CẤY MÁY TẠO NHỊP TIM VĨNH VIỄN CHO BỆNH NHÂN NGẤT PHẢN XẠ

Bs. Trần Xuân Tiến

Bs. Nguyễn Trung Hiếu

Khoa Nội Tim mạch – BV ĐK Long An

CA LÂM SÀNG

- Họ và tên: ĐINH VĂN PHÙNG T Tuổi: 20
- Lý do vào viện: Ngất
- Bệnh sử: Cách nhập viện khoảng 1 giờ bệnh nhân mất ý thức hoàn toàn khi đang đứng để trả bài đầu giờ học. Bệnh nhân tỉnh lại hoàn toàn ngay sau đó. Trước cơn mất ý thức không có tiền triệu. Sau đó sau đó được đưa vào bệnh viện đa khoa Long An với tình trạng nhịp chậm tần số khoảng 46 lần/phút (được đo ECG ở phòng khám tư).
- Tiền sử:
  - Tiền sử bản thân: Chưa ghi nhận ngất tương tự, không bệnh động kinh.
  - Tiền sử gia đình: Chưa ghi nhận tiền sử cha mẹ ngất hay đột tử.

CA LÂM SÀNG

- Tình trạng nhập viện:
- Mạch 62 lần/ phút Huyết áp: 110/60 mmHg
- Nhiệt độ: **37°**C Nhịp thở: 20 lần/phút
- Diễn tiến lâm sàng: Bệnh nhân tỉnh, không ghi nhận tổn thương thần kinh hay thực thể.
- Cận lâm sàng:
  - Công thức máu, sinh hoá máu, chức năng tuyến giáp,
  - ECG, holter ECG, Siêu âm tim

thì tất cả đều chưa ghi nhận những bất thường liên quan.

Kết quả Tilt table test

Nằm nghỉ	Mạch 75 lần/phút	Huyết áp 110/70 mmHg
Dựng bàn	Mạch 75 lần/phút	Huyết áp 110/70 mmHg

Thời điểm	Mạch (lần/phút)	Huyết áp (mmHg)	Triệu chứng
Xoa xoang cảnh	82	100/60	
5 phút	88	100/60	
10 phút	86	100/60	
12 phút	84 => 39	Khó đo	Cảm giác chóng mặt, buồn nôn, nôn ói sau đó ngất
Hạ bàn	92	90/60	Tỉnh, trả lời đúng y lệnh

NGHIỆM PHÁP BÀN NGHIÊNG (+) TYPE 2A

Kết quả Tilt table test

- ECG: ngưng xoang 10 giây

Điều trị

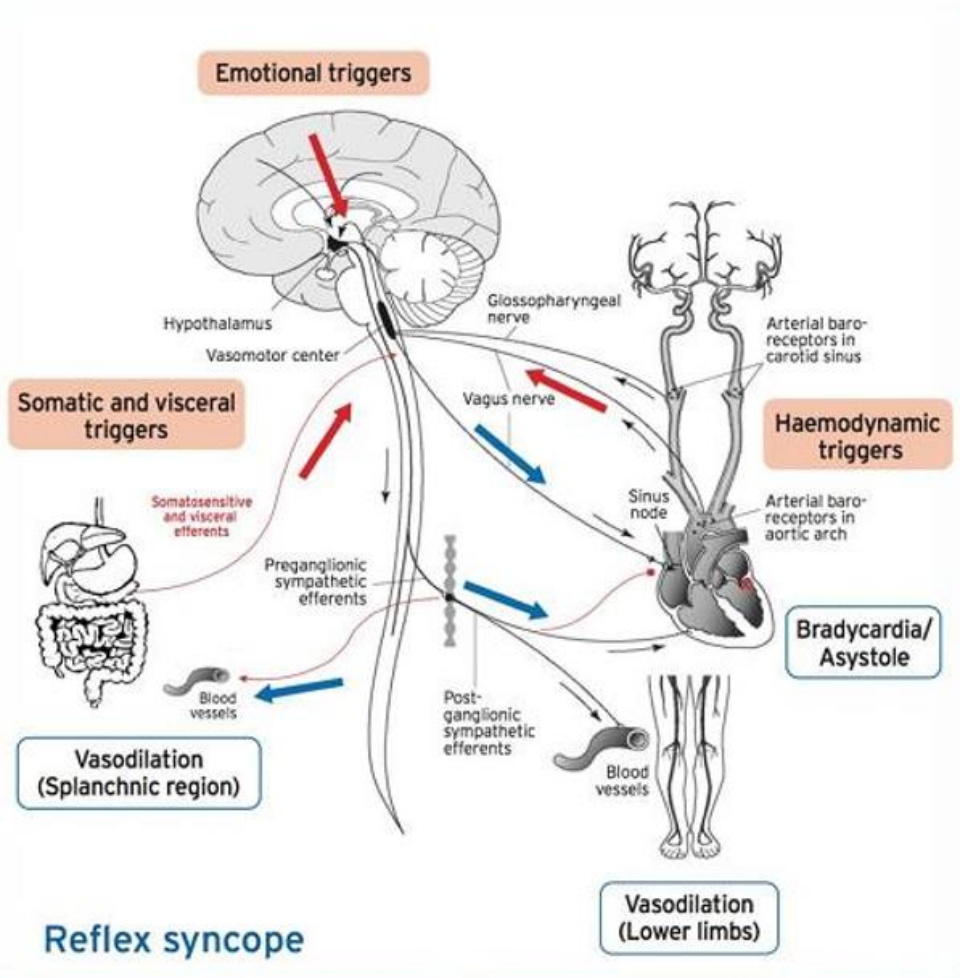
- Bệnh nhân được hướng dẫn:
- ✓ *CHẾ ĐỘ ĂN UỐNG, CHẾ ĐỘ SINH HOẠT*
- ✓ *CHẾ ĐỘ TẬP LUYỆN KIỂM SOÁT ÁP LỰC CƠ THỂ*
- *Kết quả:*
- ✓ Sau 7 ngày điều trị, bệnh nhân ổn định, điều trị ngoại trú.
- ✓ Hiện tại bệnh nhân tái khám 2 lần và lâm sàng chưa ghi nhận ngất tái phát trong vòng 1 năm

