SUY TIM MẠN: NGUYÊN NHÂN, CHẨN ĐOÁN, PHÒNG NGỪA VÀ ĐIỀU TRỊ

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Định nghĩa suy tim

- Suy tim là một hội chứng lâm sàng phức tạp do tổn thương cấu trúc hoặc chức năng đổ đầy thất hoặc tống máu.
- Biểu hiện lâm sàng chính của suy tim là mệt và khó thở.

TL: Yancy CW et al. 2013 ACCF/AHA Guideline for the Mangement of Heart Failure. DOI: 10.1016/j.jacc.2013.05.019

Phân loại suy tim

Phân loại	PSTM	Mô tả
1. Suy tim với PSTM giảm	≤ 40%	Còn gọi là suy tim tâm thu. Những nghiên cứu lâm sàng ngẫu nhiên chính thu nhận những bệnh nhân có PSTM giảm và chỉ có những bệnh nhân này những phương pháp điều trị có hiệu quả được chứng minh đến hôm nay.
2. Suy tim với PSTM bảo tồn	≥ 50%	Còn gọi là suy tim tâm trương. Có vài tiêu chuẩn khác nhau được sử dụng để định nghĩa suy tim PSTM bảo tồn. Chẩn đoán suy tim tâm trương là một thử thách bởi vì phần lớn là chẩn đoán loại trừ những nguyên nhân không do tim khác gây triệu chứng giống suy tim. Đến nay, những phương pháp điều trị hiệu quả chưa được xác nhận.
a. PSTM bảo tồn, giới hạn	41% đến 49%	Những bệnh nhân này rơi vào giới hạn, hoặc ở nhóm trung gian. Đặc điểm lâm sàng, điều trị và dự hậu tương tự như bệnh nhân suy tim PSTM bảo tồn.
b. PSTM bảo tồn, cải thiện	> 40%	Người ta nhận thấy có một số ít bệnh nhân suy tim PSTM bảo tồn mà trước đó có PSTM giảm. Những bệnh nhân này có PSTM cải thiện hoặc hồi phục có thể có đặc điểm lâm sàng khác biệt với bệnh nhân suy tim PSTM bảo tồn hay PSTM giảm. Cần có thêm nhiều nghiên cứu hơn cho những bệnh nhân này.

Nguyên nhân suy tim tâm thu mạn tính (1)

1. Bệnh động mạch vành
- Nhồi máu cơ tim*
- Thiếu máu cục bộ cơ tim*

2. Tăng tải áp lực mạn
- Tăng huyết áp*
- Bệnh van tim gây nghẽn*

3. Tăng tải thể tích mạn
- Bệnh hở van
- Dòng chảy thông trong tim (trái qua phải)
- Dòng chảy thông ngoài tim

4. Bệnh cơ tim dãn nở không TMCB
- Rối loạn di truyền hoặc gia đình
- Rối loạn do thâm nhiễm*
- Tổn thương do thuốc hoặc nhiễm độc
- Bệnh chuyển hóa*
- Virus hoặc các tác nhân nhiễm trùng khác

Nguyên nhân suy tim tâm thu mạn tính (2)

5. Rối loạn nhịp và tần số tim
- Loạn nhịp chậm mạn tính
- Loạn nhịp nhanh mạn tính

6. Bệnh tim do phổi
- Tâm phế
- Rối loạn mạch máu phổi

7. Các tình trạng cung lượng cao

8. Rối loạn chuyển hóa
- Cường giáp
- Rối loạn dinh dưỡng (Td: beriberi)

9. Nhu cầu dòng máu thái quá (excessive blood flow requinement)
- Dòng chảy thông động tĩnh mạch hệ thống
- Thiếu máu mạn

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Các trường hợp này còn có thể đưa đến suy tim PXTM bảo tồn.
Dòng chảy thông (shunt); TMCB: thiếu máu cục bộ

Nguyên nhân suy tim tâm trương

- Bệnh động mạch vành
- Tăng huyết áp
- Hẹp van động mạch chủ
- Bệnh cơ tim phì đại
- Bệnh cơ tim hạn chế

Các tiêu chuẩn xác định suy tim theo khuyến cáo của Hội Tim mạch Châu Âu 2012 (1)

Chẩn đoán suy tim tâm thu: 3 điều kiện

- Triệu chứng cơ năng
- Triệu chứng thực thể
- Giảm phân suất tống máu

Các tiêu chuẩn xác định suy tim theo khuyến cáo của Hội Tim mạch Châu Âu 2012 (2)

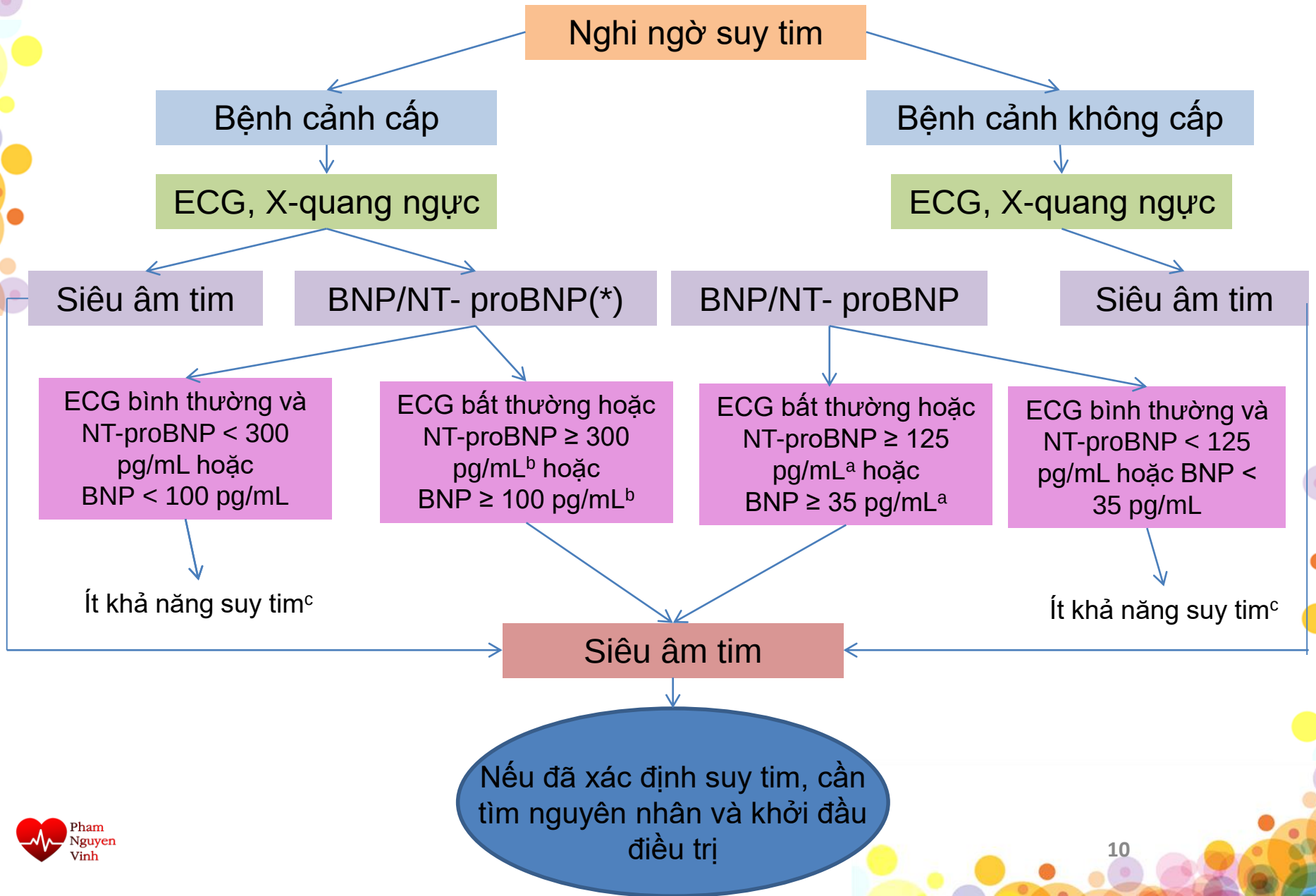
Chẩn đoán suy tim tâm trương: 4 điều kiện

