92.3%) | 5 (71.4%) |
| Mediastino-hilar | 21 (84.0%) | 12 (92.3%) | 5 (71.4%) |
| Axillar | 4 (16.0%) | 3 (23.1%) | 0 (0.0%) |
| Cervical | 4 (16.0%) | 2 (15.4%) | 0 (0.0%) |
| Infradiaphragmatic | 5 (20.0%) | 4 (30.8%) | 0 (0.0%) |
| Lung | 16 (64.0%) | 7 (53.8%) | 6 (85.7%) |
| ATS Stages | | | |
| 0 | 3 (12.0%) | 1 (7.7%) | 1 (14.3%) |
| I | 6 (24.0%) | 5 (38.5%) | 0 (0.0%) |
| II | 13 (52.0%) | 7 (53.8%) | 4 (57.1%) |
| III | 1 (4.0%) | 0 (0.0%) | 1 (14.3%) |
| IV | 2 (8.0%) | 0 (0.0%) | 1 (14.3%) |
| Eyes | 8 (32.0%) | 4 (30.8%) | 3 (42.9%) |
| Liver | 3 (12.0%) | 2 (15.4%) | 0 (0.0%) |
| Spleen | 1 (4.0%) | 1 (7.7%) | 0 (0.0%) |
| Skin | 1 (4.0%) | 1 (7.7%) | 0 (0.0%) |
| Kidney | 1 (4.0%) | 0 (0.0%) | 0 (0.0%) |
| Peripheral nervous system | 2 (8.0%) | 1 (7.7%) | 1 (14.3%) |
| Arthritis | 1 (4.0%) | 1 (7.7%) | 0 (0.0%) |
| Muscle | 1 (4.0%) | 0 (0.0%) | 1 (14.3%) |
| Exocrine glands | 2 (8.0%) | 0 (0.0%) | 1 (14.3%) |
| No. of organs involved | 3 (3-4) | 3 (3-4) | 3 (3-4) |
| 1 | 3 (12.0%) | 1 (7.7%) | 1 (14.3%) |
| 2-3 | 14 (56.0%) | 7 (53.8%) | 4 (57.1%) |
| 4-5 | 5 (20.0%) | 4 (30.8%) | 1 (14.3%) |
| ⩾6 | 3 (12.0%) | 1 (7.7%) | 1 (14.3%) |

ATS: American Thoracic Society stages based on chest radiograph patterns of lung involvement.

**Supplementary Table S2: Laboratory values at the diagnosis of cardiac sarcoidosis**

| Variables<br>*n* (%) or median (IQR) | Whole cohort<br>(*n* = 25) |
|---|---|
| Lymphocytes ($10^9$/l) | 1.5 (1.1-1.7); *n* = 18 |
| < 1.0 109/l | 4/18 (22.2%) |
| ESR (mm/h) | 12.0 (5.0-18.0); *n* = 19 |
| > 20 mm/h | 3/19 (15.8%) |
| CRP (mg/l) | 2.3 (1.2-3.2); *n* = 20 |
| > 5 mg/l | 3/20 (15.0%) |
| Creatinine (µmol/l) | 89.0 (73.0-96.0); *n* = 23 |
| eGFR (CKD-EPI) | 86.0 (74.0-92.0); *n* = 23 |
| < 60 ml/min/1.73m² | 5/23 (21.7%) |
| ALAT (U/l) | 29.0 (22.5-38.5); *n* = 22 |
| > 60 U/l | 1/22 (4.5%) |
| Angiotensin-converting enzyme (U/l) | |
| > 70 U/l | 4/20 (20.0%) |
| Calcitriol (pmol/l); | 103.0 (59.0–115.4); n = 17 |
| Calcidiol (nmol/l) | 62.0 (32.0–72.5); n = 16 |
| Calcitriol/calcidiol ratio | 1.6 (1.3-2.8); n = 14 |
| Corrected calcium (mmol/l) | 2.3 (2.2-2.3); n = 23 |
| > 2.52 mmol/L | 1/23 (4.3%) |
| sIL-2R (ng/ml) | |
| ⩾ 2 ng/ml | 2/6 (33.3%) |
| High-sensitive troponin T (ng/l) | 15.5 (7.5-32.2); n = 12 |
| ⩾ 14 ng/l | 7/12 (58.3%) |
| NT-proBNP (ng/l) | 207.0 (80.0–1012.0); n=13 |
| ⩾ 300 ng/l | 5/13 (38.5%) |
| IgG (g/l) | 11.9 (10.5–15.5); n=14 |
| < 7 g/l | 1/14 (7.1%) |
| > 16 g/l | 3/14 (21.4%) |