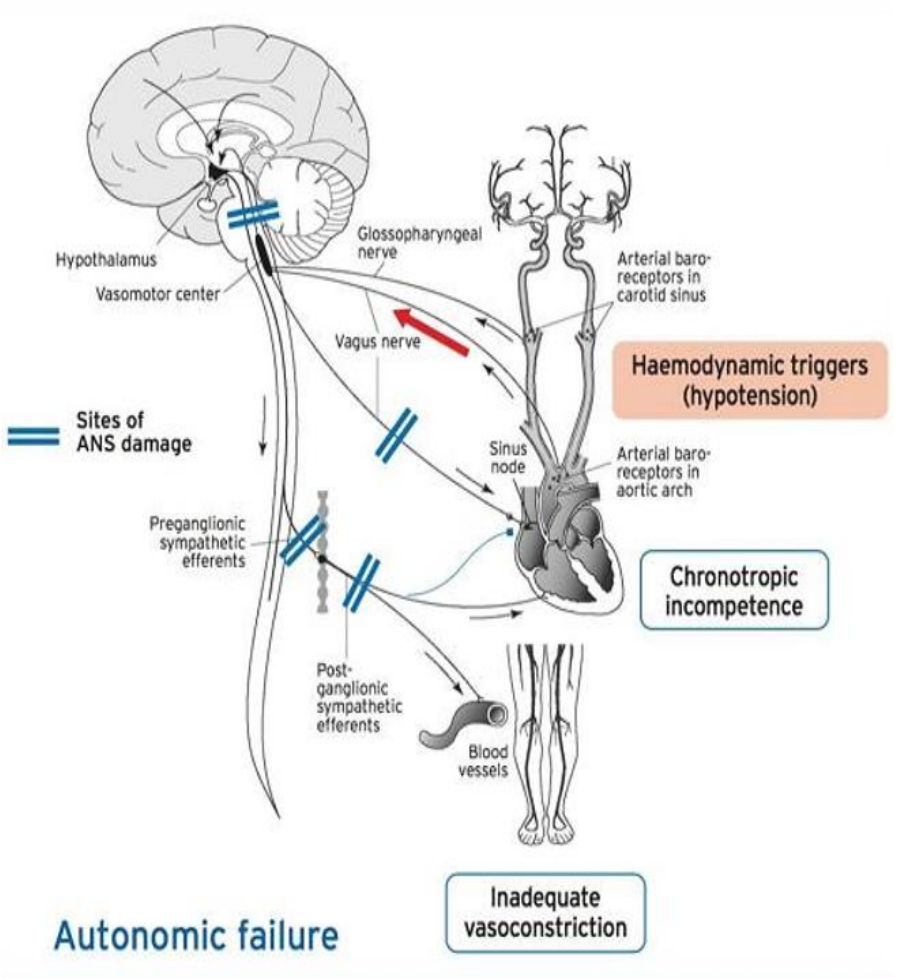
NGẤT

The term "syncope" (derived from synkope, the Greek word that means "cutting short") is now used for describing the symptom of loss of consciousness resulting from insufficient blood flow to the brain (02).

Neuroanatomical connections between the brain and heart have been known since the time of Galen of Pergamon (129 AD-c. 200) (91). Persian physician Ibn Sīnā (ca. 980-1037), known in the West as Avicenna, was the first to note carotid sinus hypersensitivity, which presents with vasovagal syncope following compression of the carotid artery (117).

Cơ chế ngất phản xạ



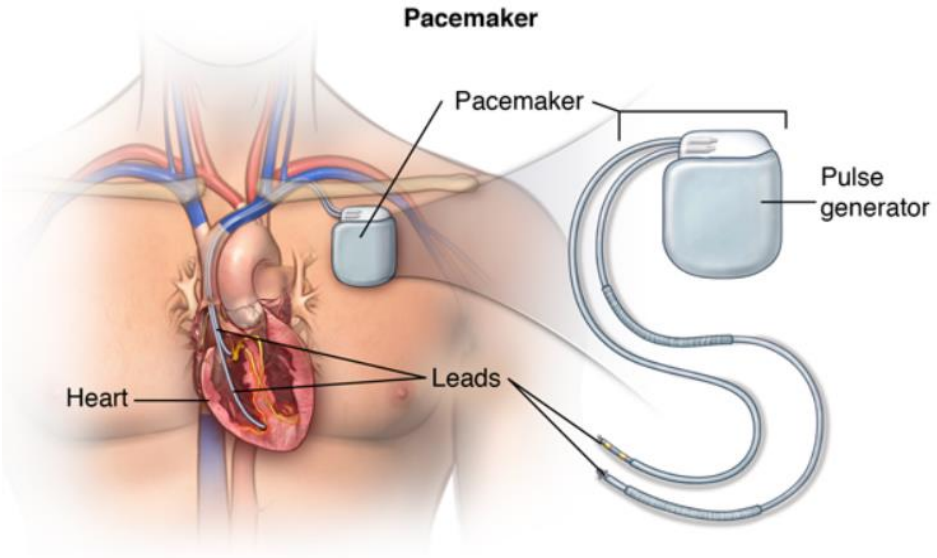


2018 ESC Guidelines on Syncope – Michele Brignole & Angel Moya
European Heart Journal 2018;39:1883–1948 - Doi:10.1093/eurheartj/ehy037

