

# Sarcoïdose cardiaque quelle prise en charge fondée sur les preuves

**Karim Sacre**

Hôpital Bichat-Claude Bernard

Université Paris Diderot

[karim.sacre@aphp.fr](mailto:karim.sacre@aphp.fr)

# Corticoïdes?

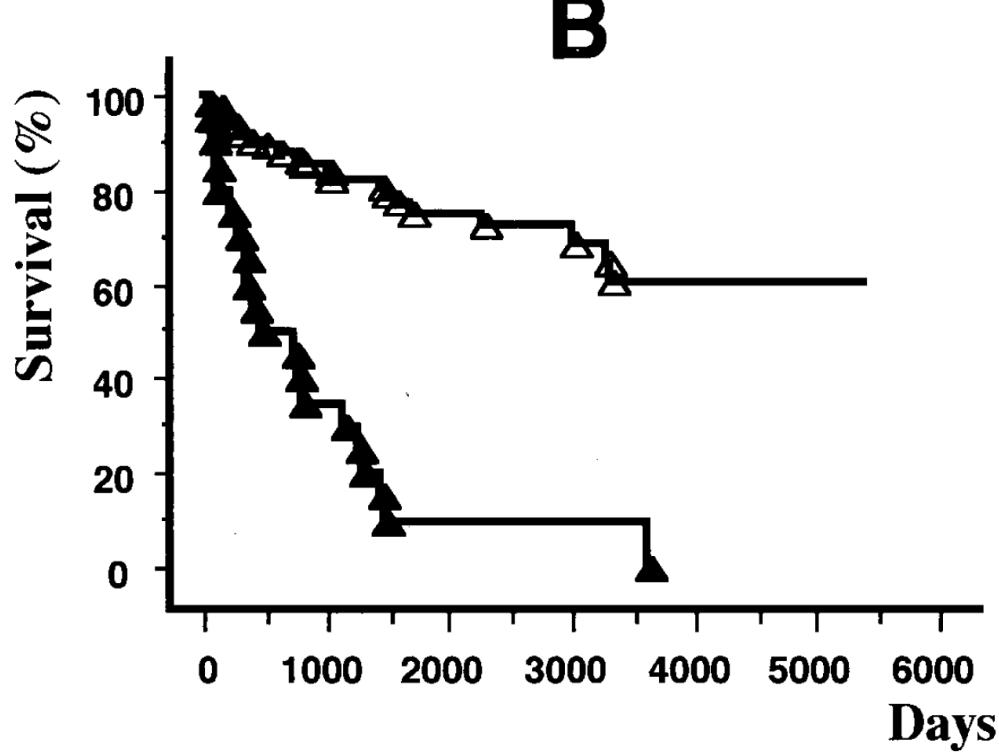
# **Prognostic Determinants of Long-Term Survival in Japanese Patients With Cardiac Sarcoidosis Treated With Prednisone**

Yoshikazu Yazaki, MD, Mitsuaki Isobe, MD, Michiaki Hiroe, MD,  
Shin-ichiro Morimoto, MD, Shinya Hiramitsu, MD, Takeshi Nakano, MD,  
Tohru Izumi, MD, and Morie Sekiguchi, MD, for the Central Japan Heart Study Group

- Japon
- Monocentrique/Retrospective
- Criteres JMW
- 95 patients – 12 ans
  - steroïdes >30mg/j – n= 75
  - pas de steroïdes – n=20
- 68 (1-180) mois

