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# Mort subite et arythmies ventriculaires: Ce qui change après l'ESC 2022

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## Déclaration de liens d'intérêt potentiels

Intervenant : **Soufia NACCACHE, Jossigny**

Je n'ai pas de lien d'intérêt potentiel à déclarer

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**ESC**

European Society  
of Cardiology

European Heart Journal (2022) 43, 3997–4126  
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**ESC GUIDELINES**

## **2022 ESC Guidelines for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death**

**Developed by the task force for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death of the European Society of Cardiology (ESC)**

**Endorsed by the Association for European Paediatric and Congenital Cardiology (AEPC)**

# SCD Risk stratification



# SCD Risk stratification

## 1. Genetic testing

### Dilated cardiomyopathy

Genetic testing (including at least <i>LMNA</i> , <i>PLN</i> , <i>RBM20</i> , and <i>FLNC</i> genes) is recommended in patients with DCM/HNDCM and AV conduction delay at <50 years, or who have a family history of DCM/HNDCM or SCD in a first-degree relative (at age <50 years).	I
Genetic testing (including at least <i>LMNA</i> , <i>PLN</i> , <i>RBM20</i> , and <i>FLNC</i> genes) should be considered for risk stratification in patients with apparently sporadic DCM/HNDCM, who present at young age or with signs suspicious for an inherited aetiology.	IIa

### Hypertrophic cardiomyopathy

Genetic counselling and testing are recommended in HCM patients.	I
ICD implantation should be considered in HCM patients aged 16 years or more with an intermediate 5-year risk of SCD ( $\geq 4$ to <6%) <sup>1</sup> , and with (a) significant LGE at CMR (usually $\geq 15\%$ of LV mass); or (b) LVEF <50%; or (c) abnormal blood pressure response during exercise test <sup>2</sup> ; or (d) LV apical aneurysm; or (e) presence of sarcomeric pathogenic mutation.	IIa
In idiopathic VF patients, genetic testing of genes related to channelopathy and cardiomyopathy may be considered.	IIb

# SCD Risk stratification

## 2. Cardiac MRI : LGE

### Dilated cardiomyopathy

CMR with LGE should be considered in DCM/HNDCM patients for assessing the aetiology and the risk of VA/SCD.	IIa
ICD implantation should be considered in DCM/HNDCM patients with an LVEF <50% and ≥2 risk factors (syncope on CMR, inducible SMVT at PES, pathogenic mutations in LMNA, PLN, FLNC, and RBM20 genes). <b>LGE</b>	IIa

### Hypertrophic cardiomyopathy

CMR with LGE is recommended in HCM patients for diagnostic work-up.	I
ICD implantation should be considered in HCM patients aged 16 years or more with an intermediate 5-year risk of SCD (≥4 to <6%) <sup>f</sup> , and with (a) <b>significant LGE at CMR (usually ≥15% of LV mass)</b> ; or (b) LVEF <50%; or (c) abnormal blood pressure response during exercise test <sup>e</sup> ; or (d) LV apical aneurysm; or (e) presence of sarcomeric pathogenic mutation.	IIa

# SCD Risk stratification

## 2. Cardiac MRI : LGE

### Sarcoidosis

In patients with cardiac sarcoidosis who have an LVEF  $>35\%$  but significant LGE at CMR after resolution of acute inflammation, ICD implantation should be considered.

IIa

# SCD Risk stratification

## 3. PES

### Coronary artery disease

ICD implantation should be considered in patients with CAD, LVEF $\leq 40\%$ despite $\geq 3$ months of OMT and NSVT, if they are inducible for SMVT by PES.	IIa
In patients with syncope and previous STEMI, PES is indicated when syncope remains unexplained after non-invasive evaluation.	IIa I

### Dilated cardiomyopathy

ICD implantation should be considered in DCM/HNDCM patients with an LVEF $< 50\%$ and $\geq 2$ risk factors (syncope, LGE on CMR, inducible SMVT at PES, pathogenic mutations in LMNA, PLN, FLNC, and RBM20 genes).	IIa
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## SCD Risk stratification

### ARVC

ICD implantation should be considered in symptomatic<sup>d</sup> patients with definite ARVC, moderate right or left ventricular dysfunction, and either NSVT or inducibility of SMVT at PES. **IIa**