ĐIỀU TRỊ NGĂN NGỪA NGẤT TÁI PHÁT

- Điều trị thuốc

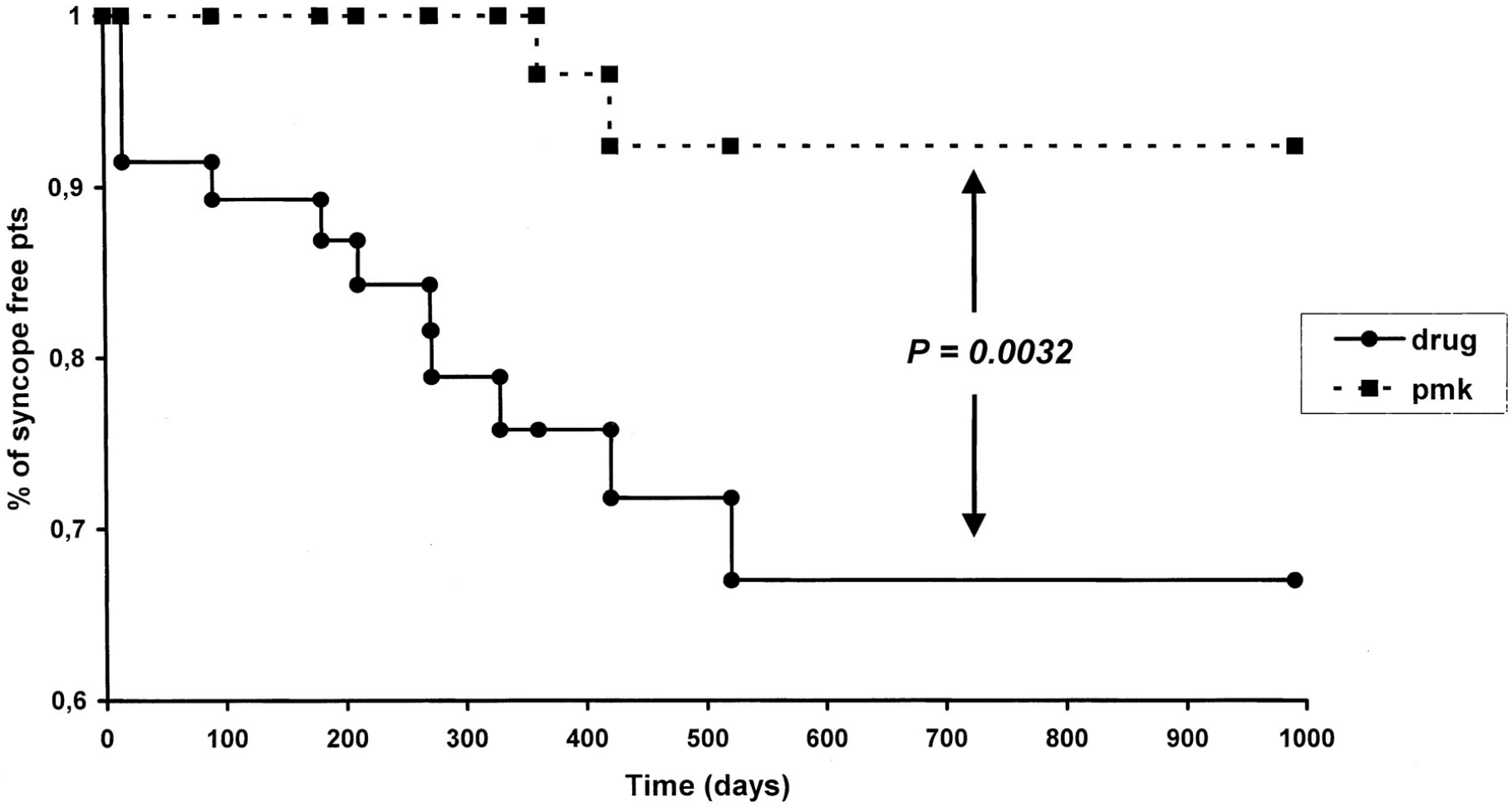
- Cấy máy tạo nhịp tim vĩnh viễn



ĐIỀU TRỊ NGĂN NGỪA NGẤT TÁI PHÁT

Nghiên cứu SYDIT

(Permanent Cardiac Pacing Versus Medical Treatment for the Prevention of Recurrent Vasovagal Syncope A Multicenter, Randomized, Controlled Trial)



Fabrizio Ammirati, MD; Furio Colivicchi, MD; Massimo Santini, MD , "Permanent Cardiac Pacing Versus Medical Treatment for the Prevention of Recurrent Vasovagal Syncope" , Circulation. 2001;104:52-57

Table 1: Summary of Studies Evaluating the Utility of Pacing in Vasovagal Syncope. Reproduced with Permission from [1]

