Readmission congestive heart failure

during 1st October 2013 - 30th September 2016

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Ext. Natthaphat
Ext.Paranee
Ext. Kamolpat

Outline

- Introduce
- Objective
- Method
- Information
- Review of CHF and recommendation
- Discussion
- Limitation

Introduction

จากการรวบรวมข้อมูลผู้ป่วยในระยะเวลา 3 ปี ในปีงบประมาณ 2557-59 ของ รพ.สอยดาว พบว่ามีผู้ป่วยจำนวนหนึ่ง กลับเข้า มารับการรักษาในรพ. ภายใน 28 วัน นับจากการเข้ารับการรักษาครั้งแรก จึงเล็งเห็นว่าการศึกษาหาสาเหตุจะเป็นประโยชน์ต่อการปรับปรุง ระบบการดูแลรักษาคนไข้และแนวทางการดูแลให้ดียิ่งขึ้น

introduction

Hospital re-admission

- Disrupt to patient and care-giver
- Costly to the health care system
- Increase risk of hospital acquired infection
- Quality of life

Objective

To study re-admission cause of CHF

To identify strength & pitfall of the initial care

To reduce of CHF re-admission rate

Method

1. Project planning

2. Inclusion criteria -All inpatient of Soidao hospital during Oct 2014 - Sep 2016 who re-hospitalization within 28 days after discharge from previous admission from CHF - Patient is alive upon discharge in the previous admission

3. Data collection: from Soidao hospital information center

4. Categorization and review medical record

5. Data summary

ตารางแจกแจงจำนวนคนที่ re-admission ในแต่ละเดือน ในปีงบประมาณ 2015 (คน)

Disease/month	oct	nov	dec	jan	feb	mar	apr	may	june	july	aug	sep	รวม
COPD	-	1	3	1	1	-	2	1	3	-	1	1	14
CHF	1	-	1	-	-	-	-	-	3	-	1	-	6
ATN	-	-	-	-	-	-	-	-	1	-	1	3	5
neonatal Jx	-	1	-	1	1	-	-	-	-	-	-	-	3
AGE	1	-	-	-	-	-	1	1	-	-	-	-	3
pneumonia	-	2	-	-	-	-	-	1	1	-	-	-	4
IE	1	1	-	-	-	-	1	-	-	-	-	1	4
HCC	-	-	-	-	-	-	-	1	1	-	-	-	2
celllulitis	-	-	-	-	1	-	-	-	-	-	-	-	1
CKD	-	-	-	1	-	-	-	-	-	-	-	-	2
fever	-	1	-	-	-	-	-	-	-	-	-	1	3
surgical	-	-	1	-	-	-	-	-	1	-	-	-	2

ตารางแจกแจงจำนวนครั้งของการ admission ในแต่ละเดือน ในปีงบประมาณ 2015 (ครั้ง)

Disease/month	oct	nov	dec	jan	feb	mar	apr	may	june	july	aug	sep	รวม
COPD	-	3	6	2	3	-	4	3	6	-	3	2	32
CHF	2	-	2	-	-	-	-	-	6	-	4	-	14
ATN	-	-	-	-	-	-	-	-	2	-	2	7	11
neonatal Jx	-	2	-	2	2	-	-	-	-	-	-	-	6
AGE	2	1	-	-	-	-	3	2	_	_	_	_	8
pneumonia	-	4	-	-	-	-	-	2	2	-	-	-	8
IE	2	3	-	-	-	-	2	-	-	-	-	2	9
HCC	-	-	-	-	-	-	-	2	2	-	-	-	4
celllulitis	-	-	-	-	2	-	-	-	-	-	-	-	2
CKD	_	2	-	2	_	_	_	_	_	_	_	_	4
fever	_	2	_	_	_	_	2	_	_	_	_	2	6
surgical	_	-	2	_	_	_	_	_	2	_	_	_	4

