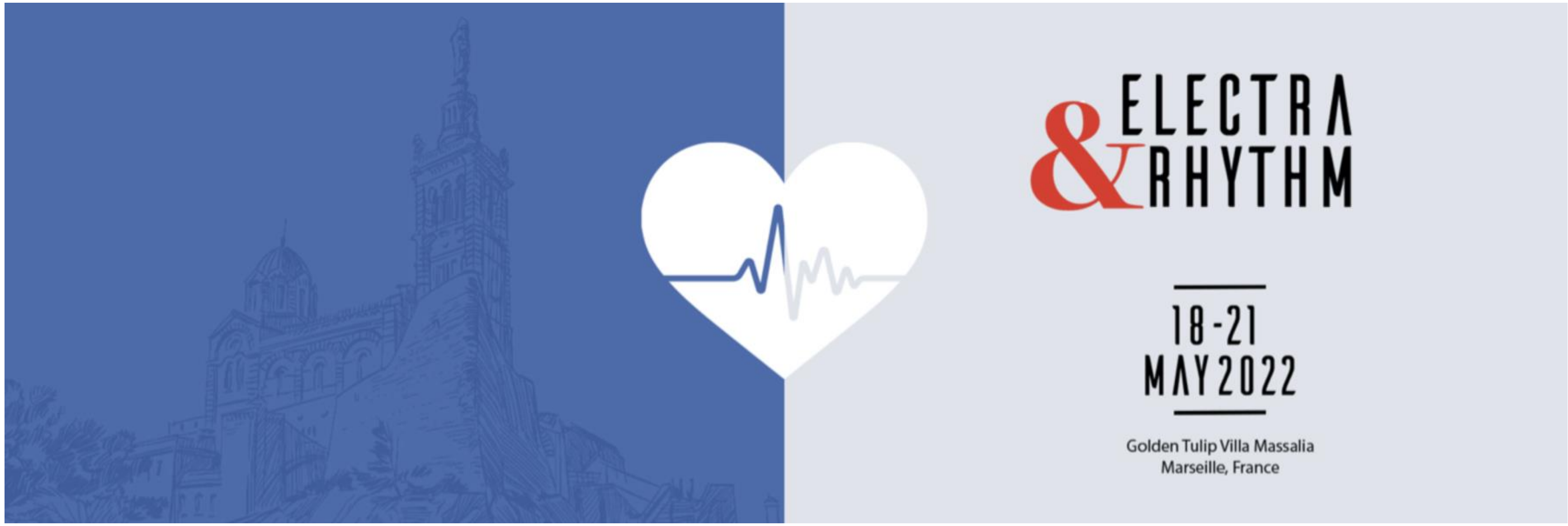
Voies accessoires asymptomatiques


ELECTRA
& RHYTHM
18-21
MAY 2022
Golden Tulip Villa Massalia
Marseille, France

Dr Jean-Philippe Labbé

Hopital Henri Mondor

Hopital St Camille

GROUPE HOSPITALIER
HENRI MONDOR
ALBERT CHENEVIER - GEORGES CLEMENCEAU
JOFFRE-DUPUYTREN - EMILE ROUX

Hôpital
Saint
Camille

Conflits d'intérêt

- Aucun

Généralités

- Préexcitation: 0.1 à 0.3 % population générale
- Risque X 4 familial
- Selon les séries jusqu'à 50 % de patients symptomatiques
- Au quotidien :certificat d'aptitude sportive/professionnelle…
- Enjeu : évaluer le risque d'arythmies potentiellement létales

FV et Kent asymptomatiques : parfois la première manifestation manifestation

- 690 patients avec VA
- 15 (2.2 %) ACR récupérés
- FV = premier symptôme chez 8 patients
- 10 avec contexte de stress/effort
- Voie septale chez 11 patients

Timmermans and Al. Am J Cardiol 1995;76:492-494

VA asymptomatique: quel risque de mort subite ?

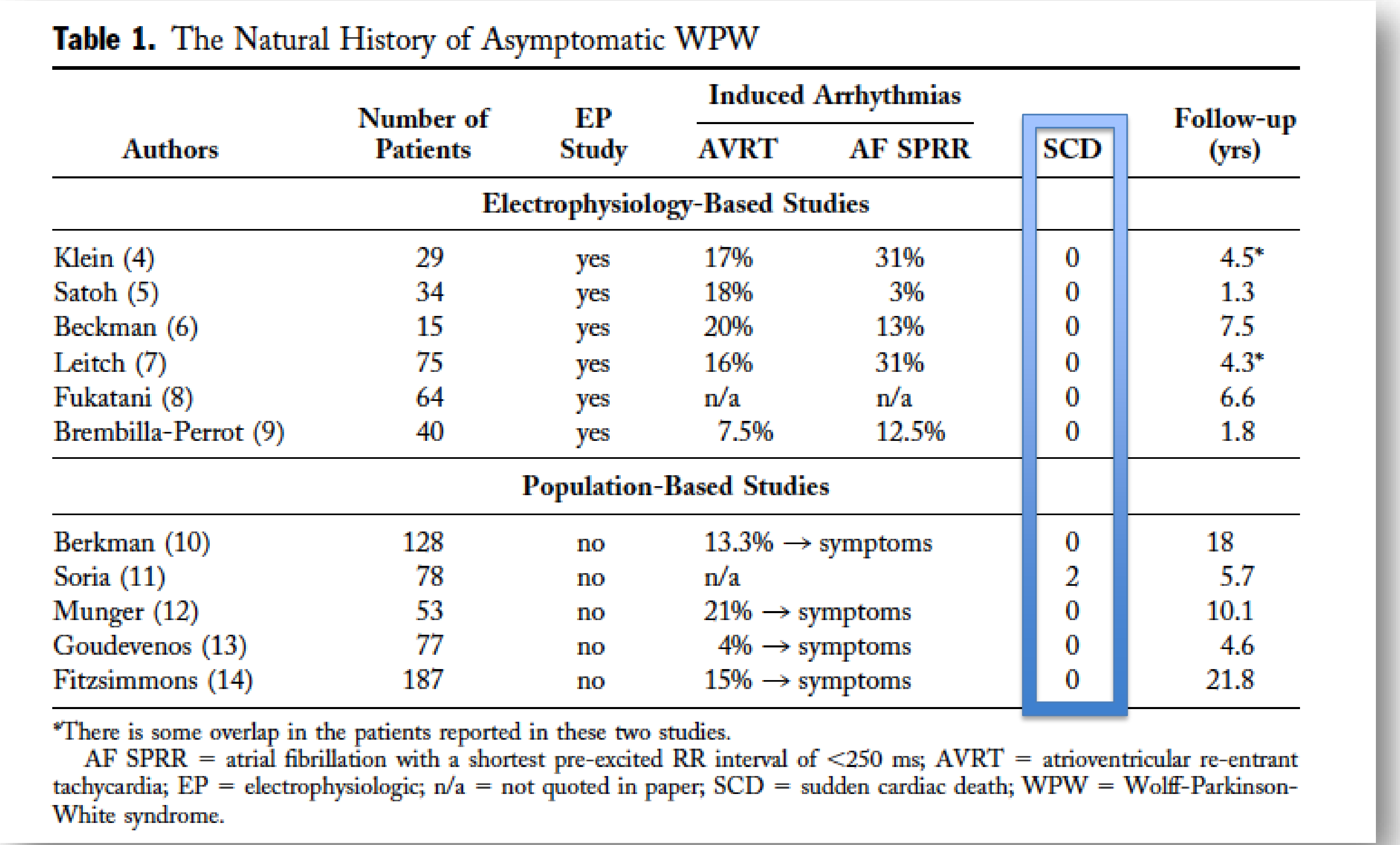


Table 1. The Natural History of Asymptomatic WPW

Authors	Number of Patients	EP Study	Induced Arrhythmias		SCD	Follow-up (yrs)
			AVRT	AF SPRR		
Electrophysiology-Based Studies						
Klein (4)	29	yes	17%	31%	0	4.5*
Satoh (5)	34	yes	18%	3%	0	1.3
Beckman (6)	15	yes	20%	13%	0	7.5
Leitch (7)	75	yes	16%	31%	0	4.3*
Fukatani (8)	64	yes	n/a	n/a	0	6.6
Brembilla-Perrot (9)	40	yes	7.5%	12.5%	0	1.8
Population-Based Studies						
Berkman (10)	128	no	13.3% → symptoms		0	18
Soria (11)	78	no	n/a		2	5.7
Munger (12)	53	no	21% → symptoms		0	10.1
Goudevenos (13)	77	no	4% → symptoms		0	4.6
Fitzsimmons (14)	187	no	15% → symptoms		0	21.8

*There is some overlap in the patients reported in these two studies.