Author	Study Design	Inclusion Criteria	Pacing mode	Number of patients	Follow up	Outcome
Fitzpatrick et al.[21]	Cross-sectional; external pacemaker placed, and tilt-table test performed	Positive tilt-table test and significant bradycardia (<60 bpm)	External DVI pacing with rate hysteresis	10 (6 male, mean age 60.2)		Syncope aborted by pacing in 5/6 undergoing tilt-table test
Petersen et al.[22]	Prospective; dual chamber PPM in 35 patients and VVI PPM in 2 patients	Patients with PPM for VVS. Median of 6 syncopal episodes, median frequency 2/year) with cardioinhibitory response with tilt-table test (<60 bpm)	84% DDI with rate hysteresis	37 (21 male, mean age 62.5)	50.2 months	62% syncope-free 27% symptom free
Sutton et al. 2000 (VASIS study) [27]	Multicenter, randomized; DDI PPM at 80 bpm with hysteresis of 45 bpm vs. no PPM	>3 syncope episodes over prior 2 years and a positive 2A/2B cardioinhibitory (VASIS classification) response (median previous episodes were 6) (asystolic response to tilt-test in 86%).	DDI with rate hysteresis	42 (24 male, mean age 60)	Minimum 1 year and maximum 6.7 years	1 (5%) in PPM arm had syncope vs. 14 (61%) in no-pacemaker arm (P=0.0006)
Connolly et al. 1999 (VPS Study)[17]	Randomized; DDD PPM with RDR vs. no PPM	>6 lifetime episodes of syncope, positive tilt-table test, and relative bradycardia (<60 bpm if no isoproterenol, <70 bpm if up to 2 mcg/min isoproterenol used or <80 bpm if > 2 mcg/min isoproterenol).	DDD with RDR	54 (16 male, mean age 43)	21 months	RRR 85.4%, 95% CI 59.7% to 94.7%; 2p=0.000022
Ammirati et al. 2001 (SYDIT)[44]	Multicenter, randomized, controlled trial; DDD RDR PPM vs. beta-blocker	>35 years old, ≥3 syncopal episodes in preceding 2 years and positive tilt-table test occurring with relative bradycardia	DDD with RDR	93 (38 male, mean age 58.1±14.3)	30 months	Syncope recurrence in 2 (4.3%) after median of 390 days vs. recurrence in 12 (25.5%) with medical treatment after median 135 days; OR 0.133; 95% CI, 0.028 to 0.632; P=0.004)

Rakesh Gopinathannair, "Pacing for Vasovagal Syncope", Arrhythmia & Electrophysiology Review 2018;7(2):95–102

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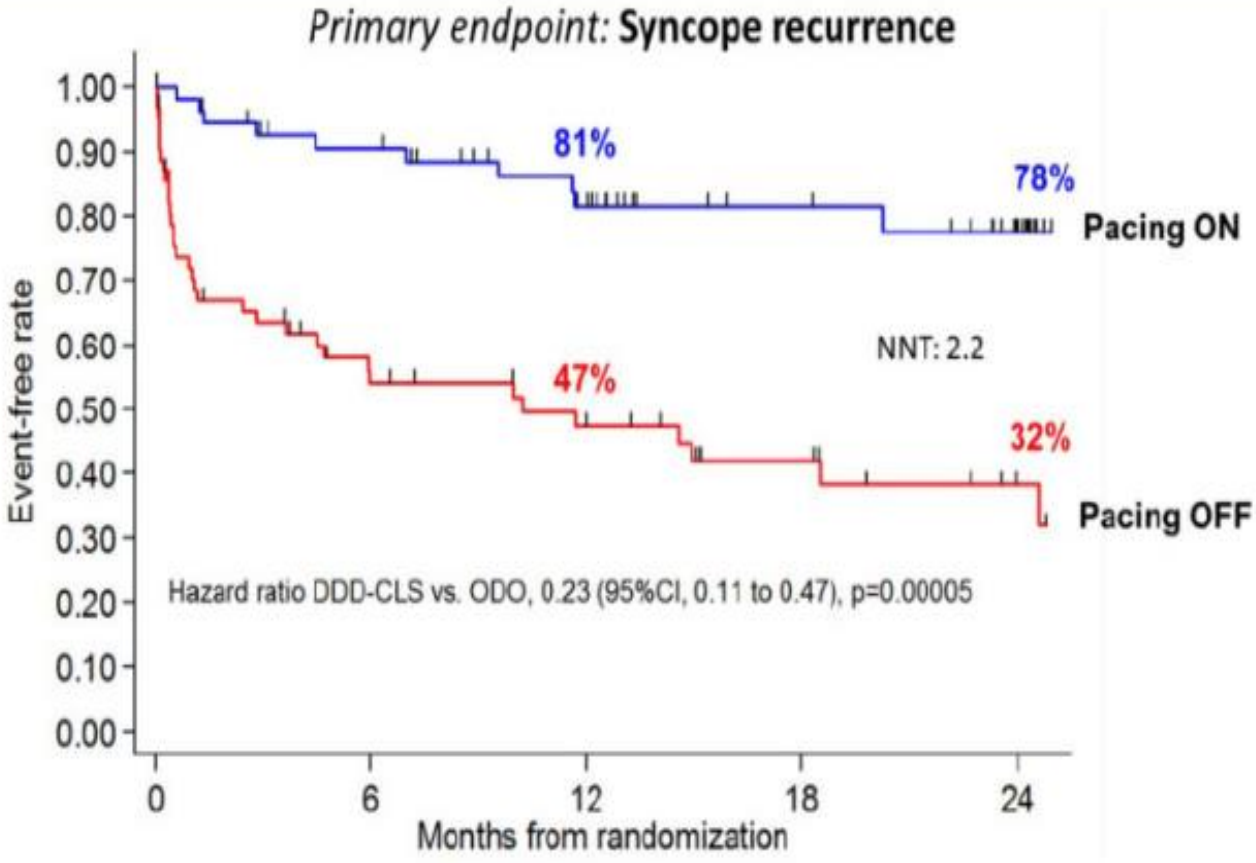
Author	Study Design	Inclusion Criteria	Pacing mode	Number of patients	Follow up	Outcome
Connolly et al. 2003 (VPS II Study)[45]	Multicenter, randomized, double-blinded DDD vs ODO	>19 years old, typical history of recurrent syncope with ≥6 total episodes of syncope or ≥3 episodes in 2 years before enrollment	DDD with RDR vs. ODO	100 (40 male, mean age 49.3)	6 months	42% had recurrent syncope vs. 33% in DDD group. The RRR in time to syncope with DDD was 30% (95% CI, -33-63%; 1-sided P=0.14)
Raviele et al. 2004 (SYNPACE Study)[46]	Randomized, double-blind, placebo-controlled; DDD with RDR comparison of PPM ON vs. OFF.	Severe recurrent tilt-induced vasovagal syncope (median 12 syncopal episodes in lifetime)	DDD with RDR	29 (10 male, mean age 53±16)	715 days	8 patients (50%) in the PPM-ON group had recurrence of syncope vs.5 patients (38%) in the PPM-OFF group (p=ns). Median time to first syncope longer in PPM-ON vs. PPM-OFF group, although not significant (97 vs. 20 days; p=0.38)
Brignole et al. 2012 (ISSUE-3)[30]	Double-blind, randomized, placebo-controlled, multicenter; DDD with RDR On vs. OFF	≥40 years old, with ≥3 syncopal episodes in the previous 2 years	DDD with RDR	77 (36 male, mean 63 years)	24 months or first syncope	Syncope recurred in 27 - 19 in PPM-OFF group and 8 PPM-ON. 2-year estimated syncope recurrence rate was 57% (95% CI: 40-74) with PPM OFF and 25% (95% CI: 13-45) with PPM ON (P=0.039). The observed 32% absolute and 57% relative reduction in syncope in PPM On group.
Brignole et al. 2015 (SUP-2)[47]	Prospective, multicenter, observational study; carotid sinus massage, Tilt-table testing followed by ILR implantation. Those with asystolic response received dual chamber PPM.	≥40 years with recurrent unpredictable reflex syncope	DDD with RDR vs sensing only	253 (128 male, mean 70 ±12)	1 3 ± 7 months	Decrease of total syncopal episodes from 200 episodes before PPM to 11. Total syncope recurrence was 9% (95% CI: 6-12) at 1 year and 15% (95% CI: 10-20) at 2 years.
Brignole et al. 2016 (SUP-2) 64	Prospective, multicenter, observational study; carotid sinus massage, Tilt-table testing followed by ILR implantation. Those with asystolic response received dual chamber PPM	≥40 years with recurrent unpredictable reflex syncope	DDD with RDR in 101/137 vs sensing only	137 (82 male, mean 73 ±11) received a pacemaker vs 142 who did not	2 6 ± 1 1 months	Decrease in total number of syncopal episodes from 206 to 16 in year after pacemaker and 39 episodes of syncope in total follow-up
Kanjwal et al. 2010 [32]	Prospective non-randomized; CLS pacing	≥ 2 syncopal episodes in preceding 6 months, refractory to medical therapy, evidence of asystole (>10 s) or severe bradycardia (<30 bpm) on ILR or during tilt-table test.	DDD with RDR vs. CLS	35 (6 male, mean age 41±11)	9 ± 3 months	Recurrence (59% vs. 83%) reduction in syncope burden and pacemaker success (84% vs. 25%, P=0.002) in the CLS group.
Occhetta et al. 2004 (INVASY study)[48]	Prospective, randomized; DDD-CLS and DDI pacing	Severe recurrent syncope with positive tilt-table test	DDD-CLS vs. DDI	55 (27 male, mean age 59±18)	1 year	7/9 patients in DDI group had recurrence of syncope. When reprogrammed to CLS they had no syncope. Of 41 programmed to CLS none had recurrence in 19± 4 months
Bortnik et al. 2012[49]	Prospective, long-term evaluation of patient before and after PPM implantation with CLS pacing	Positive type 2A or 2B (VASIS classification) cardioinhibitory response to tilt-table testing. Age >18 years. Proven refractoriness to conventional drug therapy and tilt training	CLS	35 (mean age 59±15) (no data about gender)	3 years (6 1 ± 3 5 months)	29/35 (83%) were asymptomatic. 5 patients experienced syncope recurrence after CLS (1-7, with a total of 15 episodes). In each case syncopal spells were less than before implantation.