ALAT: alanine aminotransferase; CKD-EPI: Chronic Kidney Disease Epidemiology Collaboration; CRP: C-reactive protein; eGFR: estimated glomerular filtration rate; ESR: erythrocyte sedimentation rate; IgG: immunoglobulin G; NT-proBNP: N-terminal pro–B-type natriuretic peptide; sIL-2R: soluble interleukin-2 receptor.

**Supplementary Table S3: Prevalence of conduction and arrhythmic abnormalities on ECG, Holter, and device recordings in cardiac sarcoidosis patients**

| Variables n (%) | ECG at diagnosis (*n* = 24) | Holter at diagnosis (*n* = 22) | All recordings during follow-up (*n* = 23) | Recording at last follow-up (*n* = 18) |
|---|---|---|---|---|
| No abnormalities | 8 (33.3%) | 2 (9.1%) | 0 (0.0%) | 4 (22.2%) |
| Atrioventricular conduction abnormalities | | | | |
| 1st degree AVB | 5 (20.8%) | 4 (18.2%) | 10 (43.5%) | 3 (16.7%) |
| 2nd degree AVB Mobitz 1 | 0 (0.0%) | 1 (4.5%) | 3 (13.0%) | 2 (11.1%) |
| 2nd degree AVB Mobitz 2 | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) |
| 2nd degree AVB 2:1 | 0 (0.0%) | 1 (4.5%) | 2 (8.7%) | 0 (0.0%) |
| 3rd degree AVB | 4 (16.7%) | 4 (18.2%) | 7 (30.4%) | 3 (16.7%) |
| Supraventricular arrhythmias | | | | |
| AVNRT | 0 (0.0%) | 1 (4.5%) | 1 (4.3%) | 0 (0.0%) |
| AVRT | 0 (0.0%) | 1 (4.5%) | 1 (4.3%) | 0 (0.0%) |
| PAC ⩾1% | 0 (0.0%) | 0 (0.0%) | 2 (8.7%) | 1 (5.6%) |
| Atrial tachycardia | 0 (0.0%) | 3 (13.6%) | 8 (34.8%) | 1 (5.6%) |
| Atrial fibrillation | 0 (0.0%) | 1 (4.5%) | 4 (17.4%) | 1 (5.6%) |
| Atrial flutter | 0 (0.0%) | 1 (4.5%) | 3 (13.0%) | 0 (0.0%) |
| Ventricular arrhythmias | | | | |
| PVC | 3 (12.5%) | NA | NA | NA |
| PVC <1% | NA | 3 (13.6%) | 7 (30.4%) | 3 (16.7%) |
| PVC 1–5% | NA | 1 (4.5%) | 6 (26.1%) | 0 (0.0%) |
| PVC 5.1–10% | NA | 1 (4.5%) | 7 (30.4%) | 2 (11.1%) |
| PVC 10.1–20% | NA | 3 (13.6%) | 7 (30.4%) | 0 (0.0%) |
| PVC >20% | NA | 2 (9.1%) | 5 (21.7%) | 0 (0.0%) |
| nsVT | 0 (0.0%) | 6 (27.3%) | 12 (52.2%) | 1 (5.6%) |
| AIVR | 0 (0.0%) | 3 (13.6%) | 8 (34.8%) | 0 (0.0%) |
| VT | 1 (4.2%) | 3 (13.6%) | 9 (39.1%) | 0 (0.0%) |
| VF | 0 (0.0%) | 0 (0.0%) | 1 (4.3%) | 0 (0.0%) |
| Electrical Storm | 0 (0.0%) | 0 (0.0%) | 3 (13.0%) | 0 (0.0%) |
| Intraventricular conduction abnormalities | | | | |
| RBBB | 5 (20.8%) | 3 (13.6%) | 6 (26.1%) | 0 (0.0%) |
| LBBB | 1 (4.2%) | 2 (9.1%) | 3 (13.0%) | 1 (5.6%) |
| LAFB | 3 (12.5%) | 0 (0.0%) | 4 (17.4%) | 0 (0.0%) |
| LPFB | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) |
| Sinus node abnormalities | | | | |
| Sinus Tachycardia | 1 (4.2%) | 0 (0.0%) | 1 (4.3%) | 0 (0.0%) |
| Sinus Bradycardia | 2 (8.3%) | 1 (4.5%) | 3 (13.0%) | 0 (0.0%) |
| Sinus pause ⩾ 2–⩽ 3 sec | 0 (0.0%) | 1 (4.5%) | 2 (8.7%) | 0 (0.0%) |
| Sinus arrest > 3sec | 0 (0.0%) | 0 (0.0%) | 1 (4.3%) | 2 (11.1%) |
| Chronotropic incompetence | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) |
| Sick sinus syndrome | 0 (0.0%) | 0 (0.0%) | 1 (4.3%) | 2 (11.1%) |