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## **Steroids**

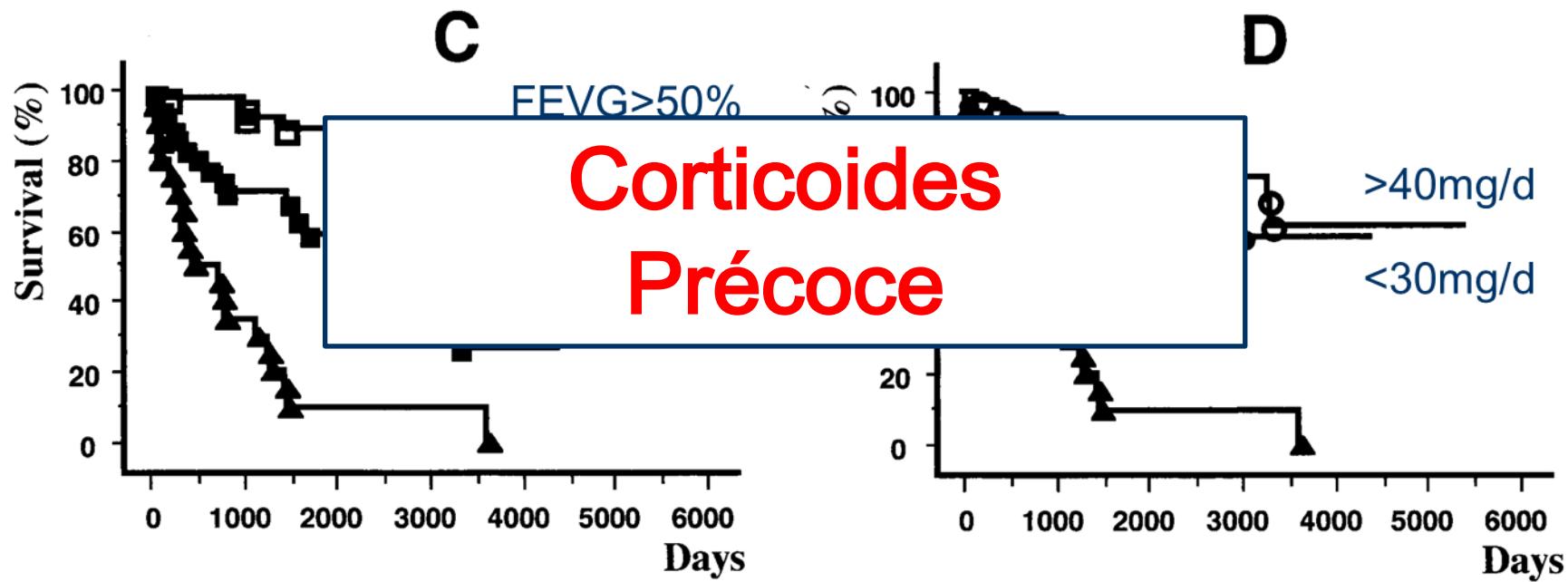
- 92% at 1 year
- 82% at 3 years
- 75% at 5 years
- 61% at 10 years