-Triệu chứng cơ năng
- Triệu chứng thực thể
- Phân suất tống máu bảo tồn
- Chứng cứ bệnh cấu trúc cơ tim (dày thất trái, dãn nhĩ trái) và/ hoặc rối loạn chức năng tâm trương

Các chất chỉ điểm sinh học giúp chẩn đoán, theo dõi điều trị và tiên lượng suy tim

Chất chỉ điểm	Giai đoạn	Loại chỉ định	Mức chứng cứ
BNP, NT-ProBNP			
▪ Chẩn đoán hoặc loại trừ suy tim	Cấp, bệnh ngoại trú	I	A
▪ Tiên lượng suy tim	Cấp, bệnh ngoại trú	I	A
▪ Thực hiện điều trị theo khuyến cáo	Ngoại trú	IIa	B
▪ Hướng dẫn điều trị suy tim cấp	Cấp	IIb	C
Chỉ điểm sinh học về tổn thương cơ tim (Troponin)	Ngoại trú	IIb	B
Chỉ điểm sinh học về sợi hoá cơ tim (ST2, Galectin 3)	Cấp	IIb	A

Quy trình chẩn đoán suy tim



Triệu chứng cơ năng và thực thể của suy tim (1)

Symptoms	Signs
Typical	More specific
Breathlessness Orthopnoea Paroxysmal nocturnal dyspnoea Reduced exercise tolerance Fatigue, tiredness, increased time to recover after exercise Ankle swelling	Elevated jugular venous pressure Hepatojugular reflux Third heart sound (gallop rhythm) Laterally displaced apical impulse

TL: Ponikowski P. 2016 ESC Guideline for the diagnosis and treatment of acute and chronic heart failure. Eur. H. J, May 20, 2016

Triệu chứng cơ năng và thực thể của suy tim (2)

Less typical	Less specific
Nocturnal cough	Weight gain (>2 kg/week)
Wheezing	Weight loss (in advanced HF)
Bloated feeling	Tissue wasting (cachexia)
Loss of appetite	Cardiac murmur
Confusion (especially in the elderly)	Peripheral oedema (ankle, sacral, scrotal)
Depression	Pulmonary crepitations
Palpitations	Reduced air entry and dullness to percussion at lung bases (pleural effusion)
Dizziness	Tachycardia
Syncope	Irregular pulse
Bendopnea[53]	Tachypnoea
	Cheyne Stokes respiration
	Hepatomegaly
	Ascites
	Cold extremities
	Oliguria
	Narrow pulse pressure

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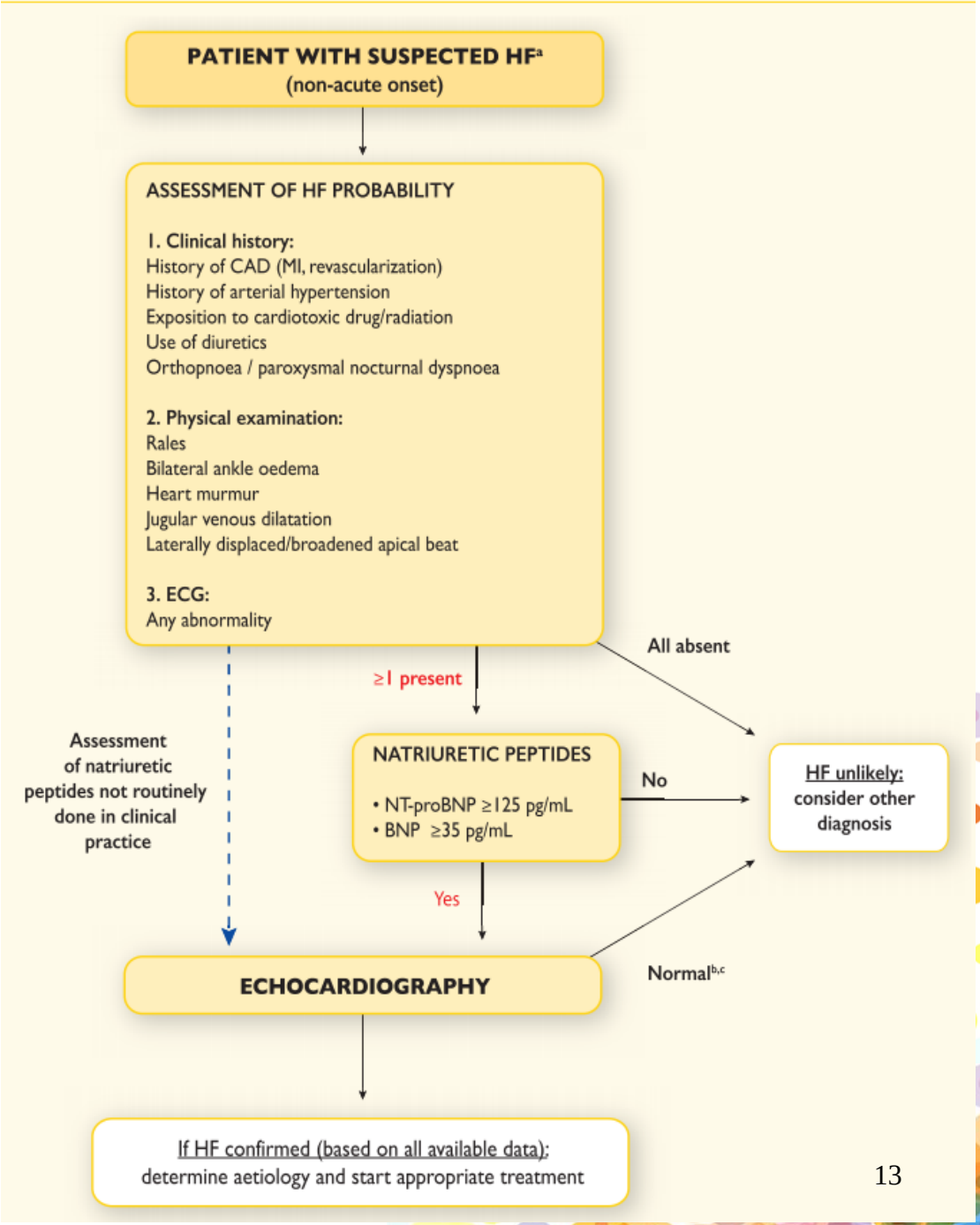
Quy trình chẩn đoán suy tim



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Tiêu chuẩn chẩn đoán suy tim PXTM bảo tồn

1. Có triệu chứng cơ năng và/hoặc thực thể của suy tim
2. PXTM bảo tồn (LVEF ≥ 50%)
3. Tăng Natriuretic Peptide (BNP > 35 pg/ml và/hoặc NT-proBNP > 125 pg/ml)
4. Chứng cứ biến đổi cấu trúc và chức năng của suy tim

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Khuyến cáo sử dụng các phương tiện hình ảnh giúp chẩn đoán và theo dõi điều trị suy tim (1)