Review of CHF

Reference ESC Guideline 2016

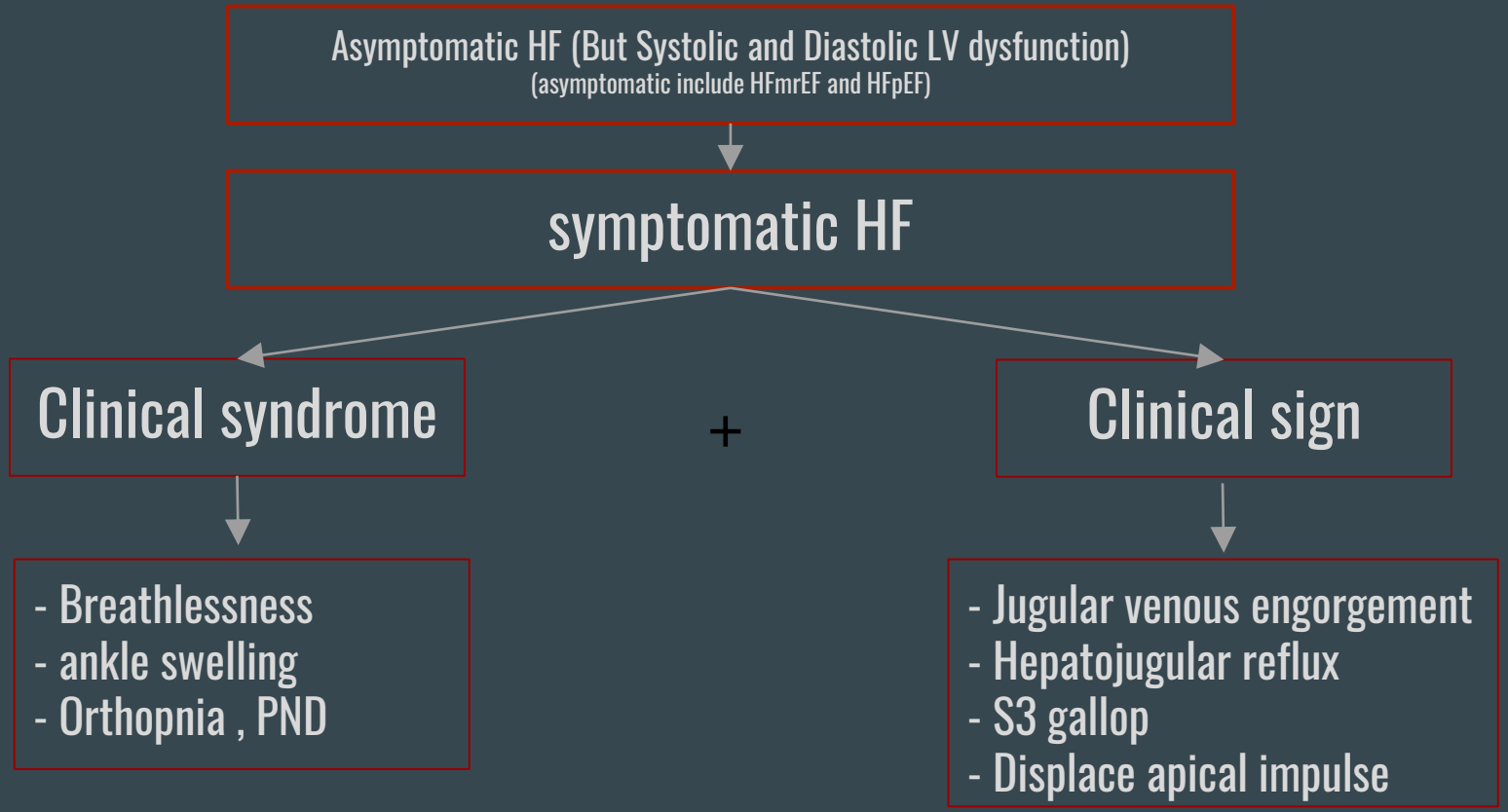
Review : Class and recommendation

Table 1.2 Level of evidence

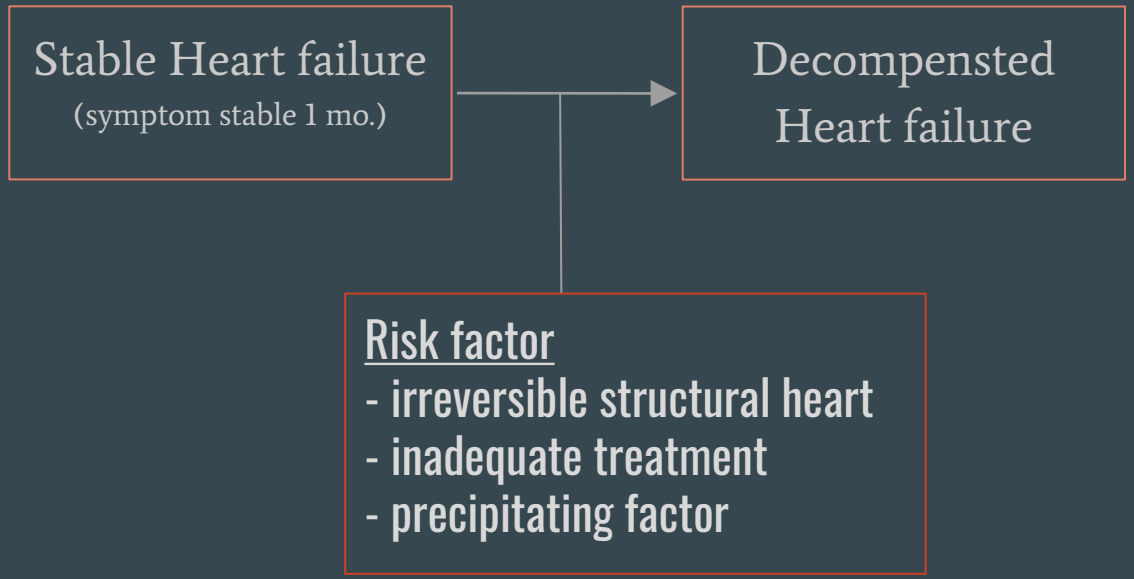
Level of evidence A	Data derived from multiple randomized clinical trials or meta-analyses.
Level of evidence B	Data derived from a single randomized clinical trial or large non-randomized studies.
Level of evidence C	Consensus of opinion of the experts and/or small studies, retrospective studies, registries.