## **No steroids**

- 10% at 5 years

# Prognostic Determinants of Long-Term Survival in Japanese Patients With Cardiac Sarcoidosis Treated With Prednisone

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# Cardiac Sarcoidosis

## *A Retrospective Study of 41 Cases*

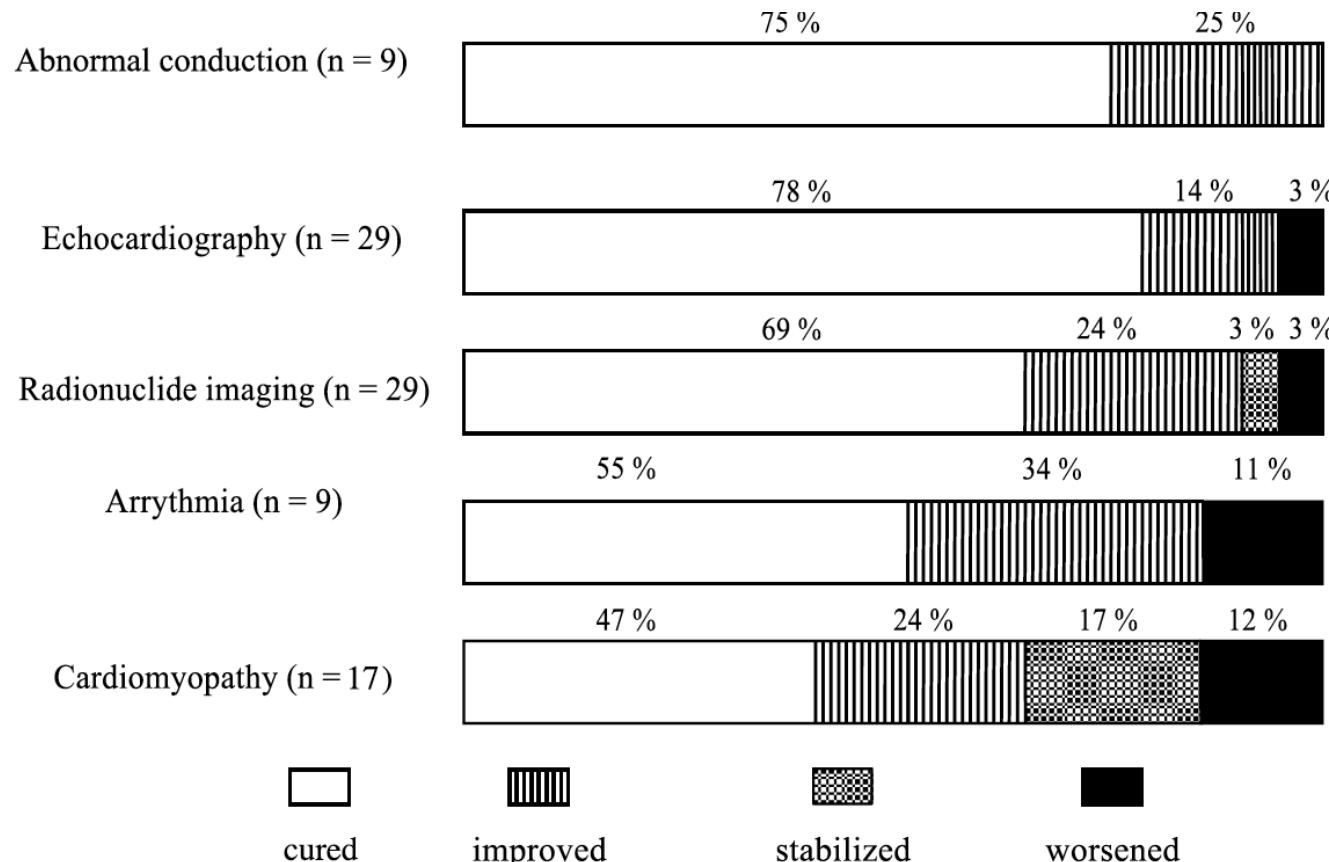
*Catherine Chapelon-Abric, Dominique de Zuttere, Pierre Duhaut, Pierre Veyssier, Bertrand Wechsler,  
Du Le Thi Huong, Christian de Gennes, Thomas Papo, Olivier Blétry,  
Pierre Godeau, and Jean-Charles Piette*

- France
- Monocentrique/Retrospective
- Criteres locaux
- 41 patients – 15 ans
  - steroïdes – n= 39
  - > 0.5mg/kg – n=34
  - IS – n=11
- 58 (7-312) mois

# Cardiac Sarcoidosis

## A Retrospective Study of 41 Cases

Catherine Chapelon-Abric, Dominique de Zuttere, Pierre Duhaut, Pierre Veyssier, Bertrand Wechsler,  
Du Le Thi Huong, Christian de Gennes, Thomas Papo, Olivier Blétry,  
Pierre Godeau, and Jean-Charles Piette



# HRS Expert Consensus Statement on the Diagnosis and Management of Sarcoidosis

David H. B  
Joshua M.  
Marc A. Ju  
Jens Cosed  
Pekka Raat

gun, MD,<sup>3</sup>

**Table 3** Studies evaluating the effect of corticosteroids on atrioventricular conduction recovery in patients

Study	Steroids		No steroids	
	No. of patients	AV recovery, n (%)	No. of patients	AV recovery, n (%)
Okamoto et al <sup>63</sup>	3	3 (100)	0	-
Kato et al <sup>64</sup>	7	4 (57.1)	13	0 (0)
Chapelon-Abric et al <sup>13</sup>	9	7 (75)	0	-
Banba et al <sup>65</sup>	9	5 (56.6)	2	0 (0)
Yodogawa et al <sup>66</sup>	12	4 (33.3)	0	-
Kandolin et al <sup>52</sup>	17	4 (23.5)	1	0 (0)
Total	57	27 (47.4)	16	0 (0)