AF SPRR = atrial fibrillation with a shortest pre-excited RR interval of <250 ms; AVRT = atrioventricular re-entrant tachycardia; EP = electrophysiologic; n/a = not quoted in paper; SCD = sudden cardiac death; WPW = Wolff-Parkinson-White syndrome.

Todd and Al., JACC 2003

VA asymptomatique: quel risque de mort subite ?

Auteurs	N patients	morts subites et/ou FV	Suivi (mois)
Santinelli & al 2009	184 (enfants)	3	57
Pappone & al 2004	27 (enfants) à haut risque	3	60
Santinelli & al 2009	293 (adultes)	1	67

Wolff-Parkinson-White Syndrome in the Era of Catheter Ablation

Insights From a Registry Study of 2169 Patients

- Suivi 8 ans,1001 suivis (550 asymptomatiques),1168 RF (206 asymptomatiques)
- 15 FV dont 13 chez des asymptomatiques ; pas de décès
- Absence de symptomes associé en univarié à la survenue d’une FV
- 2 % de complications ; BAV 0.08 %

Pappone & al , Circulation 2014

Risk of Arrhythmia and Sudden Death in Patients With Asymptomatic Preexcitation
A Meta-Analysis

- 1869 patients, âge moyen 7 à 43 ans – 11 722 patients/années
- 10 SCD/ACR récupérés ; 9 sur séries italiennes
- Risque de mort subite 1.25 / 1000 pers-an (95% CI, 0.57–2.19)
- Enfants vs adultes 1.93 [95% CI,0.57– 4.1] versus 0.86 [95% CI, 0.28 – 1.75]; P 0.07
- « Conclusion : the low incidence of SCD and low risk of supraventricular tachycardia argue against routine invasive management in most asymptomatic patients with the Wolff-Parkinson-White ECG pattern »

Manoj N. Obeyesekere and al. Circulation. 2012;125:2308-2315

Estimation comparée de la mortalité

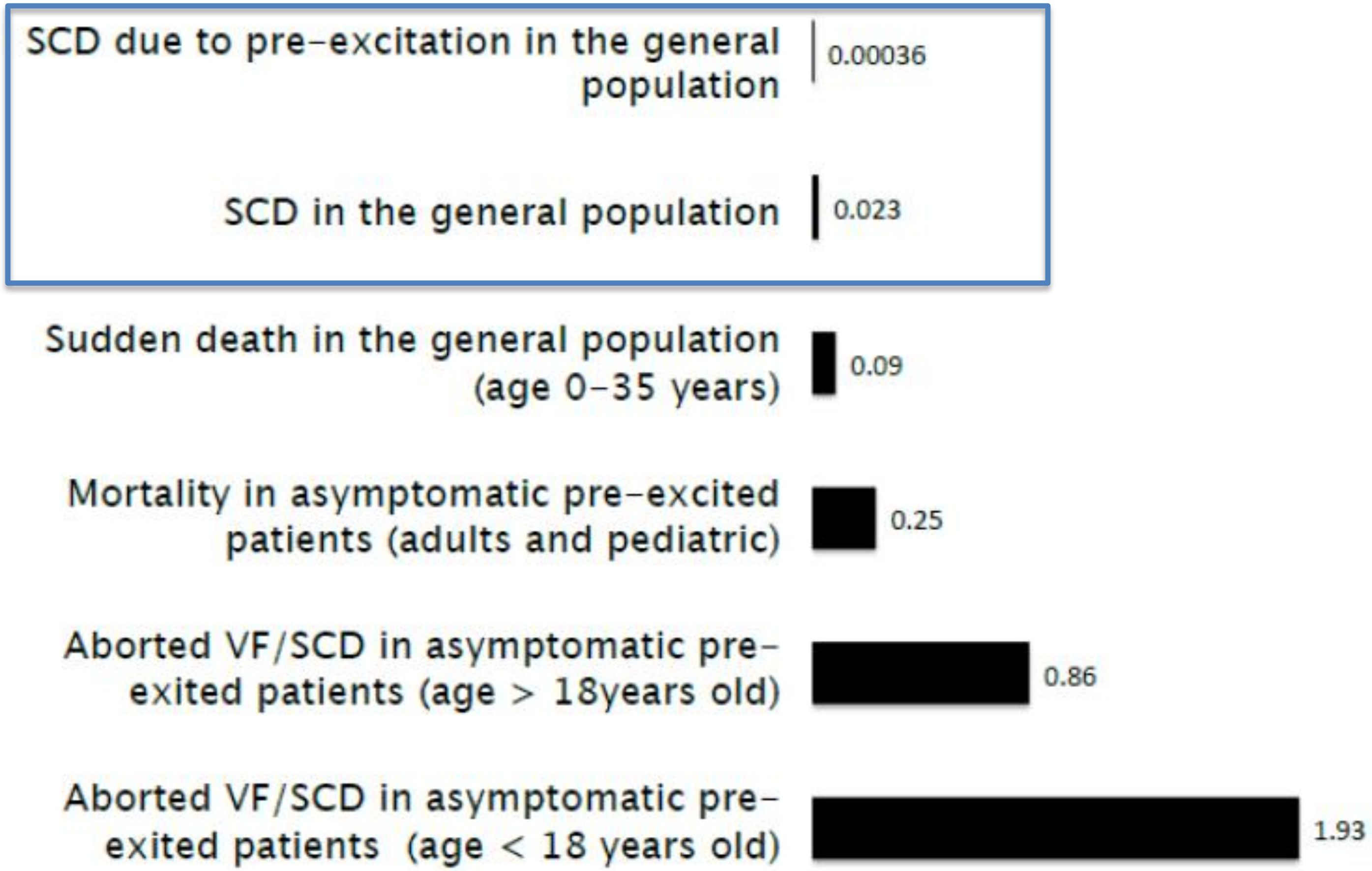


Figure 1 – Incidence per 1,000 patient years

Obeyesekere J Cardiovasc Electrophysiol.2017

Life-Threatening Event Risk in Children With Wolff-Parkinson-White Syndrome

A Multicenter International Study

- Série retrospective pédiatrique, N = 912 avec EEP
- 96 Cas ; LTE (mort subite,FA RR <250 ms ou mauvaise