AIVR: accelerated idioventricular rhythm; AVB: atrioventricular block; AVNRT: atrioventricular nodal reentrant tachycardia; AVRT: atrioventricular reentrant tachycardia; LAFB: left anterior fascicular block; LBBB: left bundle branch block; LPFB: left posterior fascicular block; nsVT: non-sustained ventricular tachycardia; PAC: premature atrial contraction; PVC: premature ventricular contraction; RBBB: right bundle branch block; VF: ventricular fibrillation; VT: ventricular tachycardia.

**Supplementary Table S4: Evolution of left ventricular ejection fraction from diagnosis to follow-up timepoints**

| Timepoint | *n* | LVEF at diagnosis median (IQR) | LVEF at each timepoint median (IQR) | p-Value[a] |
|---|---|---|---|---|
| **6 months** | 16 | 61.3 (52.5–62.5) | 58.3 (51.9–62.5) | 0.55 |
| **12 months** | 15 | 57.5 (47.5–62.5) | 58.0 (53.8–62.5) | 0.63 |
| **24 months** | 14 | 57.5 (44.4–62.5) | 55.0 (50.5–61.9) | 0.64 |
| **60 months** | 10 | 61.3 (53.8–62.5) | 60.0 (55.6–64.4) | 0.67 |
| **Last follow-up** | 22 | 60.0 (52.5–62.5) | 60.0 (55.0–62.5) | 0.77 |

LVEF: left ventricular ejection fraction; IQR: interquartile range.
[a] Mann–Whitney U test.

**Supplementary Table S5: Comparison of clinical characteristics and imaging features at diagnosis of cardiac sarcoidosis between patients with and without MACE**