### Brugada Syndrome

PES may be considered in asymptomatic patients with a spontaneous type I BrS ECG. **IIb**

### Sarcoidosis

In patients with cardiac sarcoidosis who have an LVEF 35–50% and minor LGE at CMR, after resolution of acute inflammation, PES for risk stratification should be considered. **IIa**

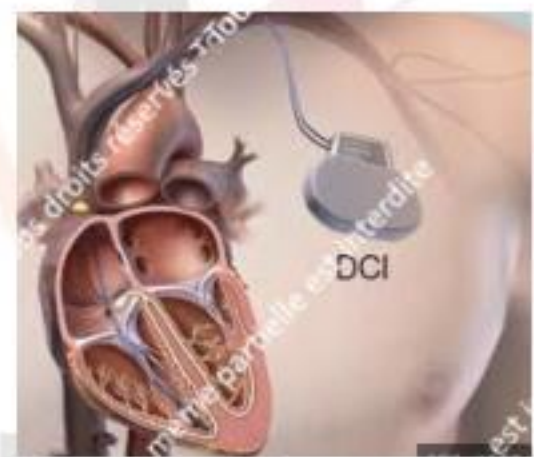
In patients with cardiac sarcoidosis, LVEF 35–50%, and inducible SMVT at PES, ICD implantation should be considered. **IIa**

# ICD implantation

# ICD implantation

## Coronary artery disease

ICD therapy should be considered in patients with CAD, NYHA class I, and LVEF $\leq 30\%$ despite $\geq 3$ months of OMT.	<b>IIa</b>
ICD implantation should be considered in patients with CAD, LVEF $\leq 40\%$ despite $\geq 3$ months of OMT and NSVT if they are inducible for SMVT by PES.	<b>IIa</b>
In SCA survivors with coronary artery spasm, implantation of an ICD should be considered. !!!	<b>IIa</b>



# ICD implantation

## Dilated cardiomyopathy

ICD implantation should be considered in DCM/HNDCM patients with an LVEF < 50% and ≥ 2 risk factors (syncope, LGE on CMR, inducible SMVT at PES, pathogenic mutations in LMNA, PLN, FLNC, and RBM20 genes).	IIa
ICD implantation should be considered in patients with DCM/HNDCM and haemodynamically tolerated SMVT.	IIa

ICD implantation should be considered in patients with DCM/HNDCM, symptomatic heart failure (NYHA class II–III) and LVEF ≤ 35% after ≥ 3 months of OMT.	I	IIa
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**DANISH TRIAL !!!**

# ICD implantation

## Hypertrophic cardiomyopathy

ICD implantation should be considered in HCM patients aged 16 years or more with an intermediate 5-year risk of SCD ( $\geq 4$  to  $< 6\%$ )<sup>f</sup>, and with (a) significant LGE at CMR (usually  $\geq 15\%$  of LV mass); or (b) LVEF  $< 50\%$ ; or (c) abnormal blood pressure response during exercise test<sup>g</sup>; or (d) LV apical aneurysm<sup>h</sup>; or (e) presence of sarcomeric pathogenic mutation.

IIa

ICD implantation may be considered in HCM patients aged 16 years or more with a low estimated 5-year risk of SCD ( $< 4\%$ )<sup>f</sup>, and with (a) significant LGE at CMR (usually  $\geq 15\%$  of LV mass); or (b) LVEF  $< 50\%$ ; or (c) LV apical aneurysm.

IIb

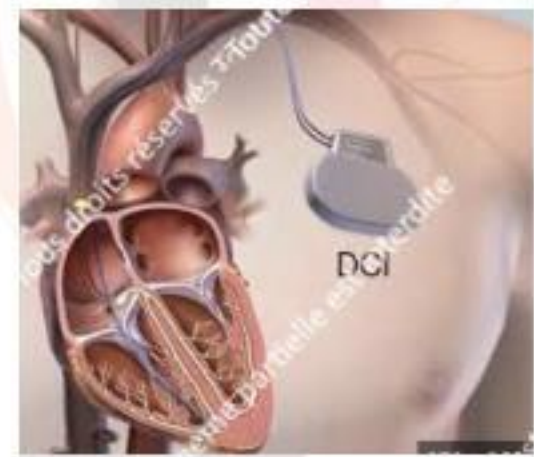
In patients with HCM presenting with haemodynamically tolerated SMVT, ICD implantation should be considered.