Classes of recommendations	Definition	Suggested wording to use
Class I	Evidence and/or general agreement that a given treatment or procedure is beneficial, useful, effective.	Is recommended/is indicated
Class II	Conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of the given treatment or procedure.	
Class IIa	*Weight of evidence/opinion is in favour of usefulness/efficacy.*	Should be considered
Class IIb	*Usefulness/efficacy is less well established by evidence/opinion.*	May be considered
Class III	Evidence or general agreement that the given treatment or procedure is not useful/effective, and in some cases may be harmful.	Is not recommended

Natural history of disease



Natural history of disease



Classification HF

Table 3.1 Definition of heart failure with preserved (HFpEF), mid-range (HFmrEF) and reduced ejection fraction (HFrEF)

Type of HF		HFrEF	HFmrEF	HFpEF
CRITERIA	1	Symptoms ± Signs[a]	Symptoms ± Signs[a]	Symptoms ± Signs[a]
	2	LVEF <40%	LVEF 40–49%	LVEF ≥50%
	3	–	1. Elevated levels of natriuretic peptides[b]; 2. At least one additional criterion: a. relevant structural heart disease (LVH and/or LAE), b. diastolic dysfunction (for details see Section 4.3.2).	1. Elevated levels of natriuretic peptides[b]; 2. At least one additional criterion: a. relevant structural heart disease (LVH and/or LAE), b. diastolic dysfunction (for details see Section 4.3.2).

BNP = B-type natriuretic peptide; 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; LAE = left atrial enlargement; LVEF = left ventricular ejection fraction; LVH = left ventricular hypertrophy; NT-proBNP = N-terminal pro-B type natriuretic peptide.

[a]Signs may not be present in the early stages of HF (especially in HFpEF) and in patients treated with diuretics.

[b]BNP>35 pg/ml and/or NT-proBNP>125 pg/mL.

Severity

Web Table 3.2 New York Heart Association functional classification based on severity of symptoms and physical activity

Class I	No limitation of physical activity. Ordinary physical activity does not cause undue breathlessness, fatigue, or palpitations.
Class II	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in undue breathlessness, fatigue, or palpitations.
Class III	Marked limitation of physical activity. Comfortable at rest, but less than ordinary physical activity results in undue breathlessness, fatigue, or palpitations.
Class IV	Unable to carry on any physical activity without discomfort. Symptoms at rest can be present. If any physical activity is undertaken, discomfort is increased.

Severity ไม่สัมพันธ์กับ EF !!

Etiology

DISEASED MYOCARDIUM		
Ischaemic heart disease	Myocardial scar	
	Myocardial stunning/hibernation	
	Epicardial coronary artery disease	
	Abnormal coronary microcirculation	
	Endothelial dysfunction	
Toxic damage	Recreational substance abuse	Alcohol, cocaine, amphetamine, anabolic steroids.
	Heavy metals	Copper, iron, lead, cobalt.
	Medications	Cytostatic drugs (e.g. anthracyclines), immunomodulating drugs (e.g. interferons monoclonal antibodies such as trastuzumab, cetuximab), antidepressant drugs, antiarrhythmics, non-steroidal anti-inflammatory drugs, anaesthetics.
	Radiation	
Immune-mediated and inflammatory damage	Related to infection	Bacteria, spirochaetes, fungi, protozoa, parasites (Chagas disease), rickettsiae, viruses (HIV/AIDS).
	Not related to infection	Lymphocytic/giant cell myocarditis, autoimmune diseases (e.g. Graves' disease, rheumatoid arthritis, connective tissue disorders, mainly systemic lupus erythematosus), hypersensitivity and eosinophilic myocarditis (Churg–Strauss).
Infiltration	Related to malignancy	Direct infiltrations and metastases.
	Not related to malignancy	Amyloidosis, sarcoidosis, haemochromatosis (iron), glycogen storage diseases (e.g. Pompe disease), lysosomal storage diseases (e.g. Fabry disease).
Metabolic derangements	Hormonal	Thyroid diseases, parathyroid diseases, acromegaly, GH deficiency, hypercortisolaemia, Conn's disease, Addison disease, diabetes, metabolic syndrome, phaeochromocytoma, pathologies related to pregnancy and peripartum.
	Nutritional	Deficiencies in thiamine, L-carnitine, selenium, iron, phosphates, calcium, complex malnutrition (e.g. malignancy, AIDS, anorexia nervosa), obesity.
Genetic abnormalities	Diverse forms	HCM, DCM, LV non-compaction, ARVC, restrictive cardiomyopathy (for details see respective expert documents), muscular dystrophies and laminopathies.