Rakesh Gopinathannair, "Pacing for Vasovagal Syncope", Arrhythmia & Electrophysiology Review 2018;7(2):95–102

Table 1: Summary of Studies Evaluating the Utility of Pacing in Vasovagal Syncope. Reproduced with Permission from [1]

Author	Study Design	Inclusion Criteria	Pacing mode	Number of patients	Follow up	Outcome
Palmisano et al. 2012[50]	Retrospective; CLS vs. RDR	≥2 syncopal episodes in the year prior to pacemaker implantation and positive 2A or 2B (VASIS classification) cardioinhibitory response to tilt-table test.	CLS vs. RDR	41 (44% male, mean 53±16)	4.4± 3 years	1 patient in the CLS group (4%) and 6 in the RDR group (38%) had syncope recurrences (P=0.016)
Palmisano et al. 2017[35]	Prospective, randomized, single-blind, multicenter; CLS vs. DDD during tilt-table testing	Recurrent unpredictable VVS with significant limitation of social and working life, refractory to drug therapy, and/or tilt training treated with PPM implantation according to current guidelines. A positive 2A or 2B (VASIS classification) cardioinhibitory response to tilt-table testing performed before PPM implantation. Exclusion of other causes. Age > 18 years old.	CLS vs. DDD	30 (18 male, age 62.2±13.5)		CLS significantly reduced syncope induced by tilt-table test (30% vs 76.7%; P<0.001)
Russo et al. 2013[36]	Prospective, randomized, single-blind, crossover study; CLS ON or OFF	>40 years old, sinus rhythm, recurrent unpredictable syncope, no medication that could affect circulatory control, type 2B (VASIS classification) cardioinhibitory VVS, refractory to conventional drug therapy and/or tilt training	CLS	50 (33 male, mean age 53±5.1)	36 months	The number of syncopal episodes during CLS ON was significantly lower than the CLS OFF group (2 vs. 15; P=0.007)
Baron-Esquivas et al. 2017 (SPAIN Study) [37]	Randomized, double blind, controlled study, multicenter; DDD-CLS for 12 months following by sham DDI for 12 months or sham DDI mode for 12 months followed by DDD-CLS for 12 months	≥40 years, ≥5 episodes of syncope or ≥2 in the last year, cardioinhibitory tilt-table test response	CLS vs. DDI. 12 months cross-over	46 (22 male, mean age 56±11)	24 months	72% (95% CI, 47-0%) ≥50% reduction of syncopal episodes with DDD-CLS vs. 28% (95% CI: 9.7-53.5%) during DDI (HR: 6.7; 95% CI: 2.3-19.8)