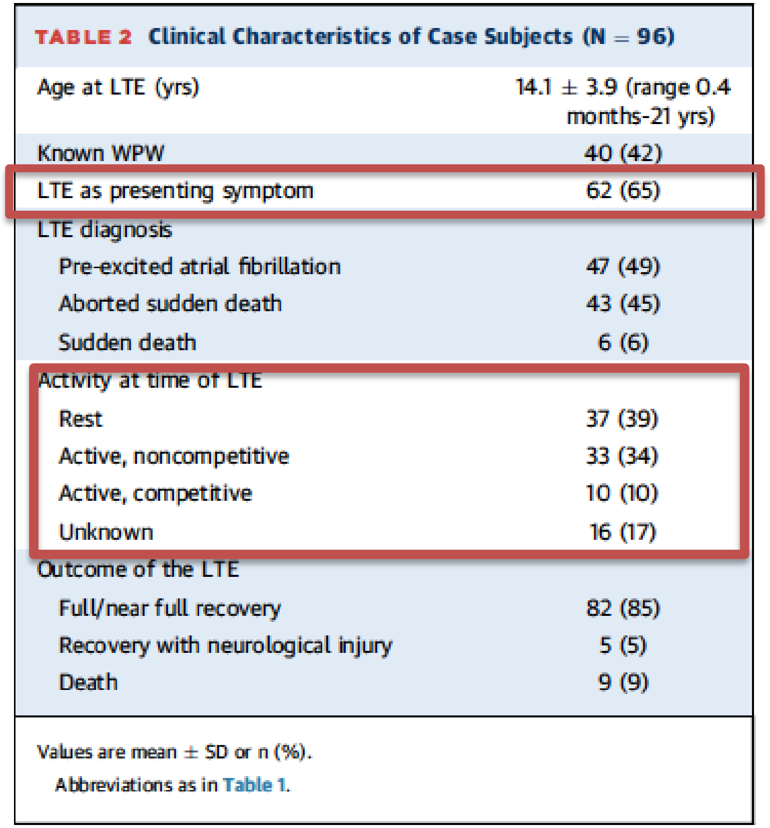


TABLE 2 **Clinical Characteristics of Case Subjects (N = 96)**

Age at LTE (yrs)	14.1 ± 3.9 (range 0.4 months-21 yrs)
Known WPW	40 (42)
LTE as presenting symptom	62 (65)
LTE diagnosis	
Pre-excited atrial fibrillation	47 (49)
Aborted sudden death	43 (45)
Sudden death	6 (6)
Activity at time of LTE	
Rest	37 (39)
Active, noncompetitive	33 (34)
Active, competitive	10 (10)
Unknown	16 (17)
Outcome of the LTE	
Full/near full recovery	82 (85)
Recovery with neurological injury	5 (5)
Death	9 (9)

Values are mean ± SD or n (%).
Abbreviations as in Table 1.

40 % des cas asymptomatiques avant LTE
39 % des LTE au repos
SPERRI > 250 ms chez 36% des LTE ; tachycardie non inductible chez 25 % des cas

Etheridge et al. JACC 2017

Quelles explorations chez un patient asymptomatique ?

Non invasives :

- ECG/Holter ECG
- ETT (Ebstein/CMH) ; dysfonction VG/asynchronisme
- Test d’effort
- « Semi invasif » : stimulation oesophagienne

Invasive:

- EEP +/- ablation

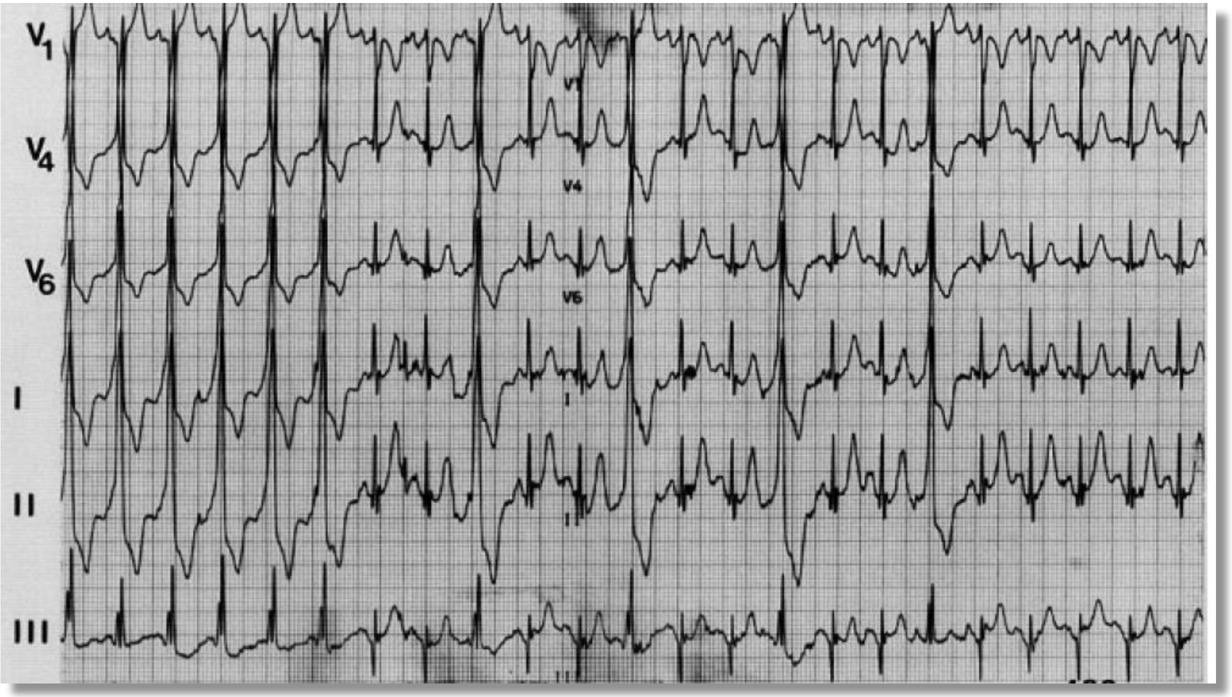
Préexcitation intermittente: quelle valeur clinique ?

- 52 patients dont 26 avec préexcitation intermittente
- PRE + longue (356 +/- 114 vs 295 +/- 29 $p < 0.05$)
- Point de kent 426 +/- 171 vs 291 +/- 63 $p < 0.02$
- 15% de RR < 250 ms en FA vs 50 % ($p < 0.01$)