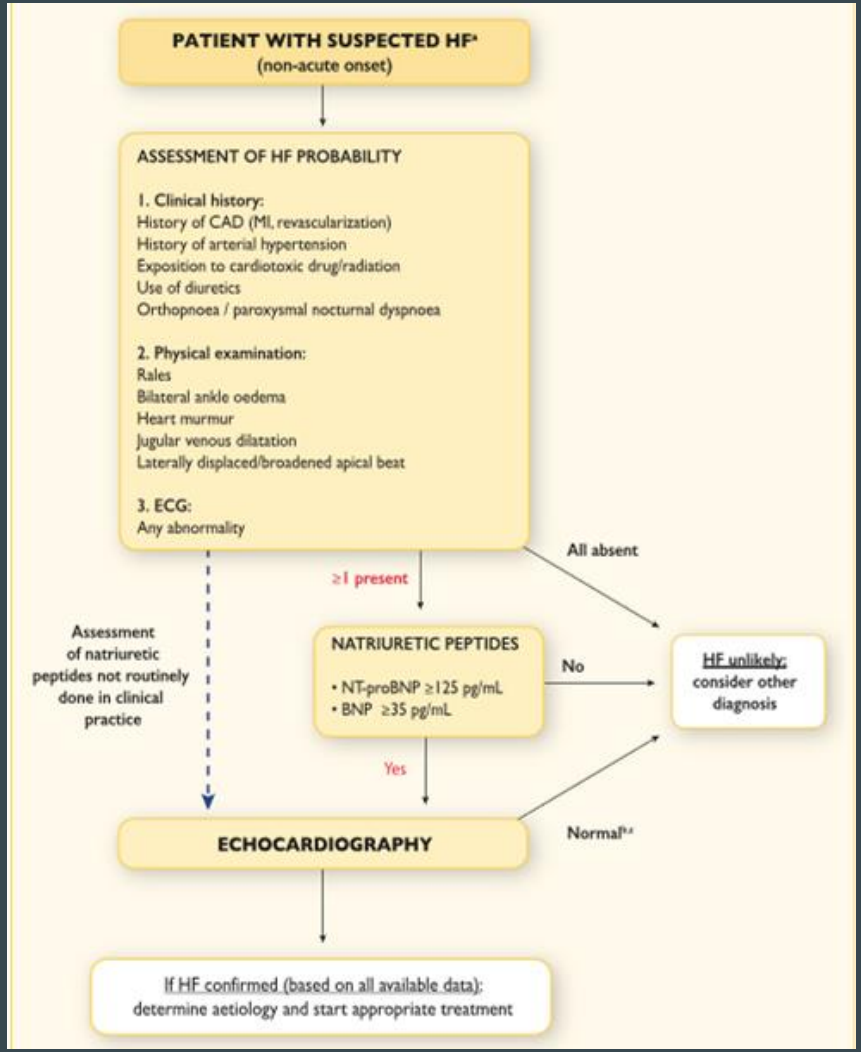
Etiology

ABNORMAL LOADING CONDITIONS		
Hypertension		
Valve and myocardium structural defects	Acquired	Mitral, aortic, tricuspid and pulmonary valve diseases.
	Congenital	Atrial and ventricular septum defects and others (for details see a respective expert document).
Pericardial and endomyocardial pathologies	Pericardial	Constrictive pericarditis Pericardial effusion
	Endomyocardial	HES, EMF, endocardial fibroelastosis.
High output states		Severe anaemia, sepsis, thyrotoxicosis, Paget's disease, arteriovenous fistula, pregnancy.
Volume overload		Renal failure, iatrogenic fluid overload.
ARRHYTHMIAS		
Tachyarrhythmias		Atrial, ventricular arrhythmias.
Bradyarrhythmias		Sinus node dysfunctions, conduction disorders.

ARVC = arrhythmogenic right ventricular cardiomyopathy; DCM = dilated cardiomyopathy; EMF = endomyocardial fibrosis; GH = growth hormone; HCM = hypertrophic cardiomyopathy; HES = hypereosinophilic syndrome; HIV/AIDS = human immunodeficiency virus/acquired immune deficiency syndrome; LV = left ventricular.

Diagnosis

EKG normal R/O HF !



Key structural alterations are a left atrial volume index (LAVI) .34 mL/m2 or a left ventricular mass index (LVMI) ≥115 g/m2 for males and ≥95 g/m2 for fe-males.[65,67,72]
Key functional alterations are an E/e' ≥13 and a mean e' septal and lateral wall ,9 cm/s.

Ix

Recommendations	Class [a]	Level [b]
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
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