Recommendations	Class [a]	Level [b]	Ref [c]
TTE is recommended for the assessment of myocardial structure and function in subjects with suspected HF in order to establish a diagnosis of either HFrEF, HFmrEF or HFpEF.	I	C	
TTE is recommended to assess LVEF in order to identify patients with HF who would be suitable for evidence-based pharmacological and device (ICD, CRT) treatment recommended for HFrEF.	I	C	
TTE is recommended for the assessment of valve disease, right ventricular function and pulmonary arterial pressure in patients with an already established diagnosis of either HFrEF, HFmrEF or HFpEF in order to identify those suitable for correction of valve disease.	I	C	
TTE is recommended for the assessment of myocardial structure and function in subjects to be exposed to treatment which potentially can damage myocardium (e.g. chemotherapy).	I	C	
Other techniques (including systolic tissue Doppler velocities and deformation indices, i.e. strain and strain rate), should be considered in a TTE protocol in subjects at risk of developing HF in order to identify myocardial dysfunction at the preclinical stage.	IIa	C	
CMR is recommended for the assessment of myocardial structure and function (including right heart) in subjects with poor acoustic window and patients with complex congenital heart diseases (taking account of cautions/contra-indications to CMR).	I	C	
CMR with LGE should be considered in patients with dilated cardiomyopathy in order to distinguish between ischaemic and non-ischaemic myocardial damage in case of equivocal clinical and other imaging data (taking account of cautions/contra-indications to CMR).	IIa	C	
CMR is recommended for the characterization of myocardial tissue in case of suspected myocarditis, amyloidosis, sarcoidosis, Chagas disease, Fabry disease non-compaction cardiomyopathy, and haemochromatosis (taking account of cautions/contra-indications to CMR).	I	C	

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Khuyến cáo sử dụng các phương tiện hình ảnh giúp chẩn đoán và theo dõi điều trị suy tim (2)

Recommendations	Class [a]	Level [b]	Ref [c]
Non-invasive stress imaging (CMR, stress echocardiography, SPECT, PET) may be considered for the assessment of myocardial ischaemia and viability in patients with HF and CAD (considered suitable for coronary revascularization) before the decision on revascularization.	IIb	B	116–118
Invasive coronary angiography is recommended in patients with HF and angina pectoris recalcitrant to pharmacological therapy or symptomatic ventricular arrhythmias or aborted cardiac arrest (who are considered suitable for potential coronary revascularization) in order to establish the diagnosis of CAD and its severity.	I	C	
Invasive coronary angiography should be considered in patients with HF and intermediate to high pre-test probability of CAD and the presence of ischaemia in non-invasive stress tests (who are considered suitable for potential coronary revascularization) in order to establish the diagnosis of CAD and its severity.	IIa	C	
Cardiac CT may be considered in patients with HF and low to intermediate pre-test probability of CAD or those with equivocal non-invasive stress tests in order to rule out coronary artery stenosis.	IIb	C	
Reassessment of myocardial structure and function is recommended using non-invasive imaging: - in patients presenting with worsening HF symptoms (including episodes of AHF) or experiencing any other important cardiovascular event; - in patients with HF who have received evidence-based pharmacotherapy in maximal tolerated doses, before the decision on device implantation (ICD, CRT); - in patients exposed to therapies which may damage the myocardium (e.g. chemotherapy) (serial assessments).	I	C	

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Các trắc nghiệm giúp chẩn đoán suy tim (1)

Recommendations	Class [a]	Level [b]	Ref [c]
The following diagnostic tests are recommended/should be considered for initial assessment of a patient with newly diagnosed HF in order to evaluate the patient's suitability for particular therapies, to detect reversible/treatable causes of HF and co-morbidities interfering with HF:			
- haemoglobin and WBC - sodium, potassium, urea, creatinine (with estimated GFR) - liver function tests (bilirubin, AST, ALT, GGTP) - glucose, HbA1c - lipid profile - TSH - ferritin, TSAT = TIBC	I	C	
- natriuretic peptides	IIa	C	

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Các trắc nghiệm giúp chẩn đoán suy tim (2)

Additional diagnostic tests aiming to identify other HF aetiologies and comorbidities should be considered in individual patients with HF when there is a clinical suspicion of a particular pathology (see Table 3.4 on HF aetiologies).	IIa	C	
A 12-lead ECG is recommended in all patients with HF in order to determine heart rhythm, heart rate, QRS morphology, and QRS duration, and to detect other relevant abnormalities. This information is needed to plan and monitor treatment.	I	C	
Exercise testing in patients with HF:			
- is recommended as a part of the evaluation for heart transplantation and/or mechanical circulatory support (cardiopulmonary exercise testing);	I	C	119, 120
- should be considered to optimize prescription of exercise training (preferably cardiopulmonary exercise testing);	IIa	C	
- should be considered to identify the cause of unexplained dyspnoea (cardiopulmonary exercise testing).	IIa	C	
- may be considered to detect reversible myocardial ischaemia.	IIb	C	

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Các trắc nghiệm giúp chẩn đoán suy tim (3)

Recommendations	Class [a]	Level [b]	Ref [c]
Chest radiography (X-ray) is recommended in patients with HF to detect/exclude alternative pulmonary or other diseases, which may contribute to dyspnoea. It may also identify pulmonary congestion/oedema and is more useful in patients with suspected HF in the acute setting.	I	C	
Right heart catheterization with a pulmonary artery catheter:			
- is recommended in patients with severe HF being evaluated for heart transplantation or mechanical circulatory support;	I	C	
- should be considered in patients with probable pulmonary hypertension assessed by echocardiography in order to confirm pulmonary hypertension and its reversibility before the correction of valve/structural heart disease;	IIa	C	
- may be considered in order to adjust therapy in patients with HF who remain severely symptomatic despite initial standard therapies and whose haemodynamic status is unclear.	IIb	C	
EMB should be considered in patients with rapidly progressive HF despite standard therapy when there is a probability of a specific diagnosis which can be confirmed only in myocardial samples and specific therapy is available and effective.	IIa	C	93
Thoracic ultrasound may be considered for the confirmation of pulmonary congestion and pleural effusion in patients with AHF.	IIb	C	121
Ultrasound measurement of inferior vena cava diameter may be considered for the assessment of volaemia status in patients with HF.	IIb	C	

AHF = acute heart failure; ALT = alanine aminotransferase; AST = aspartate aminotransferase; BNP = B-type natriuretic peptide; ECG = electrocardiogram; eGFR = estimated glomerular filtration rate; EMB = endomyocardial biopsy; GFR = glomerular filtration rate; GGTP = gamma-glutamyl transpeptidase; HbA1c = glycated haemoglobin; HF = heart failure; HFrEF = heart failure with reduced ejection fraction; QRS = Q, R, and S waves (combination of three of the graphical deflections); TIBC = total iron-binding capacity; TSAT = transferrin saturation; TSH = thyroid-stimulating hormone; WBC = white blood cell.
[a]Class of recommendation.
[b]Level of evidence.
[c]Reference(s) supporting recommendations.

EMB: sinh thiết cơ tim nội mạc tim

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Khảo sát di truyền bệnh nhân suy tim

- BCT phì đại (HCM)
- BCT dãn nở (DCM)
- Loạn sản thất phải gây loạn nhịp (ARVC)
- BCT hạn chế
- BCT không lên chặt (non-compaction cardiomyopathies)
  - HCM: 20 gens, 1400 neutations đã xác định
  - DCM: 50% vô căn/ 1/3 nhóm vô căn do di truyền 50 gens đã xác định
  - ARVC: 10 gens đã xác định

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Khuyến cáo phòng ngừa hoặc làm chậm suy tim tiến triển nặng (1)

Recommendations	Class [a]	Level [b]	Ref [c]
Treatment of hypertension is recommended to prevent or delay the onset of HF and prolong life.	I	A	126, 129, 150, 151
Treatment with statins is recommended in patients with or at high-risk of CAD whether or not they have LV systolic dysfunction, in order to prevent or delay the onset of HF and prolong life.	I	A	137–140, 152
Counselling and treatment for smoking cessation and alcohol intake reduction is recommended for people who smoke or who consume excess alcohol in order to prevent or delay the onset of HF.	I	C	131–134
Treating other risk factors of HF (e.g. obesity, dysglycaemia) should be considered in order to prevent or delay the onset of HF.	IIa	C	130, 141, 153–155
Empagliflozin should be considered in patients with type 2 diabetes in order to prevent or delay the onset of HF and prolong life.	IIa	B	130

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Khuyến cáo phòng ngừa hoặc làm chậm suy tim tiến triển nặng (2)