Klein et al. JACC 1983

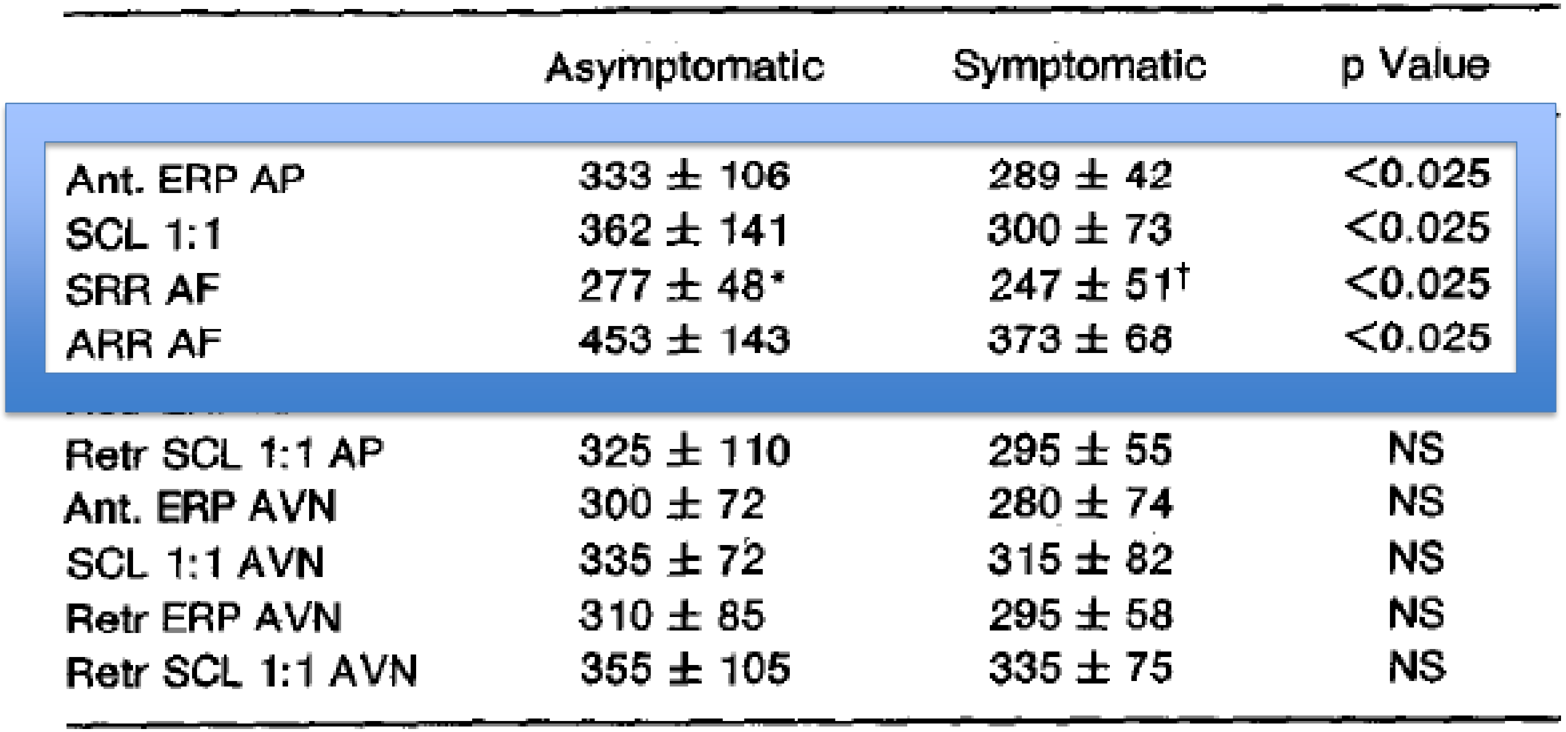
Test d’effort

- Disparition subite de la préexcitation et PR antérograde longue
- < 20 % des cas
- Spécificité 94 % ; VPP 92 % (population pédiatrique ; Wellens PACE 1997)



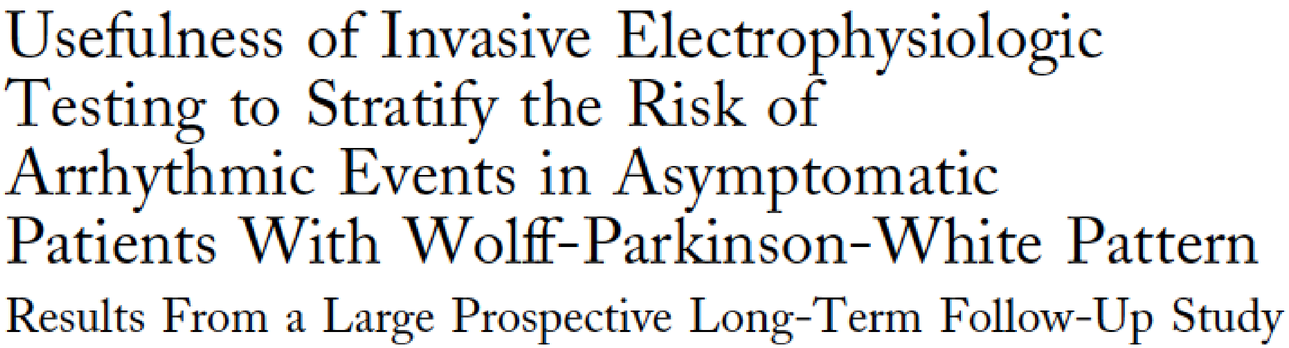
Electrophysiologic Profile of Asymptomatic Wolff-Parkinson-White Pattern

SIMON MILSTEIN, MD, ARJUN D. SHARMA, MD, and GEORGE J. KLEIN, MD



	Asymptomatic	Symptomatic	p Value
Ant. ERP AP	333 ± 106	289 ± 42	<0.025
SCL 1:1	362 ± 141	300 ± 73	<0.025
SRR AF	277 ± 48*	247 ± 51†	<0.025
ARR AF	453 ± 143	373 ± 68	<0.025
Retr SCL 1:1 AP	325 ± 110	295 ± 55	NS
Ant. ERP AVN	300 ± 72	280 ± 74	NS
SCL 1:1 AVN	335 ± 72	315 ± 82	NS
Retr ERP AVN	310 ± 85	295 ± 58	NS
Retr SCL 1:1 AVN	355 ± 105	335 ± 75	NS

Am J Cardiol 1986

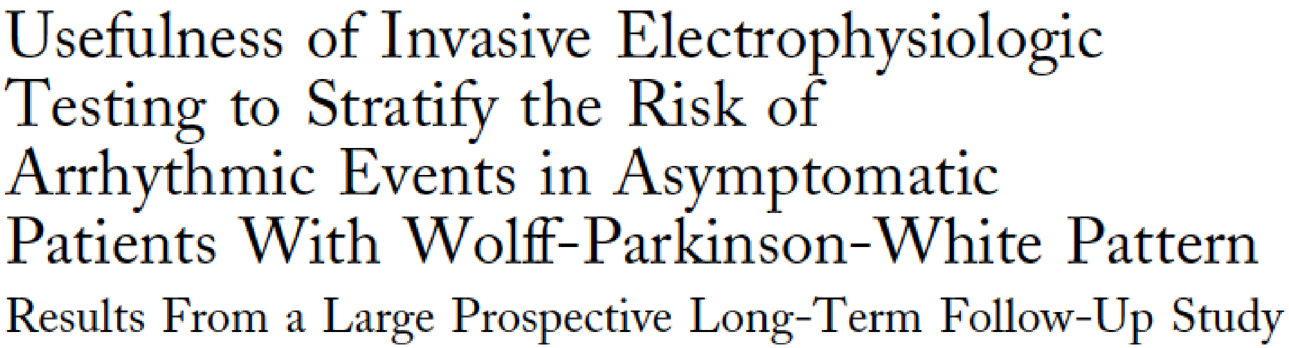


Usefulness of Invasive Electrophysiologic Testing to Stratify the Risk of Arrhythmic Events in Asymptomatic Patients With Wolff-Parkinson-White Pattern

Results From a Large Prospective Long-Term Follow-Up Study

- N = 212 ; suivi de 5 ans, 7 à 63 ans
- VA de découverte fortuite
- EEP à l’inclusion puis à 5 ans ou si symptômes

Pappone and Al. JACC Vol. 41, No. 2, 2003

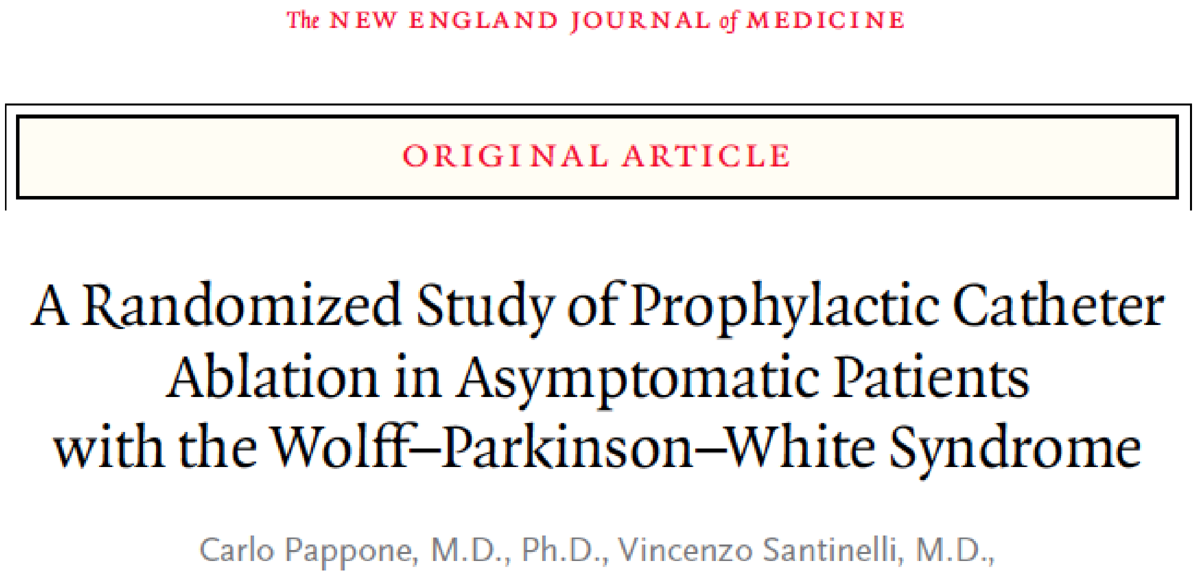


Usefulness of Invasive Electrophysiologic Testing to Stratify the Risk of Arrhythmic Events in Asymptomatic Patients With Wolff-Parkinson-White Pattern