Modified with permission from Sadek et al.<sup>29</sup>

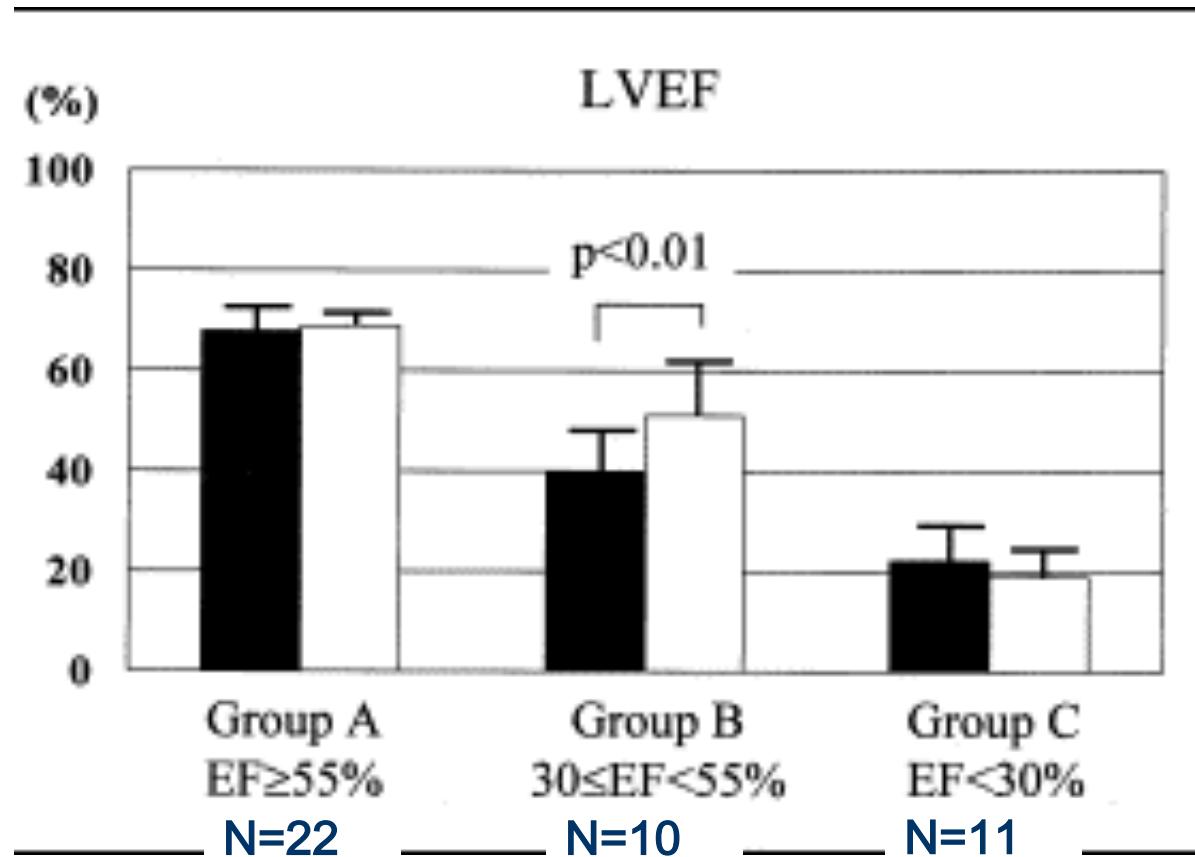
# **Prevention of Left Ventricular Remodeling by Long-Term Corticosteroid Therapy in Patients With Cardiac Sarcoidosis**

Chiung-Zuan Chiu, MD, Satoshi Nakatani, MD, Guican Zhang, MD,  
Teruo Tachibana, MD, Fumio Ohmori, MD, Masakazu Yamagishi, MD,  
Masafumi Kitakaze, MD, Hitonobu Tomoike, MD, and Kunio Miyatake, MD

- Japon
- Monocentrique/Retrospective
- Criteres JMW
- 41 patients – 11 ans
  - steroïdes – n= 41
  - 60mg/j – 2 mois
  - IS – n=11
- 88 (1-196) mois

# **Prevention of Left Ventricular Remodeling by Long-Term Corticosteroid Therapy in Patients With Cardiac Sarcoidosis**

Chiung-Zuan Chiu, MD, Satoshi Nakatani, MD, Guican Zhang, MD,  
Teruo Tachibana, MD, Fumio Ohmori, MD, Masakazu Yamagishi, MD,  
Masafumi Kitakaze, MD, Hitonobu Tomoike, MD, and Kunio Miyatake, MD