Genetic counseling

- Causation Have role in genetic counseling : HCM, idiopathic DCM and ARVC

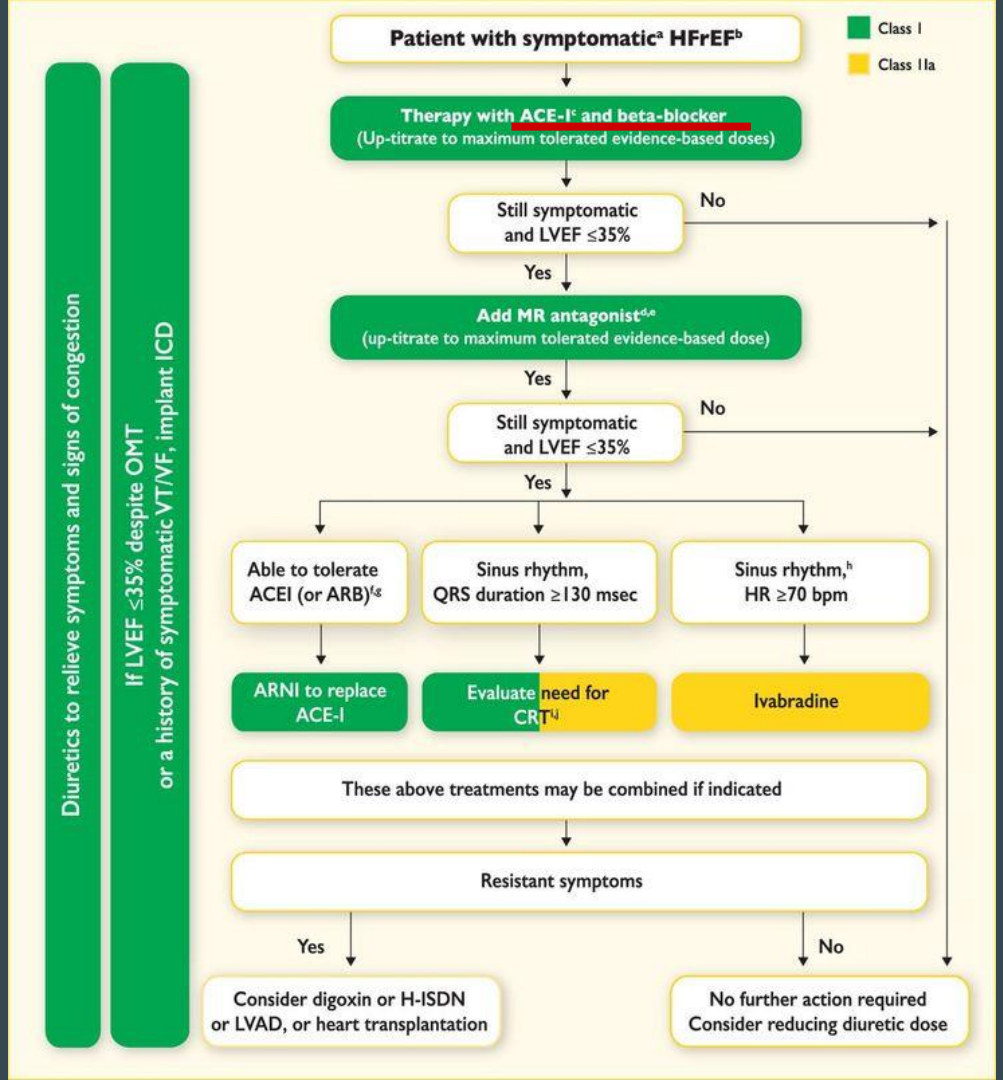
Delaying or preventing the development of overt heart failure

- Antihypertensive drug
- Hypoglycaemic drug : only emplagliflozin
- Cessation smoking (ไม่มีหลักฐานว่าช่วยลด overt HF แต่ช่วยลด CVS risk)
- Exercise
- Statin

Treatment

Lifestyle advice

Education topic	Patient skills	Professional behaviours
Definition, aetiology and trajectory of HF (including prognosis).	• Understand the cause of HF, symptoms and disease trajectory. • Make realistic decisions including decisions about treatment at end-of-life.	• Provide oral and written information that takes account of educational grade and health literacy. • Recognize HF disease barriers to communication and provide information at regular time intervals. • Sensitively communicate information on prognosis at time of diagnosis, during decision making about treatment options, when there is a change in the clinical condition and whenever the patient requests.
Symptom monitoring and self-care.	• Monitor and recognize change in signs and symptoms. • Know how and when to contact a healthcare professional. • In line with professional advice, know when to self-manage diuretic therapy and fluid intake.	• Provide individualized information to support self-management such as: ⇨ In the case of increasing dyspnoea or oedema or a sudden unexpected weight gain of >2 kg in 3 days, patients may increase their diuretic dose and/or alert their healthcare team. ⇨ Use of flexible diuretic regime. ⇨ Self-care support aids such as dosette box when appropriate.
Pharmacological treatment.	• Understand the indications, dosing and side effects of drugs. • Recognize the common side effects and know when to notify a healthcare professional. • Recognize the benefits of taking medication as prescribed.	• Provide written and oral information on dosing, effects and side effects (see web tables 7.4–7.8 – practical guidance on use of pharmacological agents).
Implanted devices and percutaneous/surgical interventions.	• Understand the indications and aims of procedures/implanted devices. • Recognize the common complications and know when to notify a healthcare professional. • Recognize the importance and benefits of procedures/implanted devices.	• Provide written and oral information on benefits and side effects. • Provide written and oral information on regular control of device functioning, along with documentation of regular check-up.
Immunization	• Receive immunization against influenza and pneumococcal disease	• Advise on local guidance and immunization practice.
Diet and alcohol	• Avoid excessive fluid intake. • Recognize need for altered fluid intake such as: ⇨ Increase intake during periods of high heat and humidity, nausea/vomiting ⇨ Fluid restriction of 1.5–2 L/day may be considered in patients with severe HF to relieve symptoms and congestion. • Monitor body weight and prevent malnutrition. • Eat healthily, avoid excessive salt intake (>6 g/day) and maintain a healthy body weight. • Abstain from or avoid excessive alcohol intake, especially for alcohol induced cardiomyopathy.	• Individualize information on fluid intake to take into account body weight and periods of high heat and humidity. Adjust advice during periods of acute decompensation and consider altering these restrictions towards end-of-life. • Tailor alcohol advice to aetiology of HF; e.g. abstinence in alcoholic cardiomyopathy. • Normal alcohol guidelines apply (2 units per day in men or 1 unit per day in women). 1 unit is 10 mL of pure alcohol (e.g. 1 glass of wine, 1/2 pint of beer, 1 measure of spirit). • For management of obesity (see Section 11.15).
Smoking and recreational substance use.	• Stop smoking and taking recreational substances.	• Refer for specialist advice for smoking cessation and drug withdrawal and replacement therapy. • Consider referral for cognitive behavioural theory and psychological support if patient wishes support to stop smoking.
Exercise	• Undertake regular exercise sufficient to provoke mild or moderate breathlessness.	• Advice on exercise that recognizes physical and functional limitations, such as frailty, comorbidities. • Referral to exercise programme when appropriate.
Travel and leisure	• Prepare travel and leisure activities according to physical capacity. • Monitor and adapt fluid intake according to humidity (flights and humid climates). • Be aware of adverse reactions to sun exposure with certain medication (such as amiodarone). • Consider effect of high altitude on oxygenation. • take medicine in cabin luggage in the plane, have a list with you of treatments and the dosage with the generic name.	• Refer to local country specific driving regulations regarding ICD. • Provide advice regarding flight security devices in presence of ICD.
Sleep and breathing (see co-morbidities Section 11.16).	• Recognize problems with sleeping, their relationship with HF and how to optimize sleep.	• Provide advice such as timing of diuretics, environment for sleep, device support. • In presence of sleep-disordered breathing provide advice on weight reduction/control.
Sexual activity (see co-morbidities Section 11.7).	• Be reassured about engaging in sex, provided sexual activity does not provoke undue symptoms. • Recognize problems with sexual activity, their relationship with HF and applied treatment and how to treat erectile dysfunction.	• Provide advice on eliminating factors predisposing to erectile dysfunction and available pharmacological treatment of erectile dysfunction. • Refer to specialist for sexual counselling when necessary.