| Variables<br>*n* (%) or median (IQR) | Without MACE<br>(*n* = 16) | With MACE<br>(*n* = 9) | *p*-Value[a] |
|---|---|---|---|
| **Demographic characteristics and comorbidities** | | | |
| Age at diagnosis of CS (years) | 52.5 (47.8–61.8) | 55.0 (47.0–60.0) | |
| Follow up since diagnosis of CS (months) | 58.5 (49.2–64.3) | 54.0 (27.5–99.0) | |
| Arrhythmia considered idiopathic before diagnosis of CS | 1 (6.2%) | 3 (33.3%) | |
| Time between idiopathic arrhythmia and diagnosis of CS (months) | 85.1 (NA); n=1 | 108.0 (71.5–120.1); n=3 | |
| Cardiac relapse | 9 (56.3%) | 5 (55.6%) | |
| Extra-cardiac relapse | 2 (12.5%) | 1 (11.1%) | |
| Male | 14 (87.5%) | 5 (55.6%) | |
| Caucasian | 15 (93.8%) | 8 (88.9%) | |
| Smoking habit | | | |
| Never | 10 (62.5%) | 6 (66.7%) | |
| Former | 5 (31.2%) | 3 (33.3%) | |
| BMI (kg/m²) | 26.6 (25.1–33.2) | 25.8 (25.2–26.1) | |
| Comorbidities | | | |
| Dyslipidemia | 7 (43.8%) | 2 (22.2%) | |
| Diabetes | 1 (6.2%) | 1 (11.1%) | |
| Hypertension | 8 (50.0%) | 3 (33.3%) | |
| Sleep Apnea Syndrome | 4 (25.0%) | 1 (11.1%) | |
| Ischemic cardiomyopathy | 1 (6.2%) | 0 (0.0%) | |
| Chronic Kidney Insufficiency | 3 (18.8%) | 2 (22.2%) | |
| Associated autoimmune disease | 4 (25.0%) | 1 (11.1%) | |
| Diagnostic criteria - AHA likelihood algorithm[11] | | | |
| Definite | 0 (0.0%) | 4 (44.4%) | 0.01 |
| Highly probable | 5 (31.2%) | 3 (33.3%) | |
| Probable | 11 (68.8%) | 2 (22.2%) | |
| **Initial presentation of cardiac sarcoidosis** | | | |
| CS diagnosed as initial sarcoidosis presentation | 8 (50.0%) | 5 (55.6%) | |
| Symptoms | | | |
| Palpitations | 5 (31.2%) | 5 (55.6%) | |
| Syncope | 2 (12.5%) | 0 (0.0%) | |
| Dizziness | 4 (25.0%) | 2 (22.2%) | |
| Chest pain | 2 (12.5%) | 2 (22.2%) | |
| Shortness of breath | 6 (37.5%) | 5 (55.6%) | |
| Clinical heart failure | 0 (0.0%) | 4 (44.4%) | 0.01 |
| No cardiac symptoms | 3 (18.8%) | 1 (11.1%) | |
| Laboratory values | | | |
| Lymphocytes <1.5 $10^9$/l | 7/13 (53.8%) | 2/5 (40.0%) | |
| CRP >5 mg/l | 2/13 (15.4%) | 1/7 (14.3%) | |

| | | | |
|---|---|---|---|
| ACE >70 U/l | 3/10 (30.0%) | 1/6 (16.7%) | |
| High-sensitive troponin T ⩾14 ng/l | 2/7 (28.6%) | 5/5 (100.0%) | 0.03 |
| NT-proBNP ⩾300 ng/l | 1/9 (11.1%) | 4/4 (100.0%) | 0.01 |
| Cardiac phenotype | | | |
| LVEF<50% with ventricular arrhythmia | 0 (0.0%) | 4 (44.4%) | 0.01 |
| High-grade AVB | 5 (31.2%) | 4 (44.4%) | |
| Echocardiogram | | | |
| LVEF at diagnosis (%) | 62.5 (56.2–62.5) | 37.5 (27.5–60.0) | 0.02 |
| LVEF <50% | 1 (6.2%) | 5 (55.6%) | 0.01 |
| Cardiac MRI | | | |
| LGE | 5 (71.4%); n=7 | 1 (25.0%); n=4 | |
| LV LGE: No. of segments involved | 2.0 (1.0–3.5); n=11 | 5.0 (5.0–8.0); n=5 | 0.03 |
| RV LGE | 3 (18.8%) | 2 (22.2%) | |
| 18F-FDG PET-CT | | | |
| LV FDG: No. of segments involved | 3.5 (2.0–6.8); n=14 | 7.5 (6.2–11.8); n=6 | |
| RV FDG | 0 (0.0%) | 4 (44.4%) | 0.01 |
| PET-CT necrosis (at diagnosis or during follow up) | 2 (12.5%) | 5 (55.6%) | |
| **Management** | | | |
| IS therapy at diagnosis of CS | 3 (18.8%) | 1 (11.1%) | |
| Time between first cardiac signs or symptoms and IS therapy initiation (months) | 3.0 (1.0-6.5); n=15 | 4.0 (1.0–7.0) | |
| Prednisone dosage at diagnosis of CS | 0.50 (0.50–0.75); n=13 | 0.75 (0.60–1.00) | |
| Duration of initial treatment (months) | 18.0 (11.1–21.0); n=13 | 26.1 (10.0–41.0) | |
| Defibrillator implantation | 3 (18.8%) | 7 (77.8%) | 0.01 |
| Resynchronization therapy | 0 (0.0%) | 5 (55.6%) | 0.002 |