# HRS Expert Consensus Statement on the Diagnosis and Management of Arrhythmias Associated With Cardiac Sarcoidosis

David H. Birnie, MD (Chair),<sup>1</sup> William H. Sauer, MD, FQRS, CCDS (Chair),<sup>2</sup> Frank Bogun, MD,<sup>3</sup> Joshua M. Cooper, MD, FQRS,<sup>4</sup> Daniel A. Culver, DO,<sup>5,\*</sup> Claire S. Duvernoy, MD,<sup>6,†</sup> Marc A. Judson, MD,<sup>7,‡</sup> Jordana Kron, MD,<sup>8</sup> Davendra Mehta, MD, PhD, FQRS,<sup>9</sup> Jens Cosedis Nielsen, MD,<sup>10</sup> Amit R. Patel, MD,<sup>11,§</sup> Tohru Ohe, MD, FQRS,<sup>12,||</sup> Pekka Raatikainen, MD,<sup>13,¶</sup> Kyoko Soejima, MD<sup>14</sup>

## *Expert Consensus Recommendations for the Management of Ventricular Arrhythmias*

- Class IIa*
1. Assessment of myocardial inflammation with FDG-PET **can be useful** in CS patients with ventricular arrhythmias.
  2. Immunosuppression **can be useful** in CS patients with frequent ventricular ectopy or nonsustained VT and evidence of myocardial inflammation.
  3. Immunosuppression **can be useful** in CS patients with sustained ventricular arrhythmias and evidence of myocardial inflammation.
  4. Antiarrhythmic medication therapy **can be useful** in patients with ventricular arrhythmias refractory to immunosuppressive therapy.
  5. Catheter ablation **can be useful** in patients with CS and ventricular arrhythmias refractory to immunosuppressive *and* antiarrhythmic therapy.
  6. Catheter ablation **can be useful** in patients with incessant ventricular arrhythmias.

# **Effect of Discontinuation of Prednisolone Therapy on Risk of Cardiac Mortality Associated With Worsening Left Ventricular Dysfunction in Cardiac Sarcoidosis**



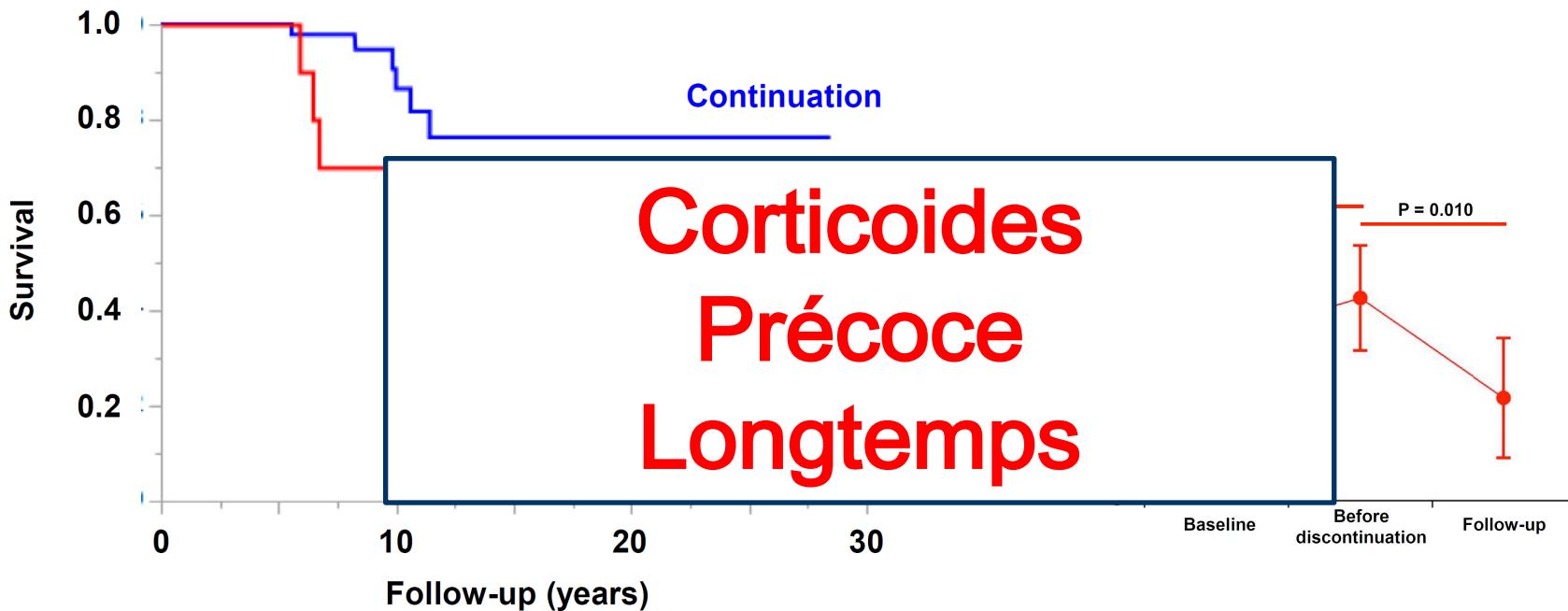
Toshiyuki Nagai, MD, PhD\*, Nobutaka Nagano, MD, Yasuo Sugano, MD, PhD,  
Yasuhide Asaumi, MD, PhD, Takeshi Aiba, MD, PhD, Hideaki Kanzaki, MD, PhD,  
Kengo Kusano, MD, PhD, Teruo Noguchi, MD, PhD, Satoshi Yasuda, MD, PhD,  
Hisao Ogawa, MD, PhD, and Toshihisa Anzai, MD, PhD