ACE-I is recommended in patients with asymptomatic LV systolic dysfunction and a history of myocardial infarction in order to prevent or delay the onset of HF and prolong life.	I	A	5, 144, 145
ACE-I is recommended in patients with asymptomatic LV systolic dysfunction without a history of myocardial infarction, in order to prevent or delay the onset of HF.	I	B	5
ACE-I should be considered in patients with stable CAD even if they do not have LV systolic dysfunction, in order to prevent or delay the onset of HF.	IIa	A	142
Beta-blocker is recommended in patients with asymptomatic LV systolic dysfunction and a history of myocardial infarction, in order to prevent or delay the onset of HF or prolong life.	I	B	146
ICD is recommended in patients: a) with asymptomatic LV systolic dysfunction (LVEF ≤30%) of ischaemic origin, who are at least 40 days after acute myocardial infarction, b) with asymptomatic non-ischaemic dilated cardiomyopathy (LVEF ≤30%), who receive OMT therapy, in order to prevent sudden death and prolong life.	I	B	149, 156–158

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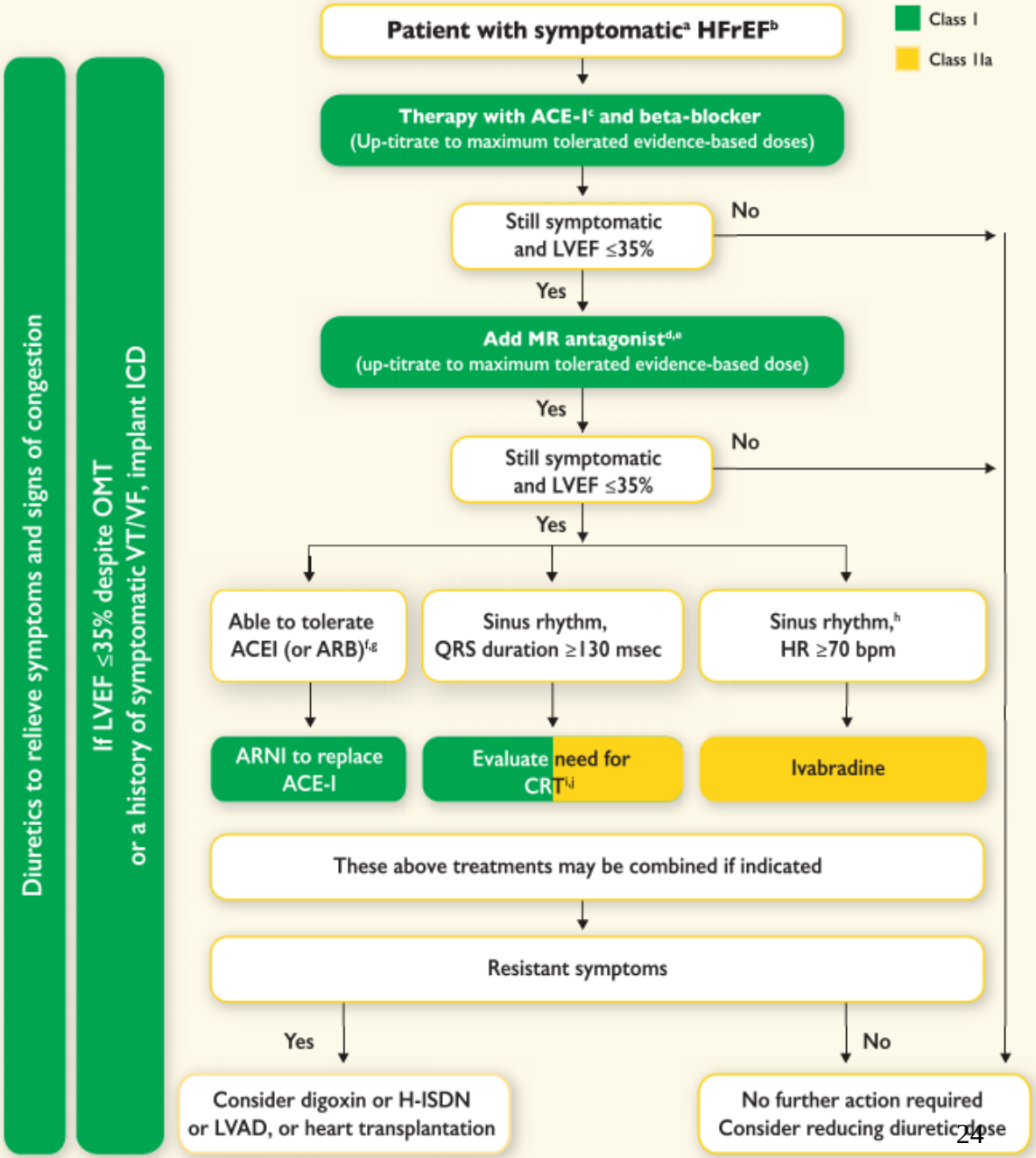
Mục tiêu điều trị suy tim

- Giảm tử vong
- Giảm nhập viện
- Cải thiện triệu chứng cơ năng, chất lượng cuộc sống

Quy trình điều trị suy tim có t/c cơ năng kèm PXTM giảm



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Các thuốc được chứng minh kéo dài đời sống/ST PXTM giảm

	Starting dose (mg)	Target dose (mg)
ACE-I		
Captopril[a]	6.25 t.i.d.	50 t.i.d.
Enalapril	2.5 b.i.d.	20 b.i.d.
Lisinopril[b]	2.5–5.0 o.d.	20–35 o.d.
Ramipril	2.5 o.d.	10 o.d.
Trandolapril[a]	0.5 o.d.	4 o.d.
Beta-blockers		
Bisoprolol	1.25 o.d.	10 o.d.
Carvedilol	3.125 b.i.d.	25 b.i.d.[d]
Metoprolol succinate (CR/XL)	12.5–25 o.d.	200 o.d.
Nebivolol[c]	1.25 o.d.	10 o.d.
ARBs		
Candesartan	4–8 o.d.	32 o.d.
Valsartan	40 b.i.d.	160 b.i.d.
Losartan[b,c]	50 o.d.	150 o.d.
MRAs		
Eplerenone	25 o.d.	50 o.d.
Spironolactone	25 o.d.	50 o.d.
ARNI		
Sacubitril/valsartan	49/51 b.i.d.	97/103 b.i.d.
If-channel blocker		
Ivabradine	5 b.i.d.	7.5 b.i.d.

ACE = angiotensin-converting enzyme; ARB = angiotensin receptor blocker; ARNI = angiotensin receptor neprilysin inhibitor; b.i.d. = bis in die (twice daily); MRA = mineralocorticoid receptor antagonist; o.d. = omne in die (once daily); t.i.d. = ter in die (three times a day).

[a]Indicates an ACE-I where the dosing target is derived from post-myocardial infarction trials.

[b]Indicates drugs where a higher dose has been shown to reduce morbidity/mortality compared with a lower dose of the same drug, but there is no substantive randomized, placebo-controlled trial and the optimum dose is uncertain.

[c]Indicates a treatment not shown to reduce cardiovascular or all-cause mortality in patients with heart failure (or shown to be non-inferior to a treatment that does).

[d]A maximum dose of 50 mg twice daily can be administered to patients weighing over 85 kg.

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Liều lượng lợi tiểu thường dùng/ suy tim

Diuretics	Initial dose (mg)		Usual daily dose (mg)	
Loop diuretics[a]				
Furosemide	20–40		40–240	
Bumetanide	0.5–1.0		1–5	
Torasemide	5–10		10–20	
Thiazides[b]				
Bendroflumethiazide	2.5		2.5–10	
Hydrochlorothiazide	25		12.5–100	
Metolazone	2.5		2.5–10	
Indapamide[c]	2.5		2.5–5	
Potassium-sparing diuretics[d]				
	+ACE-I/ ARB	-ACE-I/ ARB	+ACE-I/ ARB	-ACE-I/ ARB
Spironolactone/ eplerenone	12.5–25	50	50	100–200
Amiloride	2.5	5	5–10	10–20
Triamterene	25	50	100	200

ACE-I = angiontensin-converting enzyme inhibitor, ARB = angiotensin receptor blocker.
[a]Oral or intravenous; dose might need to be adjusted according to volume status/ weight; excessive doses may cause renal impairment and ototoxicity.
[b]Do not use thiazides if estimated glomerular filtration rate <30 mL/min/1.73 m^2, except when prescribed synergistically with loop diuretics.
[c]Indapamide is a non-thiazide sulfonamide.
[d]A mineralocorticoid antagonist (MRA) i.e. spironolactone/eplerenone is always preferred. Amiloride and triamterene should not be combined with an MRA.