Results From a Large Prospective Long-Term Follow-Up Study

- 20 % deviennent symptomatiques
- 88 % des symptomatiques inductibles (AVRT)
- 1 décès sur FV , 2 FV récupérés.
- VPP 87.9 % , VPN 86 % pour arythmies ultérieure

Pappone and Al. JACC Vol. 41, No. 2, 2003



The NEW ENGLAND JOURNAL of MEDICINE

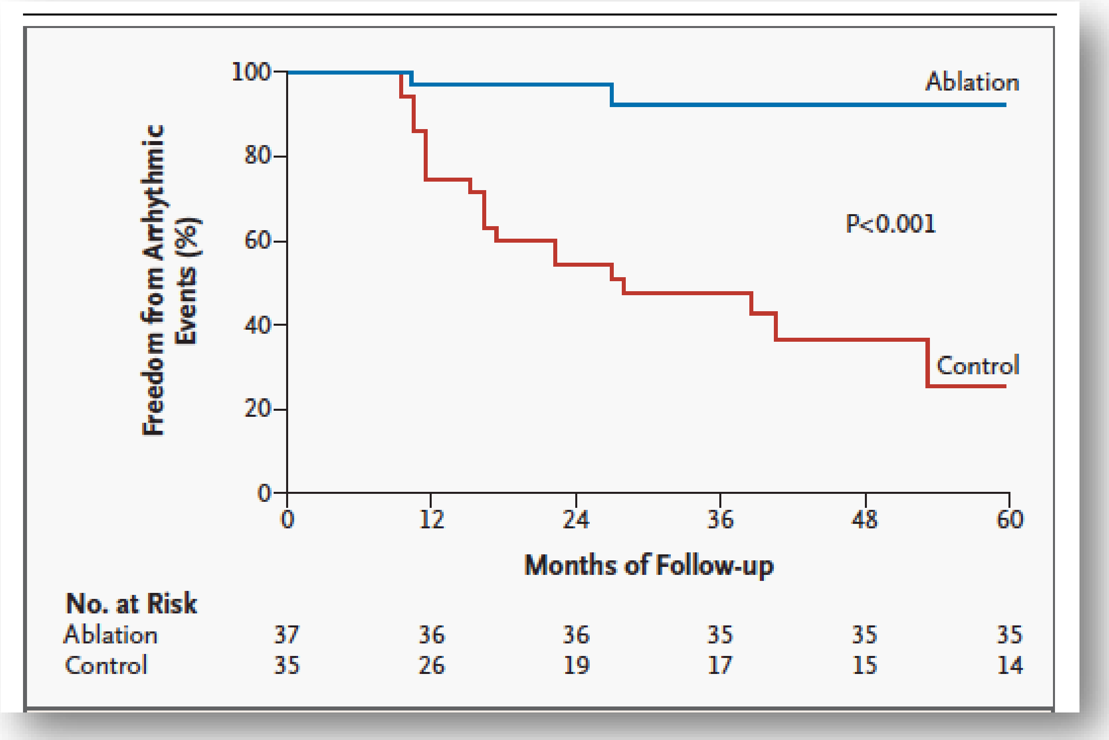
ORIGINAL ARTICLE

A Randomized Study of Prophylactic Catheter Ablation in Asymptomatic Patients with the Wolff–Parkinson–White Syndrome

Carlo Pappone, M.D., Ph.D., Vincenzo Santinelli, M.D.,

- 224 patients dont 76 à haut risque, < 35 ans
- Haut risque : arythmie déclenchable et reproductible
- 37 ablations,35 suivis
- Endpoint: survenue d’arythmies symptomatiques

Pappone and Al. N Engl J Med 2003



No. at Risk

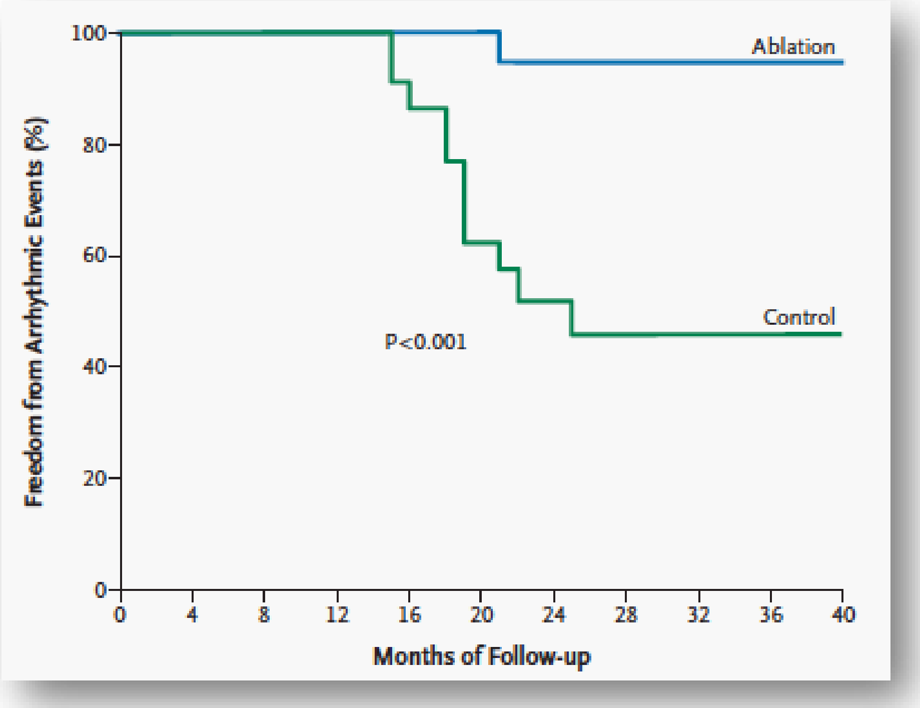
	0	12	24	36	48	60
Ablation	37	36	36	35	35	35
Control	35	26	19	17	15	14