ACE: angiotensin-converting enzyme; AVB: atrioventricular block; BMI: body mass index; CRP: C-reactive protein; CS: cardiac sarcoidosis; FDG: fluorodeoxyglucose; IS: immunosuppressive; IQR: interquartile range; LGE: late gadolinium enhancement; LV: left ventricular; LVEF: left ventricular ejection fraction; MRI: magnetic resonance imaging; NT-proBNP: N-terminal pro–B-type natriuretic peptide; PET-CT: positron emission tomography-computed tomography; RV: right ventricular.

[a] Categorical variables were compared using Fisher's exact test. Continuous variables were compared using the Mann–Whitney U test.

**Supplementary Table S6: Binary variables and sample size (n) considered for univariate Cox regression analysis of relapse and MACE in cardiac sarcoidosis**

| Variables | *n* |
|---|---|
| Age ⩾53 years old | 25 |
| Female | 25 |
| Smoking status: never | 25 |
| BMI ⩾26 kg/m$^2$ | 25 |
| Hypertension | 25 |
| Diabetes | 25 |
| Chronic Kidney Insufficiency | 25 |
| Associated autoimmune disease | 25 |
| AHA Diagnostic criteria: Definite | 25 |
| Isolated cardiac sarcoidosis | 25 |
| No. of organs involved ⩾4 | 25 |
| Lung involvement | 25 |
| Eye involvement | 25 |
| Liver involvement | 25 |
| Lymphocytes <1.5 x10$^9$/l | 18 |
| CRP >5 mg/l | 20 |
| eGFR (CKD-EPI) <60 ml/min/1.73m$^2$ | 23 |
| ACE >70 U/l | 16 |
| hs-Troponin T ⩾14 ng/l | 12 |
| NT-proBNP ⩾300 ng/l | 13 |
| Ventricular arrhythmias | 25 |
| High-grade AVB | 25 |
| LVEF <50% with ventricular arrhythmias | 25 |
| LVEF <50% | 25 |
| Hypokinesia | 25 |
| LV FDG uptake ⩾5 segments | 20 |
| LV necrosis | 25 |
| RV FDG uptake | 22 |
| LV LGE ⩾5 segments | 16 |
| Time to IS therapy initiation ⩾3.5 months | 24 |
| First episode prednisone duration ⩽18 months | 22 |
| First episode second-line IS therapy ⩽24months | 23 |
| Anti-TNF therapy | 25 |
| MACE | 25 |
| Relapse | 25 |

ACE: angiotensin-converting enzyme; AHA: American Heart Association; AVB: atrioventricular block; BMI: body mass index; CKD-EPI: Chronic Kidney Disease Epidemiology Collaboration; CRP: C-reactive protein; eGFR: estimated glomerular filtration rate; FDG: fluorodeoxyglucose; hs-Troponin T: high-sensitivity troponin T; IS: immunosuppression; LGE: late gadolinium enhancement; LVEF: left ventricular ejection fraction; LV: left ventricle; MACE: major adverse cardiac events; NT-proBNP: N-terminal pro–B-type natriuretic peptide; RV: right ventricle; TNF: tumor necrosis factor.