IIa

# ICD implantation

## Myocarditis

In patients with haemodynamically tolerated SMVT occurring in the chronic phase of myocarditis, ICD implantation should be considered.	<b>IIa</b>
In patients with haemodynamically not-tolerated sustained VT or VF during the acute phase of myocarditis, ICD implantation before hospital discharge should be considered. !!!	<b>IIa</b>



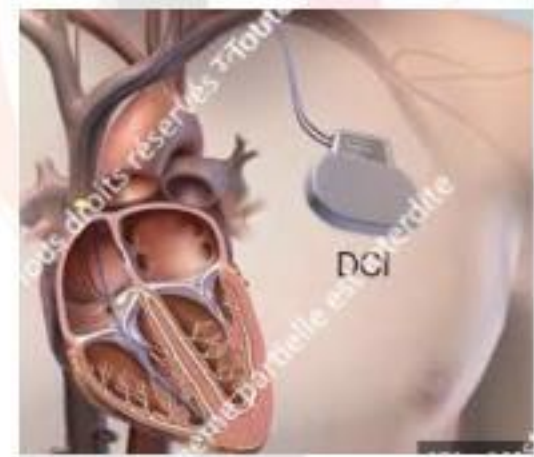
# ICD implantation

## Sarcoidosis

ICD implantation is recommended in patients with cardiac sarcoidosis who have an LVEF $\leq$ 35%.	IIb	I
ICD implantation is recommended in patients with cardiac sarcoidosis who (1) have documented sustained VT, or (2) aborted CA.	IIb	I
In patients with cardiac sarcoidosis who have an indication for permanent cardiac pacing related to high-degree AV block, ICD implantation should be considered, regardless of LVEF.	IIb	IIa

In patients with cardiac sarcoidosis who have an LVEF  $>$ 35% but significant LGE at CMR after resolution of acute inflammation, ICD implantation should be considered.

IIa



# ICD implantation

## ARVC

ICD implantation should be considered in symptomatic<sup>d</sup> patients with definite ARVC, moderate right or left ventricular dysfunction, and either NSVT or inducibility of SMVT at PES.

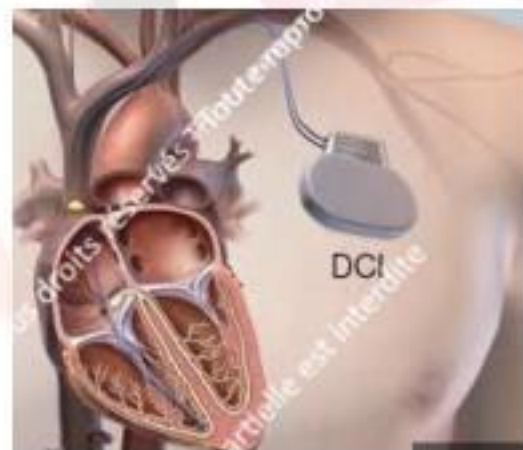
**IIa**





## ICD implantation

The WCD should be considered for adult patients with a secondary prevention ICD indication, who are temporarily not candidates for ICD implantation.	IIa	C
The WCD may be considered in the early phase after MI in selected patients. <sup>371,372</sup>	IIb	B



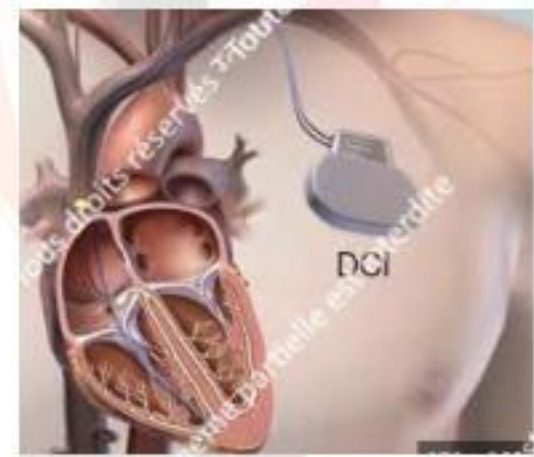
# ICD implantation

Despite a possible correctable cause for the presenting VA, the need for ICD implantation should be considered based on an individual evaluation of the risk of subsequent VA/SCD. <sup>286,296,299</sup>

**IIa** **C**

In elderly patients in whom a benefit from the defibrillator is not expected due to the patient's age and comorbidities, omission of ICD implantation for primary prevention may be considered.