- 1 FV dans le groupe contrôle
- Réduction du risque d’arythmie de 92 %

Pappone and Al. N Engl J Med 2003

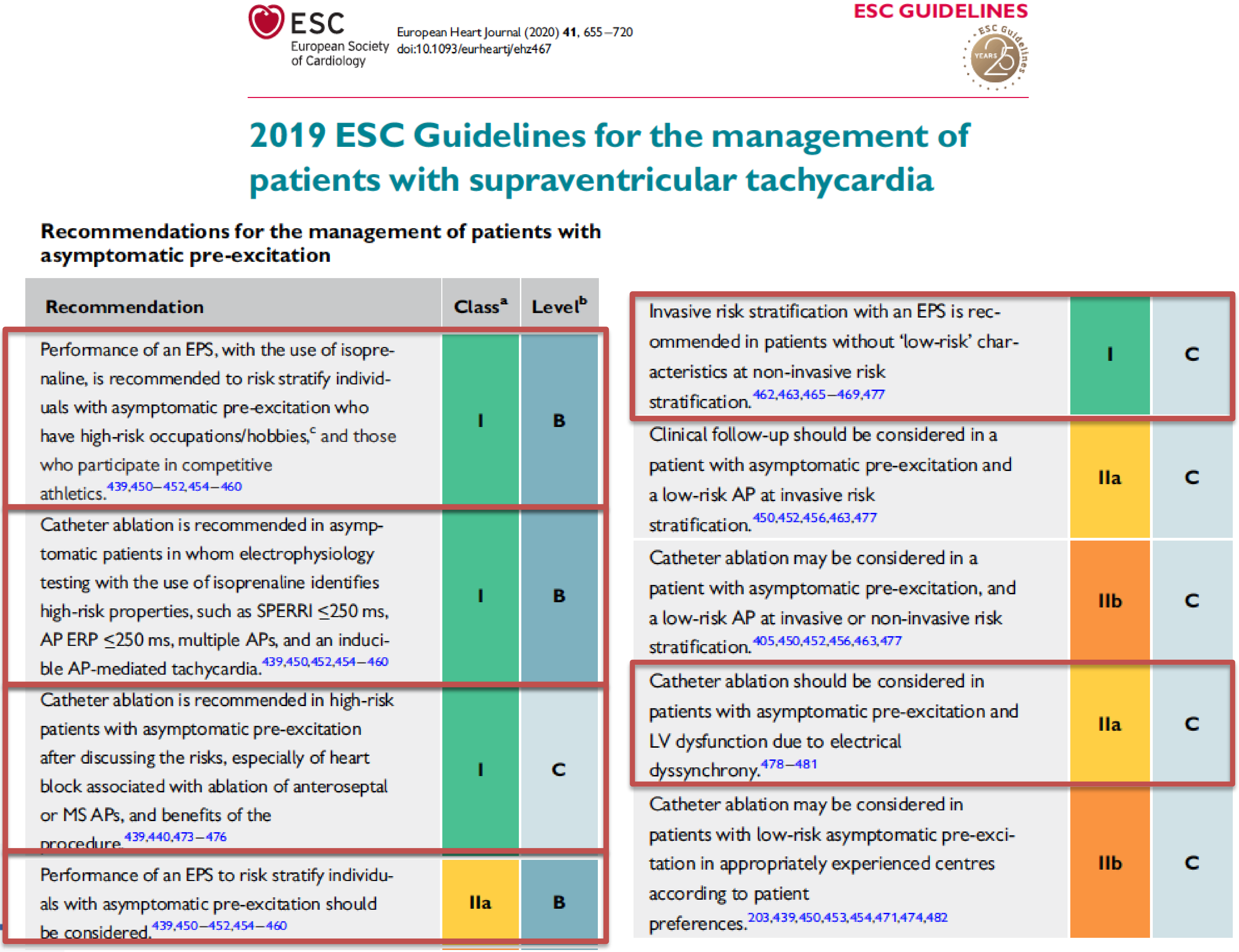
Radiofrequency Ablation in Children with Asymptomatic Wolff–Parkinson–White Syndrome

Carlo Pappone, M.D., Ph.D., Francesco Manguso, M.D., Ph.D.,



- 5-12 ans, asymptomatiques
- 60 à « haut risque »
- 20 ablations,27 suivis
- 44 % d’arythmie (control) dont 2 FV , 1 mort subite

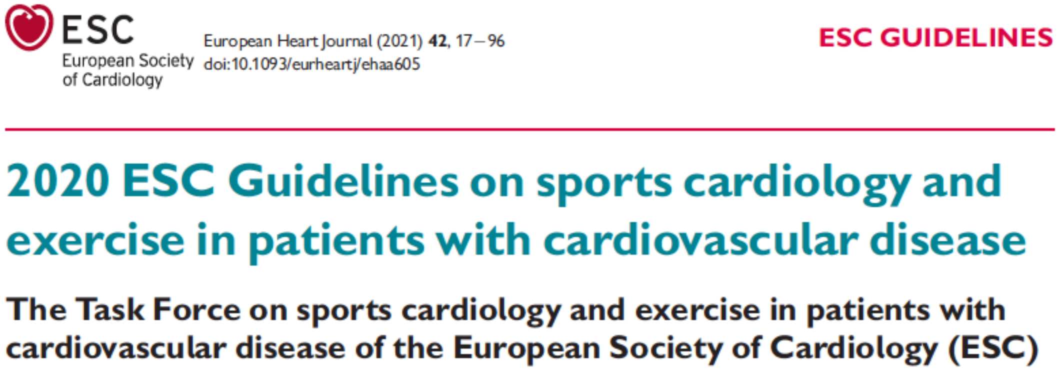
N Engl J Med 2004

ESC
European Society of Cardiology
European Heart Journal (2020) 41, 655–720
doi:10.1093/eurheartj/ehz467
ESC GUIDELINES

2019 ESC Guidelines for the management of patients with supraventricular tachycardia

Recommendations for the management of patients with asymptomatic pre-excitation

Recommendation	Class[a]	Level[b]
Performance of an EPS, with the use of isoprenaline, is recommended to risk stratify individuals with asymptomatic pre-excitation who have high-risk occupations/hobbies,[c] and those who participate in competitive athletics.[439,450–452,454–460]	I	B
Catheter ablation is recommended in asymptomatic patients in whom electrophysiology testing with the use of isoprenaline identifies high-risk properties, such as SPERRI ≤250 ms, AP ERP ≤250 ms, multiple APs, and an inducible AP-mediated tachycardia.[439,450,452,454–460]	I	B
Catheter ablation is recommended in high-risk patients with asymptomatic pre-excitation after discussing the risks, especially of heart block associated with ablation of anteroseptal or MS APs, and benefits of the procedure.[439,440,473–476]	I	C
Performance of an EPS to risk stratify individuals with asymptomatic pre-excitation should be considered.[439,450–452,454–460]	IIa	B
Invasive risk stratification with an EPS is recommended in patients without 'low-risk' characteristics at non-invasive risk stratification.[462,463,465–469,477]	I	C
Clinical follow-up should be considered in a patient with asymptomatic pre-excitation and a low-risk AP at invasive risk stratification.[450,452,456,463,477]	IIa	C
Catheter ablation may be considered in a patient with asymptomatic pre-excitation, and a low-risk AP at invasive or non-invasive risk stratification.[405,450,452,456,463,477]	IIb	C
Catheter ablation should be considered in patients with asymptomatic pre-excitation and LV dysfunction due to electrical dyssynchrony.[478–481]	IIa	C
Catheter ablation may be considered in patients with low-risk asymptomatic pre-excitation in appropriately experienced centres according to patient preferences.[203,439,450,453,454,471,474,482]	IIb	C



ESC
European Society
of Cardiology

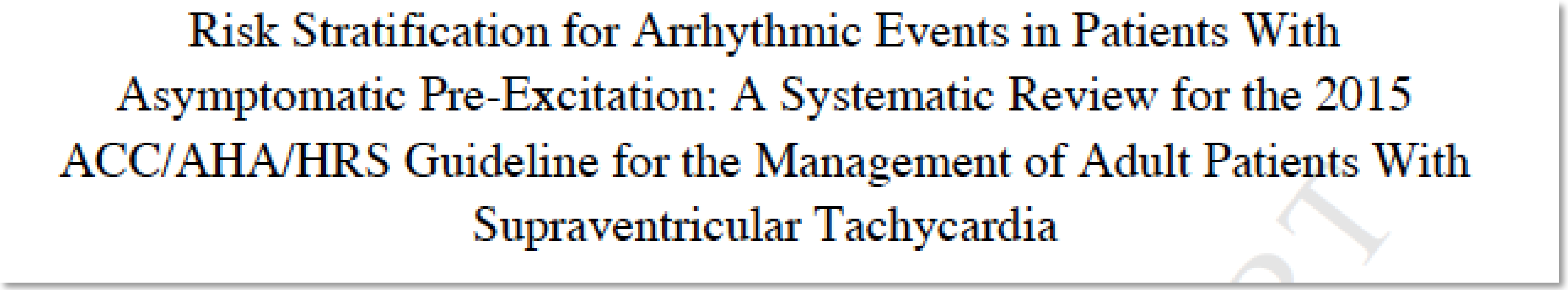
European Heart Journal (2021) **42**, 17–96
doi:10.1093/eurheartj/ehaa605