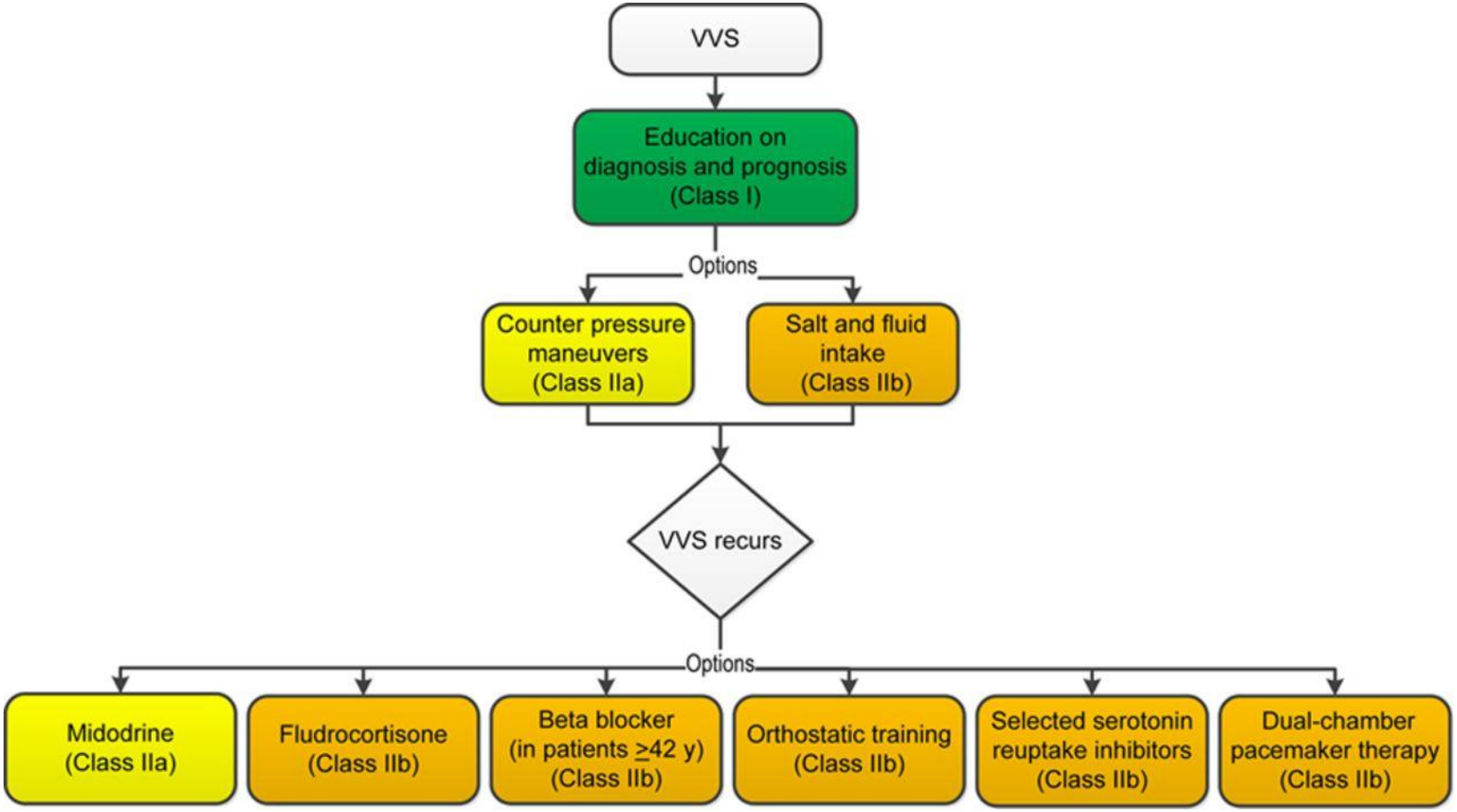
Cardiac pacing in severe recurrent reflex syncope and tilt-induced asystole



Take home figure Kaplan–Meier curves comparing survival free of syncope.