**IIb**



# Catheter Ablation

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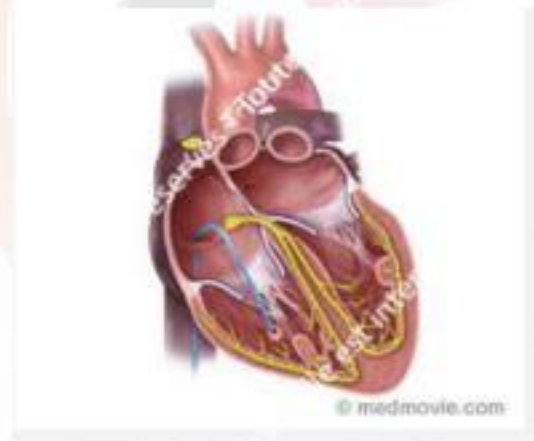
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# Catheter Ablation

## Coronary artery disease

In patients with CAD and haemodynamically well-tolerated SMVT and LVEF  $\geq 40\%$ , catheter ablation in experienced centres should be considered as an alternative to ICD therapy, provided that established endpoints have been reached.<sup>b</sup>

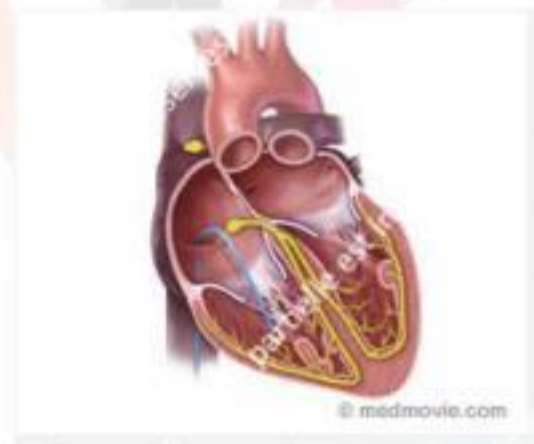
**IIa**



# Catheter Ablation

## VT/PVC

Catheter ablation as first-line treatment is recommended for symptomatic idiopathic VT/PVCs from the RVOT or the left fascicles.	<b>I</b>
Catheter ablation or flecainide should be considered in symptomatic patients with idiopathic VT/PVCs from an origin other than the RVOT or the left fascicles.	<b>IIa</b>
Catheter ablation may be considered for idiopathic VT/PVCs in asymptomatic patients with repeatedly more than 20% of PVCs per day at follow-up.	<b>IIb</b>
In patients with a cardiomyopathy suspected to be caused by frequent and predominately monomorphic PVCs, catheter ablation is recommended.	<b>IIa</b>



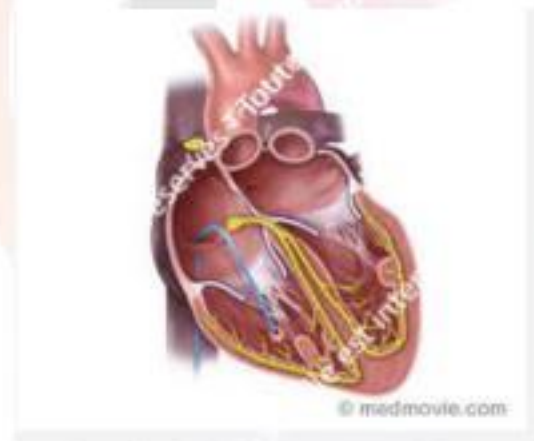
# Catheter Ablation

## Hypertrophic cardiomyopathy

Catheter ablation in specialized centres should be considered in patients with DCM/HNDCM and recurrent, symptomatic SMVT, or ICD shocks for SMVT, in whom AADs are ineffective, contraindicated, or not tolerated.