- Japon
- Monocentrique/Retrospective
- Criteres JMW
- 61 patients – 30 ans
  - steroïdes – 30mg/j
  - Stop – n=12
  - Continue – n=49
- 9.9 (7.9-13) ans

# Effect of Discontinuation of Prednisolone Therapy on Risk of Cardiac Mortality Associated With Worsening Left Ventricular Dysfunction in Cardiac Sarcoidosis



Toshiyuki Nagai, MD, PhD\*, Nobutaka Nagano, MD, Yasuo Sugano, MD, PhD, Yasuhide Asaumi, MD, PhD, Takeshi Aiba, MD, PhD, Hideaki Kanzaki, MD, PhD, Kengo Kusano, MD, PhD, Teruo Noguchi, MD, PhD, Satoshi Yasuda, MD, PhD, Hisao Ogawa, MD, PhD, and Toshihisa Anzai, MD, PhD



# Immunosuppresseurs?

# Cardiac sarcoidosis: Diagnosis, therapeutic management and prognostic factors



*Sarcoïdoses cardiaques : diagnostic, prise en charge thérapeutique et facteurs pronostiques*

Catherine Chapelon-Abric<sup>a,\*</sup>, Damien Sene<sup>b</sup>,  
David Saadoun<sup>a</sup>, Philippe Cluzel<sup>c</sup>, Olivier Vignaux<sup>d</sup>,  
Nathalie Costedoat-Chalumeau<sup>e</sup>, Jean-Charles Piette<sup>f</sup>,  
Patrice Cacoub<sup>g</sup>

- France
- Monocentrique/Retrospective
- Critères JMW
- 59 patients – 19 ans
  - Steroides – 1mg/kg/j
  - Steroides – n= 24
  - Steroides + IS – n=35
- 60 (42-86) mois

# Cardiac sarcoidosis: Diagnosis, therapeutic management and prognostic factors



*Sarcoïdoses cardiaques : diagnostic, prise en charge thérapeutique et facteurs pronostiques*

Catherine Chapelon-Abric<sup>a,\*</sup>, Damien Sene<sup>b</sup>,  
David Saadoun<sup>a</sup>, Philippe Cluzel<sup>c</sup>, Olivier Vignaux<sup>d</sup>,  
Nathalie Costedoat-Chalumeau<sup>e</sup>, Jean-Charles Piette<sup>f</sup>,  
Patrice Cacoub<sup>g</sup>

Variables	Recovery–		Recovery+		Univariate analysis		
	Relapse+ (n = 23)	Relapse– (n = 36)	Univariate analysis	P	Multivariable analysis	OR (95% CI)	P
Age (years)	39 (32–45)	46 (39–52)	0.09				
Age at CS diagnosis ≤ 46 years	6 (26)	19 (53)	0.06		0.28 (0.08–0.92)	0.036	
Women	11 (48)	9 (25)	0.09		3.2 (0.97–10.5)	0.055	
Caucasian	7 (30)	18 (50)	0.18				
Black	12 (52)	13 (36)	0.28		Steroids stopped or ≤10mg/d in 74%		
Abnormal echocardiography	18 (78)	30 (83)	0.73				
Decreased LVEF	17 (74)	30 (83)	0.51				
Abnormal myocardial scintigraphy	20/23 (87)	27/33 (82)	0.72				
Abnormal myocardial MRI	19/21 (90)	25/28 (89)	1.00				
IST	12 (52)	23 (64)	0.42				
Cyclophosphamide	6 (26)	14 (39)	0.40				
Methotrexate	5 (22)	8 (22)	1.00				