Class I
Class IIa
Patient with symptomatic[a] HFrEF[b]
Therapy with ACE-I[c] and beta-blocker
(Up-titrate to maximum tolerated evidence-based doses)
Still symptomatic and LVEF ≤35%
No
Yes
Add MR antagonist[d,e]
(up-titrate to maximum tolerated evidence-based dose)
Yes
Still symptomatic and LVEF ≤35%
No
Yes
Able to tolerate ACEI (or ARB)[f,g]
Sinus rhythm, QRS duration ≥130 msec
Sinus rhythm,[h] HR ≥70 bpm
ARNI to replace ACE-I
Evaluate need for CRT[i,j]
Ivabradine
These above treatments may be combined if indicated
Resistant symptoms
Yes
No
Consider digoxin or H-ISDN or LVAD, or heart transplantation
No further action required
Consider reducing diuretic dose
Diuretics to relieve symptoms and signs of congestion
If LVEF ≤35% despite OMT or a history of symptomatic VT/VF, implant ICD

Drug

Treatment recommended in all symptomatic patients with Heart failure with reduced ejection fraction

1. ACEI - reduced mortality and morbidity (unless contraindication)
2. Beta-blocker - reduced mortality and morbidity
3. Mineralocorticoid/Aldosterone receptor antagonists - be careful in patient with impaired renal function and K > 5 mmol/L

Drug

Treatment of Heart failure with preserved ejection fraction (includes mid-range EF)

1. Diuretics - improve symptoms

* Recommended to screen for both cardiovascular and non- cardiovascular causes : if present, should be treated for improving symptoms and patients' well being

2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure

Other pharmacological treatments recommended in selected patients with symptomatic (NYHA Class II-IV) failure with reduced ejection fraction

Recommendations	Class [a]	Level [b]
Diuretics		
Diuretics are recommended in order to improve symptoms and exercise capacity in patients with signs and/or symptoms of congestion.	I	B
Diuretics should be considered to reduce the risk of HF hospitalization in patients with signs and/or symptoms of congestion.	IIa	B
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[c]	I	B
I_f-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
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
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
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

Evidence-based doses of disease-modifying drugs in heart failure with reduced ejection fraction (or after myocardial infarction)

	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.*	10–20 *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.*

o.d. = omne in die (once daily);
b.i.d. = bis in die (twice daily);
t.i.d. = ter in die (three times a day).
MRA = mineralocorticoid receptor antagonist;

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

HF with comorbidity

1. Hypertension

ACEIs / ARBs (1st)

If BP is not controlled by ACEIs or ARBs > Beta-blocker (2nd) , MRA (3rd) , Diuretics(Thiazide ⇄ Loop diuretics) , Hydralazine and Amlodipine

HF with comorbidity

2. DMT2 > poorer functional status and worse prognosis

Metformin (1st)

Sulfonylurea : increased risk of worsening HF so should be used with caution

Thiazolidinediones cause Na-water retention : not recommended

Insulin : sodium retaining hormone which may exacerbate fluid retention

DPP4; Gliptins may increase risk CVS events and worsening HF

HF with comorbidity

3. ACS and angina

Medication for angina control : Beta-blocker + trimetazidine/nitrates/amlodipine

Myocardial revascularization : PCI/CABG in HFrEF (LVEF </= 35%) and significant CAD (LAD or multivessel disease)

HF with comorbidity

4. Arrhythmia

New onset AF : Cardioversion, Beta blocker (I), Digoxin (IIa)

Rate control : Beta blocker and Digoxin (keep HR 60-100 bpm), AV Ablation

Rhythm control : Amiodarone , Cardioversion when hemodynamic unstability

Thromboembolism prophylaxis : assess CHA2DS2-VASc and HAS-BLED score, start oral anticoagulant if CHA2DS2-VASc score >/= 2

VF : find precipitating factor : Electrolyte abnormalities > treatment with Beta-blocker, MRA and Sacubitril/Valsartan and ICD is recommended on selected patients with HFrEF

HF with comorbidity

5. Valvular heart

Recommendations for treatment of valvular diseases in patients with heart failure

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
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.