IIb

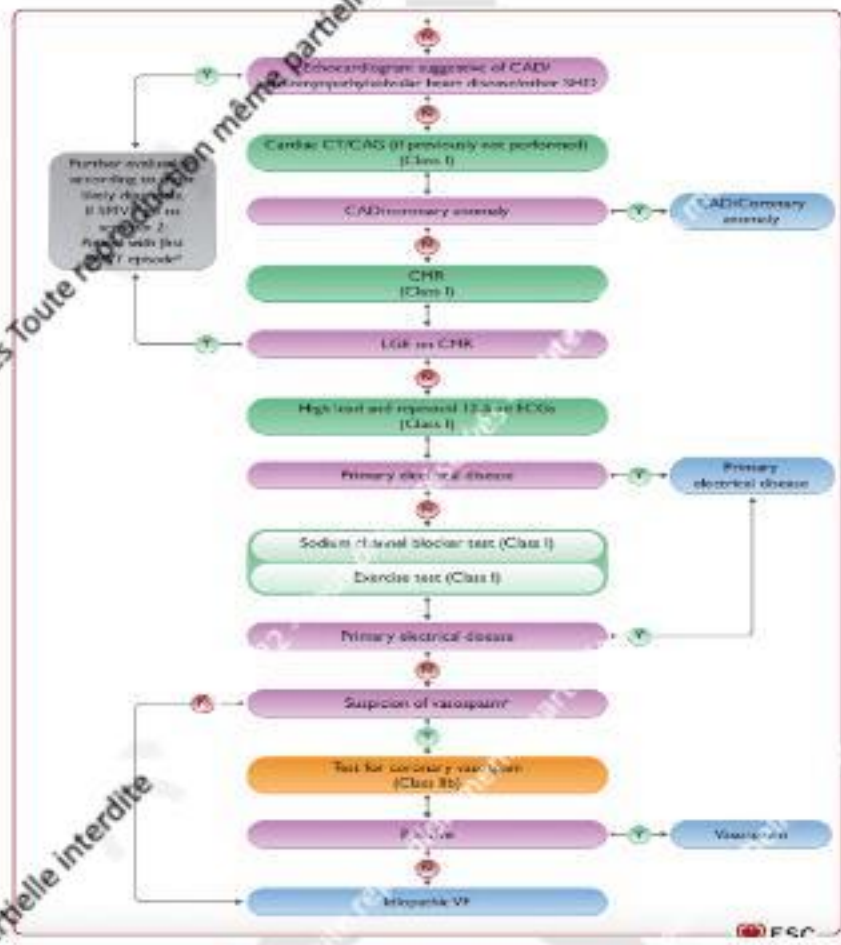
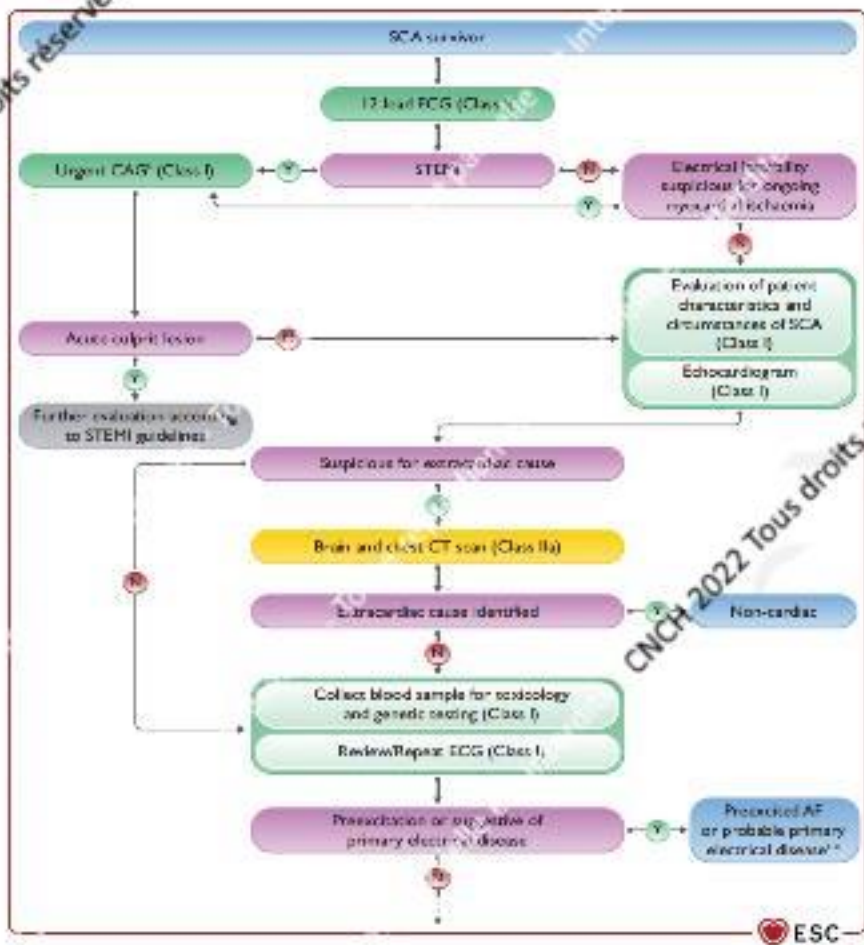
IIa