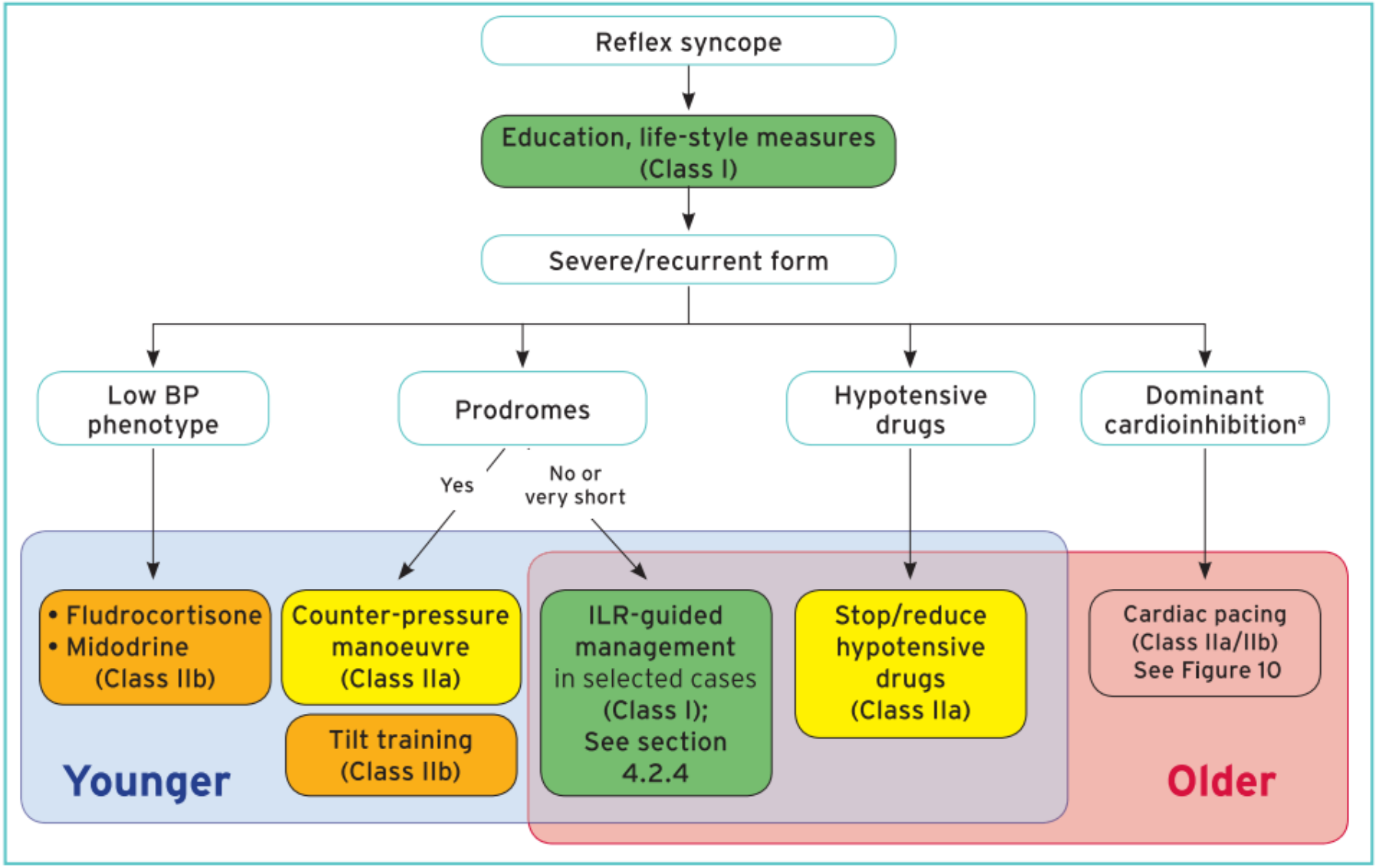
Michele Brignole et all,"Cardiac pacing in severe recurrent reflex syncope and tilt-induced asystole",European HeartJ ournal (2021) 42,508–516

Chỉ định cấy máy tạo nhịp tim trên bệnh nhân ngất phản xạ



ACC/AHA/HRS Guideline for the Evaluation and Management of Patients With Syncope, Circulation. 2017;136:e60–e122.

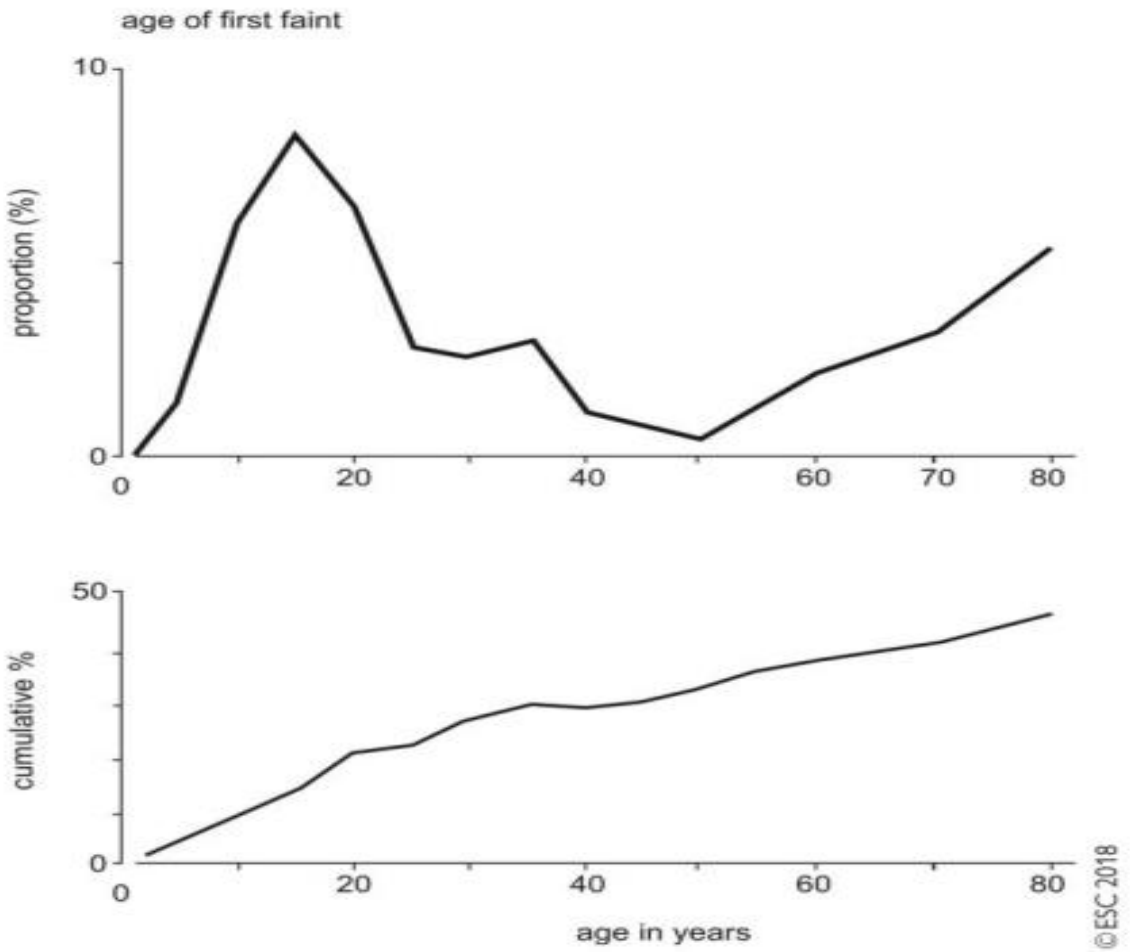
Chỉ định cấy máy tạo nhịp tim trên bệnh nhân ngất phản xạ