# Treatment of cardiac sarcoidosis: A comparative study of steroids and steroids plus immunosuppressive drugs☆



Thomas Ballul <sup>a</sup>, Raphael Borie <sup>b,c</sup>, Bruno Crestani <sup>b,c</sup>, Eric Daugas <sup>d,c</sup>, Vincent Descamps <sup>e</sup>, Philippe Dieude <sup>f,c</sup>, Antoine Dossier <sup>a</sup>, Fabrice Extramiana <sup>g</sup>, Damien van Gysel <sup>h</sup>, Thomas Papo <sup>a,c,i</sup>, Karim Sacre <sup>a,c,i,\*</sup>

- France
- Monocentrique/Retrospective
- Criteres HRS
- 36 patients – 16 ans
  - Steroides – 1mg/kg/j
  - Steroides – n= 24
  - Steroides + IS – n=12
- 3.6 (1-15.2) ans



# Treatment of cardiac sarcoidosis: A comparative study of steroids and steroids plus immunosuppressive drugs☆

Thomas Ballul <sup>a</sup>, Raphael Borie <sup>b,c</sup>, Bruno Crestani <sup>b,c</sup>, Eric Daugas <sup>d,c</sup>, Vincent Descamps <sup>e</sup>, Philippe Dieude <sup>f,c</sup>, Antoine Dossier <sup>a</sup>, Fabrice Extramiana <sup>g</sup>, Damien van Gysel <sup>h</sup>, Thomas Papo <sup>a,c,i</sup>, Karim Sacre <sup>a,c,i,\*</sup>

## *Expert Consensus Recommendations on Criteria for the Diagnosis of CS*

There are 2 pathways to a diagnosis of Cardiac Sarcoidosis:

1. Histological Diagnosis from Myocardial Tissue

CS is diagnosed in the presence of non-caseating granuloma on histological examination of myocardial tissue with no alternative cause identified (including negative organismal stains if applicable).

2. Clinical Diagnosis from Invasive and Non-Invasive Studies:

It is probable\* that there is CS if:

a) There is a histological diagnosis of extra-cardiac sarcoidosis

and

b) One or more of following is present

- Steroid +/- immunosuppressant responsive cardiomyopathy or heart block
- Unexplained reduced LVEF (<40%)
- Unexplained sustained (spontaneous or induced) VT
- Mobitz type II 2nd degree heart block or 3rd degree heart block
- Patchy uptake on dedicated cardiac PET (in a pattern consistent with CS)
- Late Gadolinium Enhancement on CMR (in a pattern consistent with CS)
- Positive gallium uptake (in a pattern consistent with CS)

and

c) Other causes for the cardiac manifestation(s) have been reasonably excluded

\*In general, 'probable involvement' is considered adequate to establish a clinical diagnosis of CS.<sup>33</sup>

# Treatment of cardiac sarcoidosis: A comparative study of steroids and steroids plus immunosuppressive drugs☆



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- 20% rechute corticoïde + méthotrexate
- 40% rechute corticoïdes
- 176 patients à inclure au total sur 3 ans  
(alpha 5%, puissance 80%)
- 5-10% des malades,
- 586 à 1173 sarcoïdoses/an

**Fig. 1.** Kaplan-Meier curves of study population. Patients treated with steroids + IS (CT + IS) at cardiac sarcoidosis diagnosis tended to have lower rates of cardiac sarcoidosis relapse than patients treated with steroids alone (CT). HR = 2.961; 95% CI 0.66–13.48; log-rank  
p = 0.141.

Row	Saved	Status	Study Title	Conditions	Interventions	Locations
1	<input type="checkbox"/>	Recruiting	<a href="#">Interleukin-1 Blockade for Treatment of Cardiac Sarcoidosis</a>	<ul style="list-style-type: none"> <li>Cardiac Sarcoidosis</li> </ul>	<ul style="list-style-type: none"> <li>Drug: Anakinra</li> <li>Drug: Placebos</li> </ul>	<ul style="list-style-type: none"> <li>University of Michigan Sarcoidosis Clinic</li> </ul>
2	<input type="checkbox"/>	Recruiting				Michigan, United States
3	<input type="checkbox"/>	Recruiting				Commonwealth University, Virginia, United States
4	<input type="checkbox"/>	Recruiting				Mayo Clinic Rochester, Minnesota, United States
5	<input type="checkbox"/>	Recruiting				National Institute for Medical Research, Edinburgh, United Kingdom
6	<input type="checkbox"/>	Recruiting				Alabama at Birmingham, Alabama, United States
						Alabama, United States
						Alberta Heart Institute, Edmonton, Alberta, Canada
						Alberta Hospital, Edmonton, Alberta, Canada
						British Columbia, Canada
						(...)
						Michigan-Michigan Cardiovascular Center, Ann Arbor, Michigan, United States
						Virginia Commonwealth University, Richmond, Virginia, United States
						Libin Cardiovascular Institute of Alberta, Calgary, Alberta, Canada
						(and 5 more...)