ESC GUIDELINES

2020 ESC Guidelines on sports cardiology and exercise in patients with cardiovascular disease

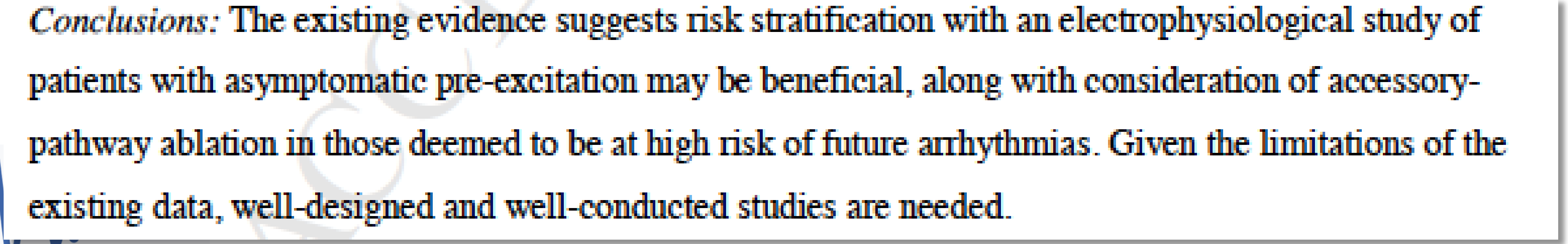
The Task Force on sports cardiology and exercise in patients with cardiovascular disease of the European Society of Cardiology (ESC)

- EEP recommandée en cas de sport de compétition
- Si refus d’ablation ou localisation à risque : discuter ttt med (non évalué) ; CI si sport à risque (escalade…)
- Sport de loisir : explo non invasive possible
- Enfants: risque de FV faible avant 12 ans,approche « conservative » (mais 1 étude en faveur de l’EEP)
- Reprise d’activité sportive 1 semaine après ablation ; compétition à 1-3 mois si RAS

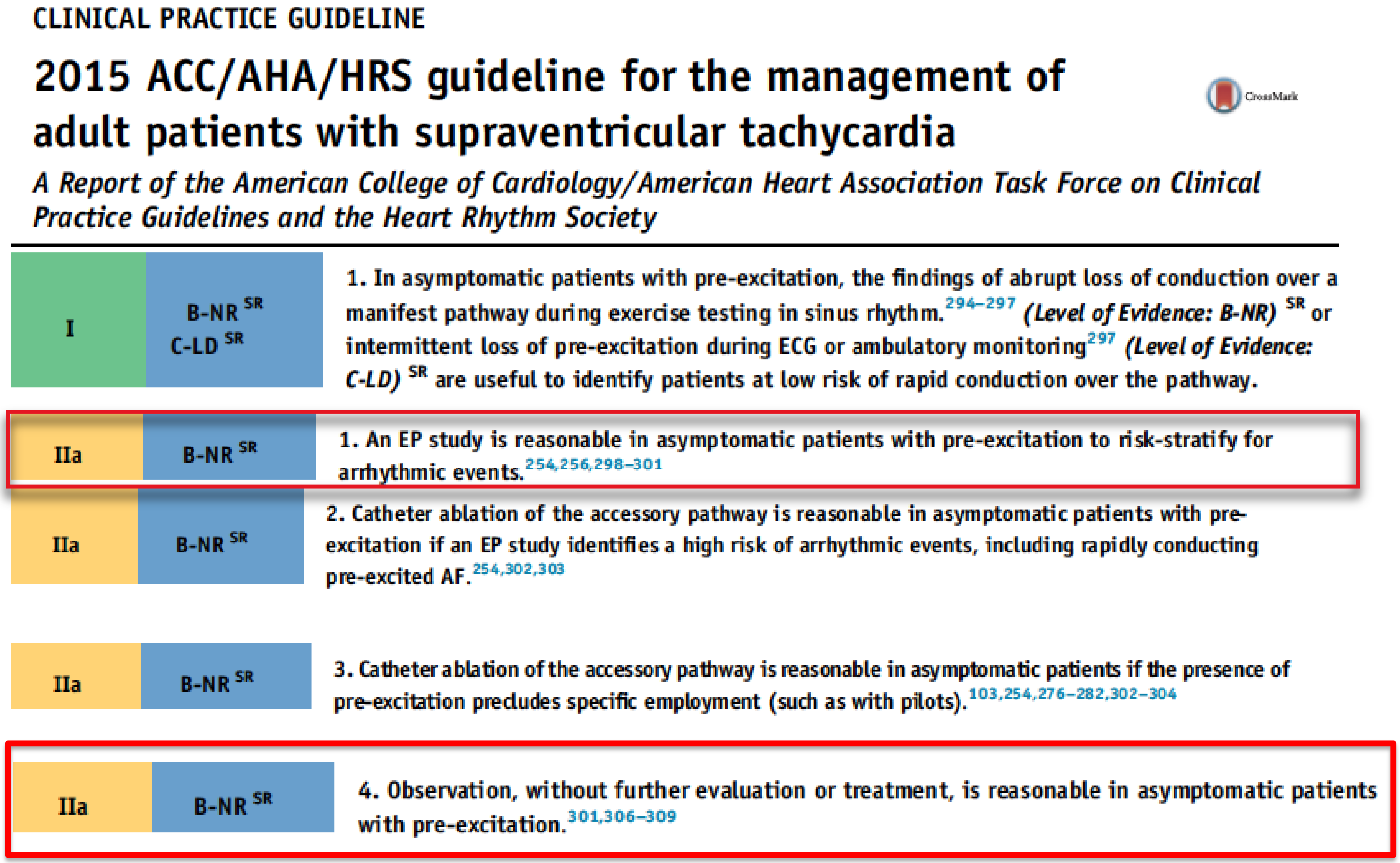


Risk Stratification for Arrhythmic Events in Patients With Asymptomatic Pre-Excitation: A Systematic Review for the 2015 ACC/AHA/HRS Guideline for the Management of Adult Patients With Supraventricular Tachycardia

- 9 études retenues ; 1 RCT , 8 cohortes propectives
- RCT : 7 % d’arythmies (ablation) vs 77 (RRR 0.008; 95% IC 0.002 – 0.003; p < 0.001)
- Cohortes : 883 patients sans ablation, FA ou TSV bénignes 0 à 16 %. FA malignes 0 à 9 % ; FV 0 à 2 %



Conclusions: The existing evidence suggests risk stratification with an electrophysiological study of patients with asymptomatic pre-excitation may be beneficial, along with consideration of accessory-pathway ablation in those deemed to be at high risk of future arrhythmias. Given the limitations of the existing data, well-designed and well-conducted studies are needed.