ESC Guidelines for the diagnosis and management of syncope, European Heart Journal (2018) 39,1883–1948

Bệnh nhân tuổi dưới 40 ngất phản xạ tái phát cấy máy tạo nhịp vĩnh viễn

TỈ LỆ MỚI MẮC NGẤT LẦN ĐẦU TIÊN



Web Figure 3 Distribution of age and cumulative incidence of first episodes of syncope in the general population from subjects aged ≤80 years The data from subjects aged 5–21 years come from a study by Ganzeboom *et al.*[39], from subjects <5 years from a study by Lombroso and Lerman[41], and from subjects aged 20–80 years from a study by Soteriades *et al.*[40]

BrignoleM,et all,.ESC guidelines for the diagnosis and management of syncope. Eur Heart J 2018;39:1883–1948.

Cấy máy tạo nhịp cho bệnh nhân dưới 40 ?

Who Needs a Pacemaker?

The fact that pacing can be effective in some patients with syncope does not mean that it is required for all patients. Moreover, even in patients with episodic asystole that is directly temporally related to the event itself and even if it is not associated with hypotension, pacing might still not be indicated (*Figure 7*). Since vasovagal episodes are common, pacing needs to be directed at the subset of patients who have recurrent episodes for whom pacing will abort the episode(s). This may include older (>40 years) individuals as well as those who experience frequent recurrences, debilitating consequence, repeated injury, limited prodrome and documented asystole.[34] There is no specific reason a pacemaker would not be effective in an individual younger than 40 years, but careful consideration for an implant in a young patient is required.

Young patients with VVS and asystole may have a specific trigger, may have rare episodes of syncope and may not benefit from pacing therapy. Thus, caution is advised with use of long-term pacing in individuals younger than 40 years, especially since living with a pacemaker at a young age can be difficult and can lead to long-term complications. However, younger patients with frequent, debilitating, recurrent asystolic vasovagal syncope unresponsive to any other therapy or unable to be treated in any other way may indeed be candidates for pacing.

Despite the trials outlined above, several knowledge gaps remain:

- What is the mechanism responsible for VVS and how can it be best counteracted?
- Is there a way to abort an episode of VVS before it goes to completion?
- Is pacing useful for those under the age of 40 years with recurrent VVS associated with severe bradycardia and/or asystole?
- Is there a role for concomitant medical therapy with pacing for VVS patients?
- Why does the reflex reset itself after a few seconds, and how?
- Which patients with VVS over 40 years of age require and benefit from pacing?
- Does tilt-table testing combined with ILR monitoring provide better insights into identifying the best candidates for pacing in VVS?
- Is tilt-table testing required to evaluate the need for pacing in VVS?
- Can pacing algorithms other than CLS benefit select patient subsets?
- How is it best to programme the pacemaker?

Rakesh Gopinathannair, Benjamin C Salgado and Brian Olshansky," Pacing for Vasovagal Syncope", Arrhythmia & Electrophysiology Review 2018;7(2):95–102

Chỉ định cấy máy

Evaluation and Management of Reflex Vasovagal Syncope—A Review

Indian Journal of Clinical Cardiology
3(1) 34–46, 2022

DOI: 10.1177/26324636211050154
journals.sagepub.com/home/occ
SAGE

Ameya Udyavar[1] and Saurabh Deshpande[2]

Abstract

Syncope is a symptom that is commonly encountered in the practice and may point to a cardiac or neurological diagnosis.

6. Pacing (with or without counteracting HS)

A pacemaker may be indicated in a specific subset of the patients with RS. A small subset of patients has a predominant cardioinhibitory response (VASIS type 2 or ISSUE type 1 or 2) on TTT or long-term ECG monitoring (eg, ILR) with or without HS, which is common in the elderly population.[5,57,71] These patients may be treated with the conservative line of management, along with medications, at the initial presentation but may require additional treatment if[112]:

a. Recurrent symptoms are not responding to medications
b. Very short prodrome
c. Syncope during high-risk activities, for example, driving, machine operations, flying, etc.

The benefit of pacing in this particular subset is based on the rationale—pacing may be able to modulate RS episodes if acted sufficiently early at a rate higher than lower pacing rate

Ameya Udyavar,"Evaluation and Management of Reflex Vasovagal Syncope—A Review" , Indian Journal of Clinical Cardiology 3(1) 34–46, 2022

Kết Luận

- Chỉ định cấy máy tạo nhịp tim vĩnh viễn bệnh nhân ngất phản xạ tái phát trên 40 tuổi (Class IIB).
- Cấy máy tạo nhịp tim vĩnh viễn bệnh nhân ngất phản xạ tái phát dưới 40 tuổi cần cá thể hóa ?

XIN CHÂN THÀNH CẢM ƠN