## Sarcoid-like granulomatosis in a patient treated by interleukin-1 receptor antagonist for TNF-receptor-associated periodic syndrome

**Karim Sacre<sup>1</sup>, Elisa Pasqualoni<sup>1</sup>,  
Vincent Descamps<sup>2</sup>, Laurence Choudat<sup>3</sup>,  
Marie-Pierre Debray<sup>4</sup> and Thomas Papo<sup>1</sup>**

### Rheumatology key message

- Recombinant IL-1ra anakinra may induce systemic sarcoidosis.

Showing: 1-14 of 14 studies 100 studies per page						Show/Hide Columns
Row	Saved	Status	Study Title	Conditions	Interventions	Locations
1	<input type="checkbox"/>	Recruiting	<a href="#">Interleukin-1 Blockade for Treatment of Cardiac Sarcoidosis</a>	<ul style="list-style-type: none"> <li>• Cardiac Sarcoidosis</li> </ul>	<ul style="list-style-type: none"> <li>• Drug: Anakinra</li> <li>• Drug: Placebos</li> </ul>	<ul style="list-style-type: none"> <li>• University of Michigan Sarcoidosis Clinic Ann Arbor, Michigan, United States</li> <li>• Virginia Commonwealth University Richmond, Virginia, United States</li> </ul>
2	<input type="checkbox"/>	Recruiting	<a href="#">d68Ga-DOTATATE PET/CT Assessment of Cardiac Sarcoidosis</a>	<ul style="list-style-type: none"> <li>• Cardiac Sarcoidosis</li> </ul>	<ul style="list-style-type: none"> <li>• Drug: 68Ga-DOTATATE PET/CT</li> <li>• Drug: 18FDG PET/CT scan</li> <li>• Drug: 13NH3 PET/CT scan</li> </ul>	<ul style="list-style-type: none"> <li>• Mayo Clinic in Rochester Rochester, Minnesota, United States</li> </ul>
3	<input type="checkbox"/>					<ul style="list-style-type: none"> <li>• Queen's Medical Research Institute Edinburgh, Midlothian, United Kingdom</li> </ul>
4	<input type="checkbox"/>				<ul style="list-style-type: none"> <li>• Diagnostic Test: hybrid PET/MRI</li> </ul>	<ul style="list-style-type: none"> <li>• University of Alabama at Birmingham Birmingham, Alabama, United States</li> </ul>
5	<input type="checkbox"/>					<ul style="list-style-type: none"> <li>• Libin Cardiovascular Institute of Alberta Calgary, Alberta, Canada</li> <li>• University of Alberta Hospital Edmonton, Alberta, Canada</li> <li>• St. Paul's Hospital Vancouver, British Columbia, Canada</li> <li>• (and 12 more...)</li> </ul>
6	<input type="checkbox"/>	Recruiting	<a href="#">Cardiac Sarcoidosis Randomized Trial</a>	<ul style="list-style-type: none"> <li>• Cardiac Sarcoidosis</li> <li>• Sarcoidosis</li> </ul>	<ul style="list-style-type: none"> <li>• Drug: Prednisone</li> <li>• Drug: Methotrexate</li> </ul>	<ul style="list-style-type: none"> <li>• University of Michigan-Michigan Medicine Cardiovascular Center Ann Arbor, Michigan, United States</li> <li>• Virginia Commonwealth University Richmond, Virginia, United States</li> <li>• Libin Cardiovascular Institute of Alberta Calgary, Alberta, Canada</li> <li>• (and 5 more...)</li> </ul>

Phase 3  
 Open-label, randomized controlled  
 Non-inferiority  
 HRS\*  
 N=198  
 CT <20mg/j M3  
 1ary: FDG-PET scan M6

# Take home

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**Corticoides  
Précoce  
Longtemps**