HF with comorbidity

6. Hyperlidemia

- Statin : no role in patient with HF unless already receiving a statin for CAD

7. Lung disease (COPD and asthma)

- B1 antagonist (Bisoprolol, metoprolol, nebivolol) is preferred

8. Kidney dysfunction - ACEIs, ARBs may decrease GFR but should continue the treatment and should assess other possible causes of Serum creatinine rising

Statistic

Study design

- Retrospective cohort study
- Population(Patient) readmission with Congestive heart failure at Soidao hospital :
  - 2559 : 8 persons
  - 2558 : 3 persons
  - 2557 : 11 persons
- Data collection : Program Hotxp, Chart IPD
- Statistical analysis : average ,percentage

Epidermiology

1st October 2013 - 30th September 2016
Total 231 persons
(323 visits admission)

22 persons

Readmission (41 visits of readmission)

		Admission(persons)	readmissions(persons)	%
Sex	Male	91	6	6.59
	Female	140	16	11.43
year	2557	87	11	12.64
	2558	73	3	4.11
	2559	71	8	11.27
Age	<20	-	-	-
	20-40	9	1	11.11
	40-60	39	2	5.13
	60-80	125	13	10.4
	> 80	58	6	10.34

Epidermiology

		Admission(persons)	readmissions(persons)	%
Sex	Male	91	6	6.59
	Female	140	16	11.43
year	2557	87	11	12.64
	2558	73	3	4.11
	2559	71	8	11.27
Age	<20	-	-	-
	20-40	9	1	11.11
	40-60	39	2	5.13
	60-80	125	13	10.4
	> 80	58	6	10.34

Epidermiology

		Number visits of Admission	Number visits of Readmission	%
Sex	Male	125	19	15.2
	Female	198	22	11.11
year	2557	188	27	14.36
	2558	85	3	3.53
	2559	104	11	10.58
Age	<20	0	0	0
	20-40	10	1	10
	40-60	46	2	4.35
	60-80	184	30	16.30
	> 80	83	8	9.64