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Các thuốc khác được sử dụng điều trị suy tim PXTM giảm kèm NYHA II- IV (1)

Recommendations	Class [a]	Level [b]	Ref [c]
Diuretics			
Diuretics are recommended in order to improve symptoms and exercise capacity in patients with signs and/or symptoms of congestion.	I	B	178, 179
Diuretics should be considered to reduce the risk of HF hospitalization in patients with signs and/or symptoms of congestion.	IIa	B	178, 179
Angiotensin receptor neprilysin inhibitor			
Sacubitril/valsartan is recommended as a replacement for an ACE-I to further reduce the risk of HF hospitalization and death in ambulatory patients with HFrEF who remain symptomatic despite optimal treatment with an ACE-I, a beta-blocker and an MRA[d]	I	B	162

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Các thuốc khác được sử dụng điều trị suy tim PXTM giảm kèm NYHA II- IV (2)

If-channel inhibitor			
Ivabradine should be considered to reduce the risk of HF hospitalization and cardiovascular death in symptomatic patients with LVEF ≤35%, in sinus rhythm and a resting heart rate ≥70 bpm despite treatment with an evidence-based dose of beta-blocker (or maximum tolerated dose below that), ACE-I (or ARB), and an MRA (or ARB).	IIa	B	180
Ivabradine should be considered to reduce the risk of HF hospitalization and cardiovascular death in symptomatic patients with LVEF ≤35%, in sinus rhythm and a resting heart rate ≥70 bpm who are unable to tolerate or have contra-indications for a beta-blocker. Patients should also receive an ACE-I (or ARB) and an MRA (or ARB).	IIa	C	181
ARB			
An ARB is recommended to reduce the risk of HF hospitalization and cardiovascular death in symptomatic patients unable to tolerate an ACE-I (patients should also receive a beta-blocker and an MRA).	I	B	182
An ARB may be considered to reduce the risk of HF hospitalization and death in patients who are symptomatic despite treatment with a beta-blocker who are unable to tolerate an MRA.	IIb	C	-

TL: Ponikowski P. 2016 ESC Guideline for the diagnosis and treatment of acute and chronic heart failure. Eur. H. J, May 20, 2016

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Các thuốc khác được sử dụng điều trị suy tim PXTM giảm kèm NYHA II- IV (3)

Recommendations	Class [a]	Level [b]	Ref [c]
Hydralazine and isosorbide dinitrate			
Hydralazine and isosorbide dinitrate should be considered in self-identified black patients with LVEF ≤35% or with an LVEF <45% combined with a dilated LV in NYHA Class III–IV despite treatment with an ACE-I a beta-blocker and an MRA to reduce the risk of HF hospitalization and death.	IIa	B	183
Hydralazine and isosorbide dinitrate may be considered in symptomatic patients with HFrEF who can tolerate neither an ACE-I nor an ARB (or they are contra-indicated) to reduce the risk of death.	IIb	B	184
Other treatments with less-certain benefits			
Digoxin			
Digoxin may be considered in symptomatic patients in sinus rhythm despite treatment with an ACE-I (or ARB), a beta-blocker and an MRA, to reduce the risk of hospitalization (both all-cause and HF-hospitalizations).	IIb	B	185
N-3 PUFA			
An n-3 PUFA[e] preparation may be considered in symptomatic HF patients to reduce the risk of cardiovascular hospitalization and cardiovascular death.	IIb	B	186

ACEI = angiotensin-converting enzyme inhibitor; ARB = angiotensin receptor blocker; BNP = B-type natriuretic peptide; bpm = beats per minute; HF = heart failure; HFrEF = heart failure with reduced ejection fraction; LVEF = left ventricular ejection fraction; MRA = mineralocorticoid receptor antagonist; NT-proBNP = N-terminal pro-B type natriuretic peptide; NYHA = New York Heart Association; PUFA = polyunsaturated fatty acid. OMT = optimal medical therapy (for HFrEF this mostly comprises an ACEI or sacubitril/valsartan, a beta-blocker and an MRA).

[a]Class of recommendation.

[b]Level of evidence.

[c]Reference(s) supporting recommendations.

[d]Patient should have elevated natriuretic peptides (plasma BNP ≥150 pg/mL or plasma NT-proBNP ≥600 pg/mL, or if HF hospitalization within the last 12 months, plasma BNP ≥100 pg/mL or plasma NT-proBNP ≥400 pg/mL) and able to tolerate enalapril 10 mg *b.i.d.*

[e]Applies only to preparation studied in cited trial.

TL: Ponikowski P. 2016 ESC Guideline for the diagnosis and treatment of acute and chronic heart failure. Eur. H. J, May 20, 2016

Các thuốc có thể làm nặng suy tim PXTM giảm kèm NYHA II- IV

Recommendations	Class [a]	Level [b]	Ref [c]
Thiazolidinediones (glitazones) are not recommended in patients with HF, as they increase the risk of HF worsening and HF hospitalization.	III	A	209, 210
NSAIDs or COX-2 inhibitors are not recommended in patients with HF, as they increase the risk of HF worsening and HF hospitalization.	III	B	211–213
Diltiazem or verapamil are not recommended in patients with HFrEF, as they increase the risk of HF worsening and HF hospitalization.	III	C	214
The addition of an ARB (or renin inhibitor) to the combination of an ACE-I and an MRA is not recommended in patients with HF, because of the increased risk of renal dysfunction and hyperkalaemia.	III	C	

ACEI = angiotensin-converting enzyme inhibitor; ARB = angiotensin receptor blocker; COX-2 inhibitor = cyclooxygenase-2 inhibitor; HF = heart failure; HFrEF = heart failure with reduced ejection fraction; MRA = mineralocorticoid receptor antagonist; NSAIDs = non-steroidal anti-inflammatory drugs.
[a]Class of recommendation.
[b]Level of evidence.
[c]Reference(s) supporting recommendations

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Điều trị bằng máy phá rung cấy được (ICD)

Recommendations	Class [a]	Level [b]	Ref [c]
Secondary prevention An ICD is recommended to reduce the risk of sudden death and all-cause mortality in patients who have recovered from a ventricular arrhythmia causing haemodynamic instability, and who are expected to survive for >1 year with good functional status.	I	A	223–226
Primary prevention An ICD is recommended to reduce the risk of sudden death and all-cause mortality in patients with symptomatic HF (NYHA Class II–III), and an LVEF ≤35% despite ≥3 months of OMT, provided they are expected to survive substantially longer than one year with good functional status, and they have:			
• IHD (unless they have had an MI in the prior 40 days – see below).	I	A	149, 156, 227
• DCM.	I	B	156, 157, 227
ICD implantation is not recommended within 40 days of an MI as implantation at this time does not improve prognosis.	III	A	158, 228
ICD therapy is not recommended in patients in NYHA Class IV with severe symptoms refractory to pharmacological therapy unless they are candidates for CRT, a ventricular assist device, or cardiac transplantation.	III	C	229–233
Patients should be carefully evaluated by an experienced cardiologist before generator replacement, because management goals and the patient's needs and clinical status may have changed.	IIa	B	234–238
A wearable ICD may be considered for patients with HF who are at risk of sudden cardiac death for a limited period or as a bridge to an implanted device.	IIb	C	239–241

CAD = coronary artery disease; CRT = cardiac resynchronization therapy; DCM = dilated cardiomyopathy; HF = heart failure; ICD = implantable cardioverter-defibrillator; IHD = ischaemic heart disease; LVEF = left ventricular ejection fraction; MI = myocardial infarction; NYHA = New York Heart Association, OMT = optimal medical therapy.
[a]Class of recommendation.
[b]Level of evidence.
[c]Reference(s) supporting recommendations.