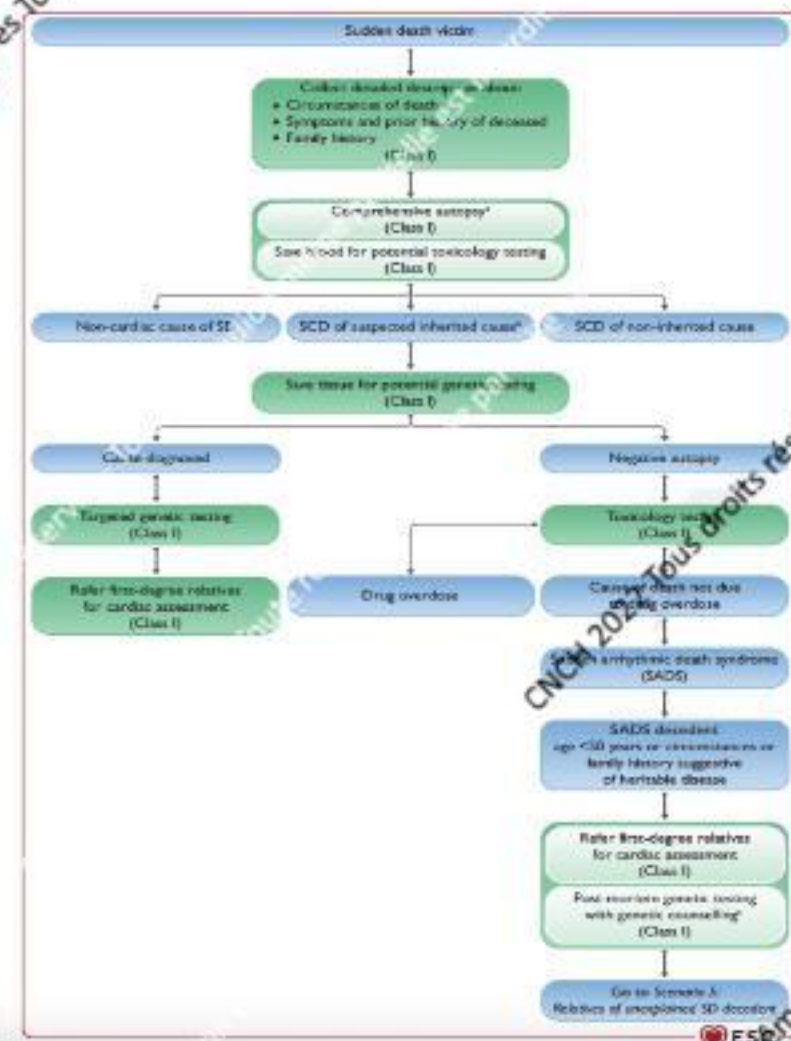
# Algorithm for SCA survivor/victim



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## Conclusion

- SCD risk stratification : Change the dogma → LVEF but not only !
- More ICD ... Unless few exceptions\*
- More ablation ... for almost all VA
- Diagnosis at any cost in case of SCA

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