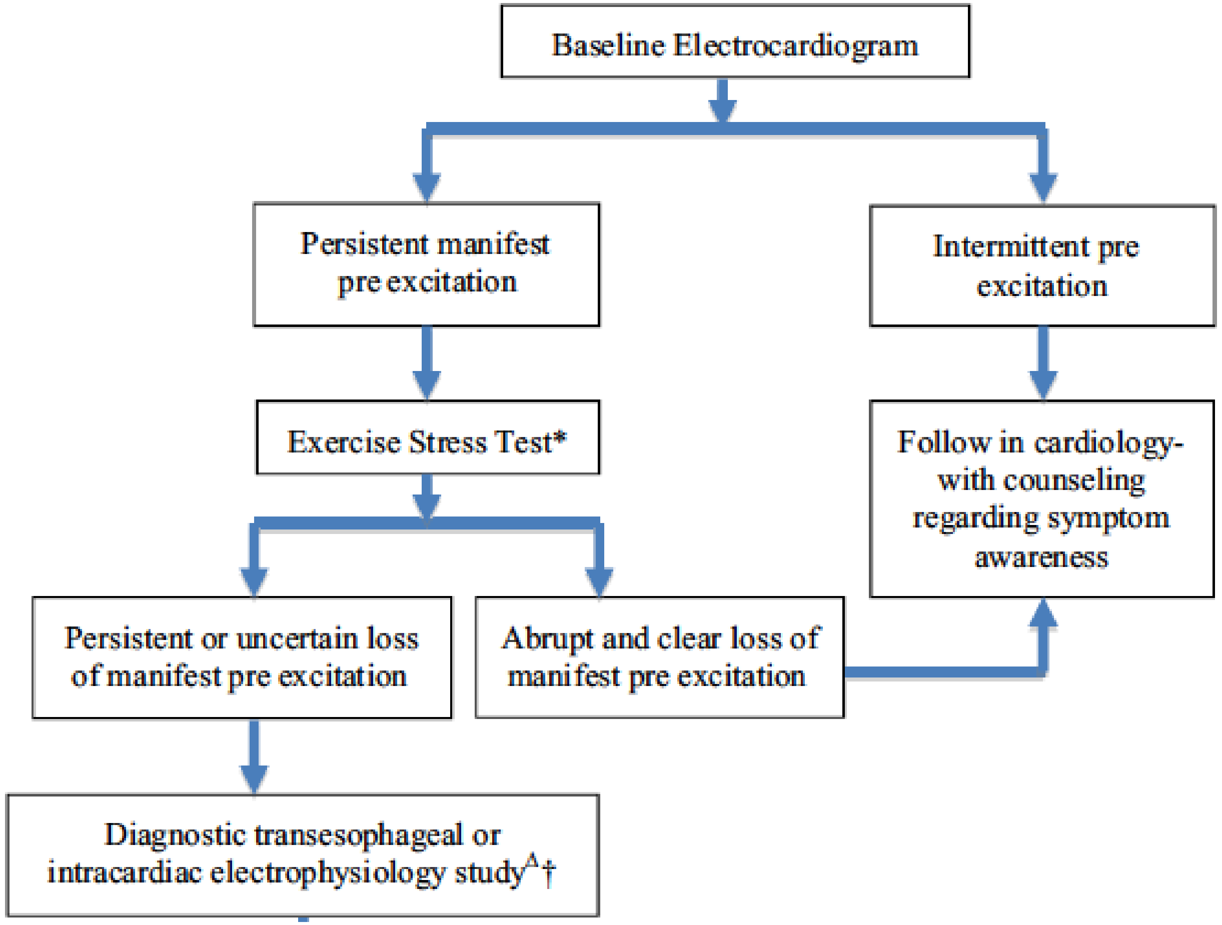
CLINICAL PRACTICE GUIDELINE

2015 ACC/AHA/HRS guideline for the management of adult patients with supraventricular tachycardia

A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society

I	B-NR ^{SR} C-LD ^{SR}	1. In asymptomatic patients with pre-excitation, the findings of abrupt loss of conduction over a manifest pathway during exercise testing in sinus rhythm.[294–297] *(Level of Evidence: B-NR)* ^{SR} or intermittent loss of pre-excitation during ECG or ambulatory monitoring[297] *(Level of Evidence: C-LD)* ^{SR} are useful to identify patients at low risk of rapid conduction over the pathway.
IIa	B-NR ^{SR}	1. An EP study is reasonable in asymptomatic patients with pre-excitation to risk-stratify for arrhythmic events.[254,256,298–301]
IIa	B-NR ^{SR}	2. Catheter ablation of the accessory pathway is reasonable in asymptomatic patients with pre-excitation if an EP study identifies a high risk of arrhythmic events, including rapidly conducting pre-excited AF.[254,302,303]
IIa	B-NR ^{SR}	3. Catheter ablation of the accessory pathway is reasonable in asymptomatic patients if the presence of pre-excitation precludes specific employment (such as with pilots).[103,254,276–282,302–304]
IIa	B-NR ^{SR}	4. Observation, without further evaluation or treatment, is reasonable in asymptomatic patients with pre-excitation.[301,306–309]

PACES/HRS Expert Consensus Statement on the Management of the Asymptomatic Young Patient with a Wolff-Parkinson-White (WPW, Ventricular Preexcitation) Electrocardiographic Pattern



Baseline Electrocardiogram

Persistent manifest pre excitation

Intermittent pre excitation

Exercise Stress Test*

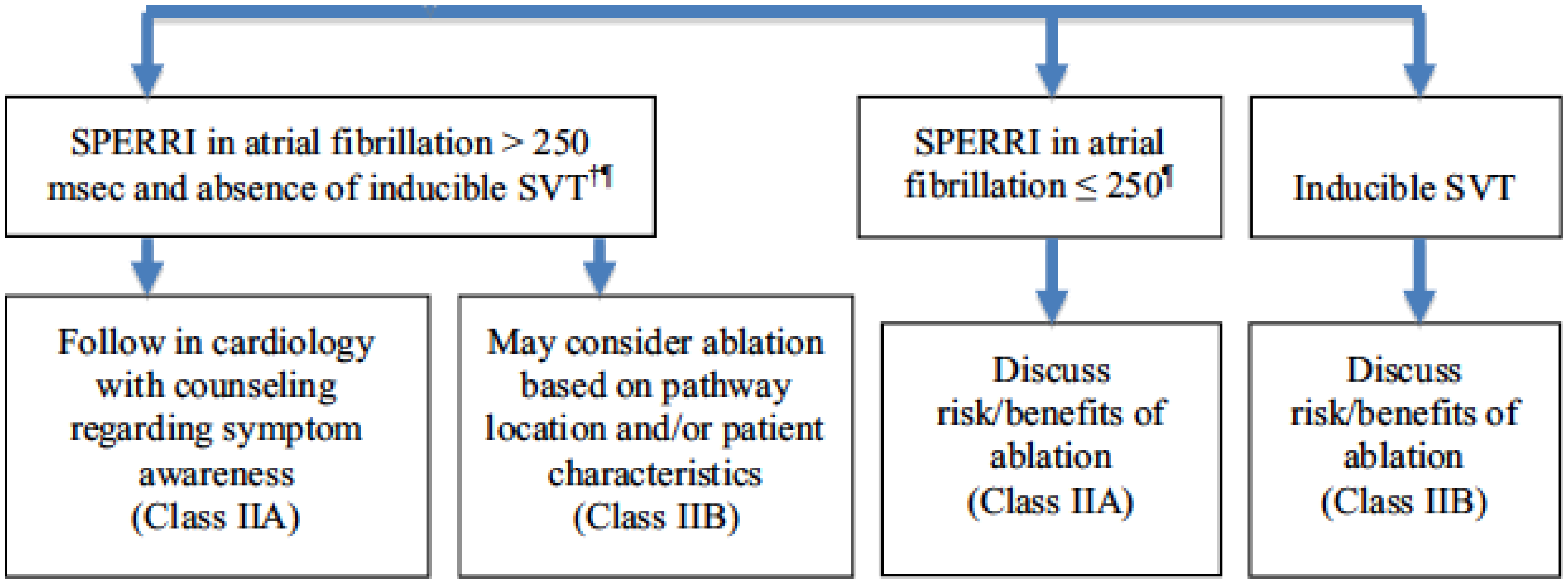
Follow in cardiology- with counseling regarding symptom awareness

Persistent or uncertain loss of manifest pre excitation

Abrupt and clear loss of manifest pre excitation

Diagnostic transesophageal or intracardiac electrophysiology study[A]†

PACES/HRS Expert Consensus Statement on the Management of the Asymptomatic Young Patient with a Wolff-Parkinson-White (WPW, Ventricular Preexcitation) Electrocardiographic Pattern



SPERRI in atrial fibrillation > 250 msec and absence of inducible SVT[†¶]

Follow in cardiology with counseling regarding symptom awareness (Class IIA)

May consider ablation based on pathway location and/or patient characteristics (Class IIB)

SPERRI in atrial fibrillation ≤ 250[¶]

Discuss risk/benefits of ablation (Class IIA)

Inducible SVT

Discuss risk/benefits of ablation (Class IIB)

Synthèse

- Un risque rythmique faible mais à stratifier
- Suivi clinique nécessaire
- Explorations non invasives : permettent d’identifier certains patients à faible risque rythmique
- EEP restant très majoritairement indiquée
- Balance bénéfice/risque : taux réel de complication à l’ère de la cartographie 3D/ponction sous echo ?

« truth is rarely pure and never simple (Oscar Wilde, The Importance of Being Ernest) »