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TL: Ponikowski P. 2016 ESC Guideline for the diagnosis and treatment of acute and chronic heart failure. Eur. H. J, May 20, 2016

Điều trị tái đồng bộ tim (CRT)

Recommendations	Class [a]	Level [b]	Ref [c]
CRT is recommended for symptomatic patients with HF in sinus rhythm with a QRS duration ≥150 msec and LBBB QRS morphology and with LVEF ≤35% despite OMT in order to improve symptoms and reduce morbidity and mortality.	I	A	261–272
CRT should be considered for symptomatic patients with HF in sinus rhythm with a QRS duration ≥150 msec and non-LBBB QRS morphology and with LVEF ≤35% despite OMT in order to improve symptoms and reduce morbidity and mortality.	IIa	B	261–272
CRT is recommended for symptomatic patients with HF in sinus rhythm with a QRS duration of 130–149 msec and LBBB QRS morphology and with LVEF ≤35% despite OMT in order to improve symptoms and reduce morbidity and mortality.	I	B	266, 273
CRT may be considered for symptomatic patients with HF in sinus rhythm with a QRS duration of 130–149 msec and non-LBBB QRS morphology and with LVEF ≤35% despite OMT in order to improve symptoms and reduce morbidity and mortality.	IIb	B	266, 273
CRT rather than RV pacing is recommended for patients with HFrEF regardless of NYHA class who have an indication for ventricular pacing and high degree AV block in order to reduce morbidity. This includes patients with AF (see Section 10.1).	I	A	274–277
CRT should be considered for patients with LVEF ≤35% in NYHA Class III–IV[d] despite OMT in order to improve symptoms and reduce morbidity and mortality, if they are in AF and have a QRS duration ≥130 msec provided a strategy to ensure bi-ventricular capture is in place or the patient is expected to return to sinus rhythm.	IIa	B	275, 278–281
Patients with HFrEF who have received a conventional pacemaker or an ICD and subsequently develop worsening HF despite OMT and who have a high proportion of RV pacing may be considered for upgrade to CRT. This does not apply to patients with stable HF.	IIb	B	282
CRT is contra-indicated in patients with a QRS duration < 130 msec.	III	A	266, 283–285

AF = atrial fibrillation; AV = atrio-ventricular; CRT = cardiac resynchronization therapy; HF = heart failure; HFrEF = heart failure with reduced ejection fraction; ICD = implantable cardioverter-defibrillator; LBBB = left bundle branch block; LVEF = left ventricular ejection fraction; NYHA = New York Heart Association; OMT = optimal medical therapy; QRS = Q, R and S waves (combination of three of the graphical deflections); RV = right ventricular.

[a]Class of recommendation.

[b]Level of evidence.

[c]Reference(s) supporting recommendations.

[d]Use judgement for patients with end-stage HF who might be managed conservatively rather than with treatments to improve symptoms or prognosis.

TL: Ponikowski P. 2016 ESC Guideline for the diagnosis and treatment of acute and chronic heart failure. Eur. H. J, May 20, 2016

Điều trị suy tim PXTM bảo tồn (HFpEF)

- Không biện pháp điều trị giúp giảm tử vong HFpEF
- Điều trị chính: nguyên nhân HFpEF
- Điều trị các bệnh kèm theo
- Điều trị T/C cơ năng, thực thể

Khuyến cáo điều trị suy tim PXTM bảo tồn (HFpEF) và suy tim PXTM trung gian (HFmrEF)

Recommendations	Class [a]	Level [b]	Ref [c]
it is recommended to screen patients with HFpEF or HFmrEF for both cardiovascular and non-cardiovascular comorbidities, which, if present, should be treated provided safe and effective interventions exist to improve symptoms, well-being and/or prognosis.	I	C	
Diuretics are recommended in congested patients with HFpEF or HFmrEF in order to alleviate symptoms and signs.	I	B	178, 179

HFmrEF = heart failure with mid-range ejection fraction; HFpEF = heart failure with preserved ejection fraction.
[a]Class of recommendation.
[b]Level of evidence.
[c]Reference(s) supporting recommendations.

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Hiệu quả trên tử vong của điều trị suy tim PXTM bảo tồn

- UCMC, chẹn thụ thể AG II, chẹn beta, đối kháng aldosterone: không nghiên cứu chứng minh giảm tử vong
- Người cao tuổi: Nebivolol giảm tử vong và nhập viện HFrEF, HFpEF hoặc HFmrEF*

TL: * Van Veldhuisen DJ et al. J Am Coll Cardiol 2009, 53: 2150-2158
* Flather MD et al. Eur Heart J 2005: 26: 215-225

Điều trị loạn nhịp tim trên bệnh nhân suy tim

Khuyến cáo kiểm soát nhịp/RN kèm NYHA II- IV kèm RLCN thất trái và không mất bù cấp

Recommendations	Class [a]	Level [b]	Ref [c]
Electrical cardioversion or pharmacological cardioversion with amiodarone may be considered in patients with persisting symptoms and/or signs of HF, despite OMT and adequate control of ventricular rate, to improve clinical/symptomatic status.	IIb	B	344
AF ablation may be considered in order to restore sinus rhythm to improve symptoms in patients with persisting symptoms and/or signs of HF, despite OMT and adequate control of ventricular rate, to improve clinical/symptomatic status.	IIb	B	279, 363
Amiodarone may be considered prior to (and following) successful electrical cardioversion to maintain sinus rhythm.	IIb	B	342, 360
Dronedarone is not recommended because of an increased risk of hospital admissions for cardiovascular causes and an increased risk of premature death in NYHA Class III–IV patients.	III	A	247, 347
Class I antiarrhythmic agents are not recommended because of an increased risk of premature death.	III	A	248, 364, 365

AF = atrial fibrillation; HF = heart failure; NYHA = New York Heart Association, OMT = optimal medical therapy.
Patients should generally be anticoagulated for 6 weeks prior to electrical cardioversion.
[a]Class of recommendation.
[b]Level of evidence.
[c]Reference(s) supporting recommendations.

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Khuyến cáo xử trí tần số thất nhanh trên b/n suy tim kèm RN trong bệnh cảnh cấp hay mạn

Recommendations	Class [a]	Level [b]	Ref [c]
Urgent electrical cardioversion is recommended if AF is thought to be contributing to the patient's haemodynamic compromise in order to improve the patient clinical condition.	I	C	
For patients in NYHA Class IV, in addition to treatment for AHF, an intravenous bolus of amiodarone or, in digoxin-naïve patients, an intravenous bolus of digoxin should be considered to reduce the ventricular rate.	IIa	B	348, 349
For patients in NYHA Class I–III, a beta-blocker, usually given orally, is safe and therefore is recommended as first-line treatment to control ventricular rate, provided the patient is euvolaemic.	I	A	177
For patients in NYHA Class I–III, digoxin should be considered when ventricular rate remains high[d] despite beta-blockers or when beta-blockers are not tolerated or contra-indicated.	IIa	B	197
AV node catheter ablation may be considered to control heart rate and relieve symptoms in patients unresponsive or intolerant to intensive pharmacological rate and rhythm control therapy, accepting that these patients will become pacemaker dependent.	IIb	B	290
Treatment with dronedarone to improve ventricular rate control is not recommended due to safety concerns.	III	A	347

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Khuyến cáo phòng ngừa huyết khối thuyên tắc/ suy tim có TC/CN kèm RN

Recommendations	Class [a]	Level [b]	Ref [c]
The CHA_2DS_2-VASc and HAS-BLED scores are recommended tools in patients with HF for the estimation of the risk of thromboembolism and the risk of bleeding associated with oral anticoagulation, respectively.	I	B	376, 377
An oral anticoagulant is recommended to prevent thrombo-embolism for all patients with paroxysmal or persistent/permanent AF and a CHA_2DS_2-VASc score ≥2, without contra-indications, and irrespective of whether a rate or rhythm management strategy is used (including after successful cardioversion).	I	A	372–375, 378, 379
NOAC treatment is contra-indicated in patients with mechanical valves or at least moderate mitral stenosis.	III	B	380
In patients with AF of ≥48 h duration, or when the duration of AF is unknown, an oral anticoagulant is recommended at a therapeutic dose for ≥3 weeks prior to electrical or pharmacological cardioversion.	I	B	
Intravenous heparin or LMWH and TOE guided strategy is recommended for patients who have not been treated with an anticoagulant dose for ≥3 weeks and require urgent electrical or pharmacological cardioversion for a life threatening arrhythmia.	I	C	
Combination of an oral anticoagulant and an antiplatelet agent is not recommended in patients with chronic (>12 months after an acute event) coronary or other arterial disease, because of a high-risk of serious bleeding. Single therapy with an oral anticoagulant is preferred after 12 months.	III	C	
For patients with HF and non-valvular AF eligible for anticoagulation based on a CHA_2DS_2-VASc score, NOACs rather than warfarin should be considered for anticoagulation as NOACs are associated with a lower risk of stroke, intracranial haemorrhage and mortality, which outweigh the increased risk of gastrointestinal haemorrhage.	IIa	B	367

AF = atrial fibrillation; CHA_2DS_2-VASc = Congestive heart failure or left ventricular dysfunction, Hypertension, Age ≥ 75 (doubled), Diabetes, Stroke (doubled)-Vascular disease, Age 65–74, Sex category (female); HAS-BLED = Hypertension, Abnormal renal/liver function, Stroke, Bleeding history or predisposition, Labile international normalized ratio, Elderly (>65 years), Drugs/alcohol concomitantly (1 point each); HF = heart failure; LMWH = low molecular weight heparin; NOAC = non-vitamin K antagonist oral anticoagulant; NYHA = New York Heart Association; TOE = transoesophageal echocardiography.

[a]Class of recommendation.

[b]Level of evidence.

[c]Reference(s) supporting recommendations.

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Khuyến cáo xử trí loạn nhịp thất nhanh/ST

Recommendations	Class [a]	Level [b]	Ref [c]
Potential aggravating/precipitating factors (e.g. low serum potassium/ magnesium, ongoing ischaemia) should be sought and corrected in patients with ventricular arrhythmias.	IIa	C	
Treatment with beta-blocker, MRA and sacubitril/valsartan reduces the risk of sudden death and is recommended for patients with HFrEF and ventricular arrhythmias (as for other patients)(see Section 7).	I	A	162, 170–175
Implantation of an ICD or CRT-D device is recommended for selected patients with HFrEF (see Section 8).	I	A	223–226, 388
Several strategies should be considered to reduce recurrent symptomatic arrhythmias in patients with an ICD (or in those who are not eligible for ICD), including attention to risk factors and optimal pharmacological treatment of HF, amiodarone, catheter ablation and CRT.	IIa	C	
Routine use of antiarrhythmic agents is not recommended in patients with HF and asymptomatic ventricular arrhythmias because of safety concerns (worsening HF, proarrhythmia, and death).	III	A	247, 248, 364, 365

ACEI = angiotensin-converting enzyme inhibitor; ARB = angiotensin receptor blocker; CRT = cardiac resynchronization therapy; CRT-D = defibrillator with cardiac resynchronization therapy; HF = heart failure; HFrEF = heart failure with reduced ejection fraction; ICD = implantable cardioverter defibrillator; MRA = mineralocorticoid receptor antagonist.
[a]Class of recommendation.
[b]Level of evidence.
[c]Reference(s) supporting recommendations.

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Khuyến cáo xử trí loạn nhịp thất chậm/ST

Recommendations	Class [a]	Level [b]	Ref [c]
When pauses >3 seconds are identified on the ECG, or if the bradycardia is symptomatic and the resting ventricular rate is <50 bpm in sinus rhythm or ≤60 bpm in AF, it should be considered whether there is need for any rate limiting medications prescribed; for patients in sinus rhythm beta-blockers should be reduced in dose or withdrawn only as a last resort.	IIa	C	
For patients with symptomatic, prolonged or frequent pauses despite adjustment of rate limiting medication, either beta-blocker withdrawal or pacing may be considered as the next step.	IIb	C	
Pacing solely to permit initiation or titration of beta-blocker therapy in the absence of a conventional pacing indication is not recommended.	III	C	
In patients with HFrEF who require pacing and who have high degree AV block, CRT rather than RV pacing is recommended.	I	A	274, 275, 290
In patients with HFrEF who require pacing who do not have high degree AV block, pacing modes that avoid inducing or exacerbating ventricular dyssynchrony should be considered.	IIa	C	

AF = atrial fibrillation; AV = atrio-ventricular; bpm = beats per minute; CRT = cardiac resynchronization therapy; ECG = electrocardiogram; HFrEF = heart failure with reduced ejection fraction; RV = right ventricular.
[a]Class of recommendation.
[b]Level of evidence.
[c]Reference(s) supporting recommendations.

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Các bệnh kèm theo/ bệnh nhân suy tim

Tầm quan trọng các bệnh kèm theo/ b/n suy tim (1)

1. Interfere with the diagnostic process of HF (e.g. COPD as a potentially confounding cause of dyspnoea).[390, 391]
2. aggravate HF symptoms and further impair quality of life.[391, 392]
3. contribute to the burden of hospitalizations and mortality,[393] as the main cause of readmissions at 1 and 3 months.[394]
4. may affect the use of treatments for HF (e.g. renin–angiotensin system inhibitors contra-indicated in some patients with severe renal dysfunction or beta-blockers relatively contra-indicated in asthma).[395, 396]

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Tầm quan trọng các bệnh kèm theo/ b/n suy tim (2)

5. evidence base for HF treatment is more limited as co-morbidities were mostly an exclusion criterion in trials; efficacy and safety of interventions is therefore often lacking in the presence of co-morbidities.
6. drugs used to treat co-morbidities may cause worsening HF (e.g. NSAIDs given for arthritis, some anti-cancer drugs).[397]
7. interaction between drugs used to treat HF and those used to treat co-morbidities, resulting in lower efficacy, poorer safety, and the occurrence of side effects (e.g. beta-blockers for HFrEF and beta-agonists for COPD and asthma).[391, 395, 396]

HF = heart failure; COPD = chronic obstructive pulmonary disease; HFrEF = heart failure with reduced ejection fraction; NSAIDs = non-steroidal anti-inflammatory drugs.

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Khuyến cáo điều trị cơn đau thắt ngực ổn định/ST có TC/CN kèm PXTM giảm (1)

Recommendations	Class [a]	Level [b]	Ref [c]
Step 1			
A beta-blocker (in an evidence-based dose or maximum tolerated) is recommended as the preferred first-line treatment to relieve angina because of the associated benefits of this treatment (reducing the risk of HF hospitalization and the risk of premature death).	I	A	167–173
Step 2: on top of beta-blocker or if a beta-blocker is not tolerated			
Ivabradine should be considered as an anti-anginal drug in suitable HFrEF patients (sinus rhythm and HR ≥70 bpm) as per recommended HFrEF management.	IIa	B	180, 410, 411

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Khuyến cáo điều trị cơn đau thắt ngực ổn định/ST có TC/CN kèm PXTM giảm (2)

Step 3: For additional angina symptom relief – except from any combination not recommended			
A short-acting oral or transcutaneous nitrate should be considered (effective anti-anginal treatment, safe in HF).	IIa	A	183, 184, 409
A long acting oral or transcutaneous nitrate should be considered (effective anti-anginal treatment, not extensively studied in HF).	IIa	B	183, 184
Trimetazidine may be considered when angina persists despite treatment with a beta-blocker (or alternative) to relieve angina (effective anti-anginal treatment, safe in HF).	IIb	A	400–403
Amlodipine may be considered in patients unable to tolerate a beta-blocker to relieve angina (effective anti-anginal treatment, safe in HF).	IIb	B	215, 407
Nicorandil may be considered in patients unable to tolerate a beta-blocker to relieve angina (effective anti-anginal treatment, but safety in HF uncertain).	IIb	C	
Ranolazine may be considered in patients unable to tolerate a beta-blocker to relieve angina (effective anti-anginal treatment, but safety in HF uncertain).	IIb	C	

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Khuyến cáo điều trị cơn đau thắt ngực ổn định/ST có TC/CN kèm PXTM giảm (3)

Step 4: Myocardial revascularization			
Myocardial revascularization is recommended when angina persists despite treatment with anti-angina drugs.	I	A	385, 412, 413
Alternatives to myocardial revascularization: combination of ≥3 antianginal drugs (from those listed above) may be considered when angina persists despite treatment with beta-blocker, ivabradine and an extra anti-angina drug (excluding the combinations not recommended below).	IIb	C	
The following are NOT recommended:			
(1) Combination of any of ivabradine, ranolazine, and nicorandil because of unknown safety.	III	C	
(2) Combination of nicorandil and a nitrate (because of lack of additional efficacy).	III	C	
Diltiazem and verapamil are not recommended because of their negative inotropic action and risk of worsening HF.	III	C	214

bpm = beats per minute; HF = heart failure; HFrEF = heart failure with reduced ejection fraction; NYHA = New York Heart Association.
[a]Class of recommendation.
[b]Level of evidence.
[c]Reference(s) supporting recommendations.

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Khuyến cáo điều trị THA/suy tim có TC/CN kèm PXTM giảm (1)

Recommendations	Class [a]	Level [b]	Ref [c]
Step 1			
ACE-I (or ARB), a beta-blocker or an MRA (or a combination) is recommended to reduce blood pressure as first-, second- and third-line therapy, respectively, because of their associated benefits in HFrEF (reducing the risk of death and HF hospitalization). They are also safe in HFpEF.	I	A	2, 164, 165, 167, 168, 171–174, 182, 461–463
Step 2			
A thiazide diuretic (or if the patient is being treated with a thiazide diuretic, switching to a loop diuretic) is recommended to reduce blood pressure when hypertension persists despite treatment with a combination of an ACE-I (or alternatively ARB but NOT together withan ACE-I), a beta-blocker and an MRA.	I	C	

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Khuyến cáo điều trị THA/suy tim có TC/CN kèm PXTM giảm (2)

Step 3			
Amlodipine or hydralazine is recommended to reduce blood pressure when hypertension persists despite treatment with a combination of an ACE-I (or alternatively ARB but NOT together withan ACE-I), a beta-blocker, an MRA and a diuretic.	I	A	183, 184, 215, 409
Felodipine should be considered to reduce blood pressure when hypertension persists despite treatment with a combination of an ACE-I (or alternatively ARB but NOT together withan ACE-I), a beta-blocker, an MRA and a diuretic.	IIa	B	216
Moxonidine is not recommended to reduce blood pressure because of safety concerns in HFrEF patients (increased mortality).	III	B	460
Alpha-adrenoceptor antagonists are not recommended to reduce blood pressure because of safety concerns in HFrEF patients (neurohormonal activation, fluid retention, worsening HF).	III	A	458, 464, 465
Diltiazem and verapamil are not recommended to reduce blood pressure in patients with HFrEF because of their negative inotropic action and risk of worsening HF.	III	C	214

ACE = angiotensin-converting enzyme; ARB = angiotensin receptor blocker; HF = heart failure; HFmrEF = heart failure with mid-range ejection fraction; HFpEF = heart failure with preserved ejection fraction; HFrEF = heart failure with reduced ejection fraction; MRA = mineralocorticoid receptor antagonist; NYHA = New York Heart Association.
[a]Class of recommendation.
[b]Level of evidence.
[c]Reference(s) supporting recommendations.

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Khuyến cáo điều trị ĐTĐ và thiếu sắt/b/n ST

Recommendations	Class [a]	Level [b]	Ref [c]
Iron deficiency			
Intravenous FCM should be considered in symptomatic patients with HFrEF and iron deficiency (serum ferritin <100 µg/L, or ferritin between 100–299 µg/L and transferrin saturation <20%) in order to alleviate HF symptoms, and improve exercise capacity and quality of life.	IIa	A	469, 470
Diabetes			
Metformin should be considered as a first-line treatment of glycaemic control in patients with diabetes and HF, unless contra-indicated.	IIa	C	440 ,441

FCM = ferric carboxymaltose; HF = heart failure; HFrEF = heart failure with reduced ejection fraction.
[a]Class of recommendation.
[b]Level of evidence.
[c]Reference(s) supporting recommendations.
Treatments not recommended for other co-morbidities in patients with heart failure

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TL: Ponikowski P. 2016 ESC Guideline for the diagnosis and treatment of acute and chronic heart failure. Eur. H. J, May 20, 2016

Các biện pháp hoặc thuốc không nên sử dụng/b/n ST

Recommendations	Class [a]	Level [b]	Ref [c]
Sleep apnoea			
Adaptive servo-ventilation is not recommended in patients with HFrEF and a predominant central sleep apnoea because of an increased all-cause and cardiovascular mortality.	III	B	473
Diabetes			
Thiazolidinediones (glitazones) are not recommended in patients with HF, as they increase the risk of HF worsening and HF hospitalization.	III	A	209, 210
Arthritis			
NSAIDs or COX-2 inhibitors are not recommended in patients with HF, as they increase the risk of HF worsening and HF hospitalization.	III	B	211–213

COX-2 = cyclooxygenase 2; HF = heart failure; HFrEF = heart failure with reduced ejection fraction; NSAID = non-steroidal anti-inflammatory drug.
[a]Class of recommendation.
[b]Level of evidence.
[c]Reference(s) supporting recommendations.

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Khuyến cáo điều trị bệnh van tim/b/n ST (1)

Recommendations	Class [a]	Level [b]	Ref [c]
In symptomatic patients with reduced LVEF and 'low-flow, low-gradient' aortic stenosis (valve area <1 cm^2, LVEF <40%, mean pressure gradient <40 mmHg), low-dose dobutamine stress echocardiography should be considered to identify those with severe aortic stenosis suitable for valve replacement.	IIa	C	
TAVI is recommended in patients with severe aortic stenosis who are not suitable for surgery as assessed by a 'heart team' and have predicted post-TAVI survival >1 year.	I	B	495, 496, 509
TAVI should be considered in high-risk patients with severe aortic stenosis who may still be suitable for surgery, but in whom TAVI is favoured by a 'heart team' based on the individual risk profile and anatomic suitability.	IIa	A	497, 498

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Khuyến cáo điều trị bệnh van tim/b/n ST (2)

In patients with severe aortic regurgitation, aortic valve repair or replacement is recommended in all symptomatic patients and in asymptomatic patients with resting LVEF ≤50%, who are otherwise fit for surgery.	I	C	317
Evidence-based medical therapy in patients with HFrEF is recommended in order to reduce functional mitral regurgitation.	I	C	
Combined surgery of secondary mitral regurgitation and coronary artery bypass grafting should be considered in symptomatic patients with LV systolic dysfunction (LVEF <30%), requiring coronary revascularization for angina recalcitrant to medical therapy.	IIa	C	
Isolated surgery of non-ischaemic regurgitant mitral valve in patients with severe functional mitral regurgitation and severe LV systolic dysfunction (LVEF <30%) may be considered in selected patients in order to avoid or postpone transplantation.	IIb	C	

HFrEF = heart failure with reduced ejection fraction; LV = left ventricular; LVEF = left ventricular ejection fraction; TAVI = transaortic valve implantation.
[a]Class of recommendation.
[b]Level of evidence.
[c]Reference(s) supporting recommendations.

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Kết luận

- Nguyên nhân suy tim đa dạng: quan trọng nhất THA, bệnh ĐMV: cần tìm
- Phòng ngừa: theo nguyên nhân; thay đổi lối sống
- Chẩn đoán: lâm sàng, ECG, x-quang ngực, siêu âm tim