In 22 persons who readmission

Male

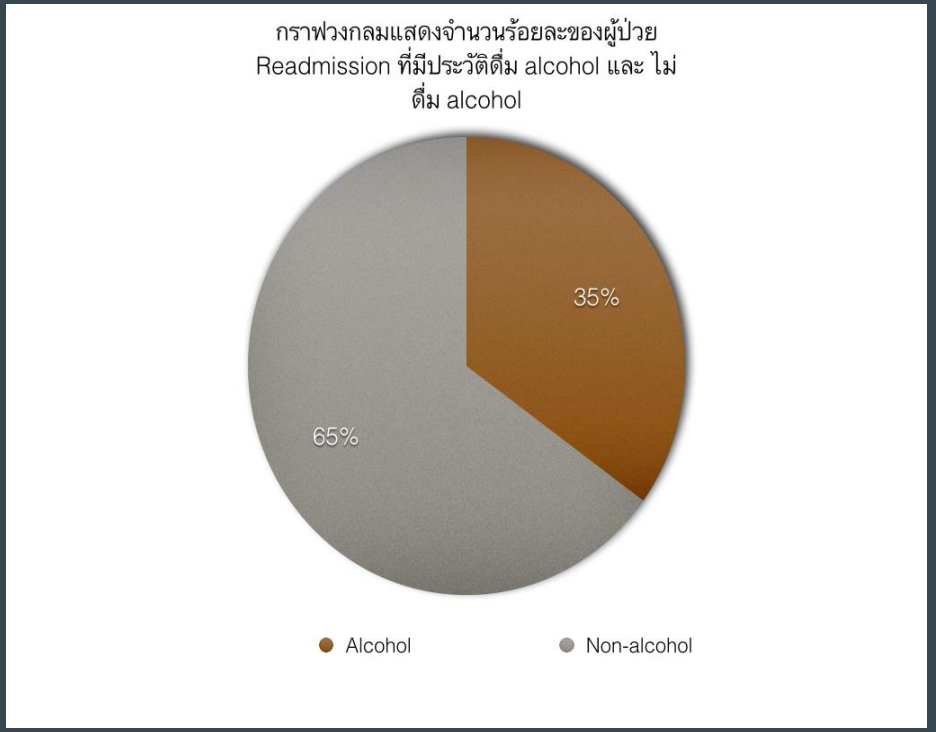
6

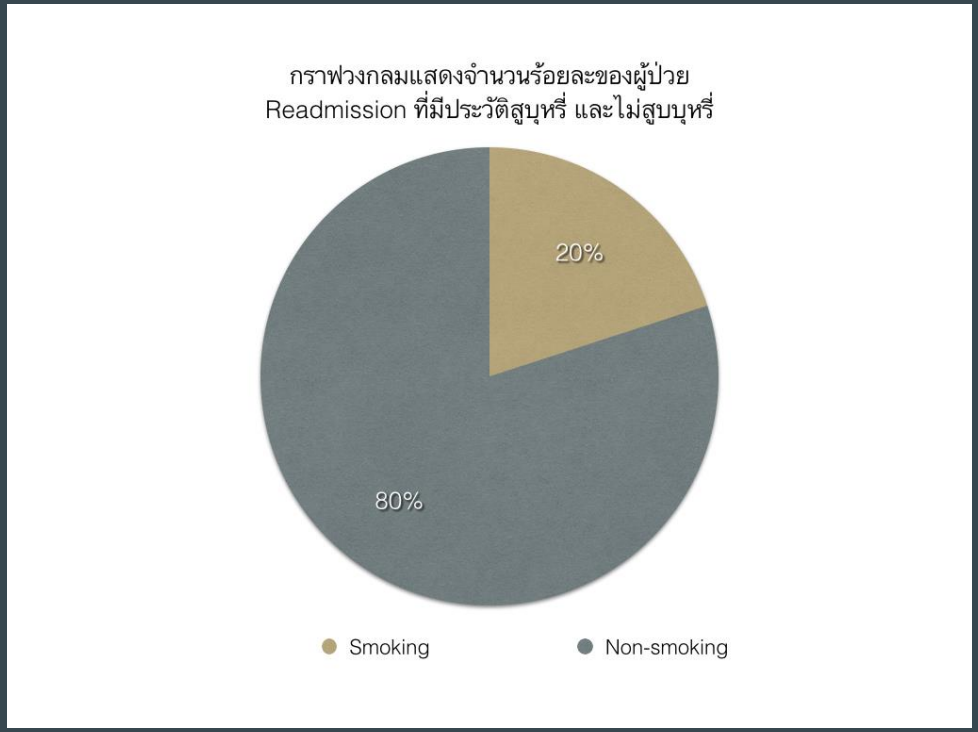
Female

16

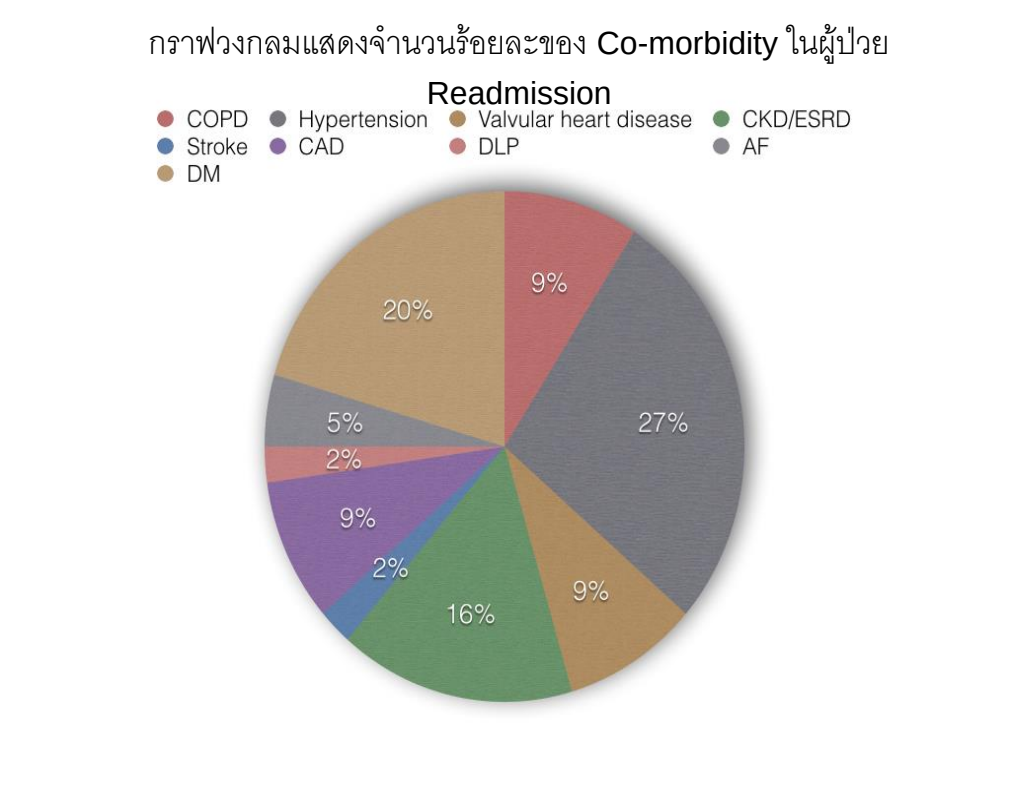
In 22 persons who readmission

Epidermiology



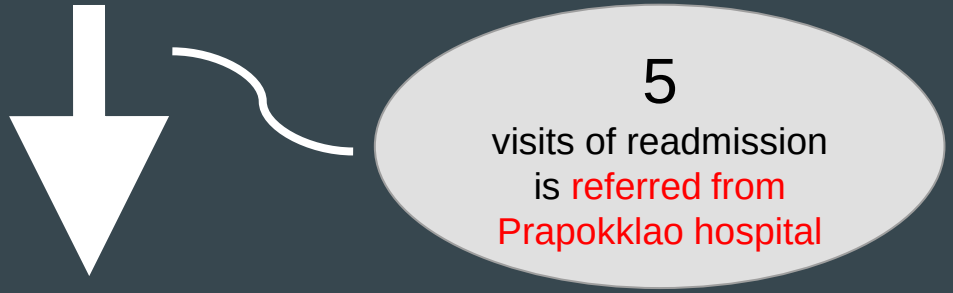


Epidemiology



Characteristics		persons
Co morbid disease	COPD	4
	Hypertension	12
	Valvular heart disease	4
	CKD/ESRD	7
	Stroke	1
	CAD	4
	Dyslipidemia	1
	AF	2
	DM	9

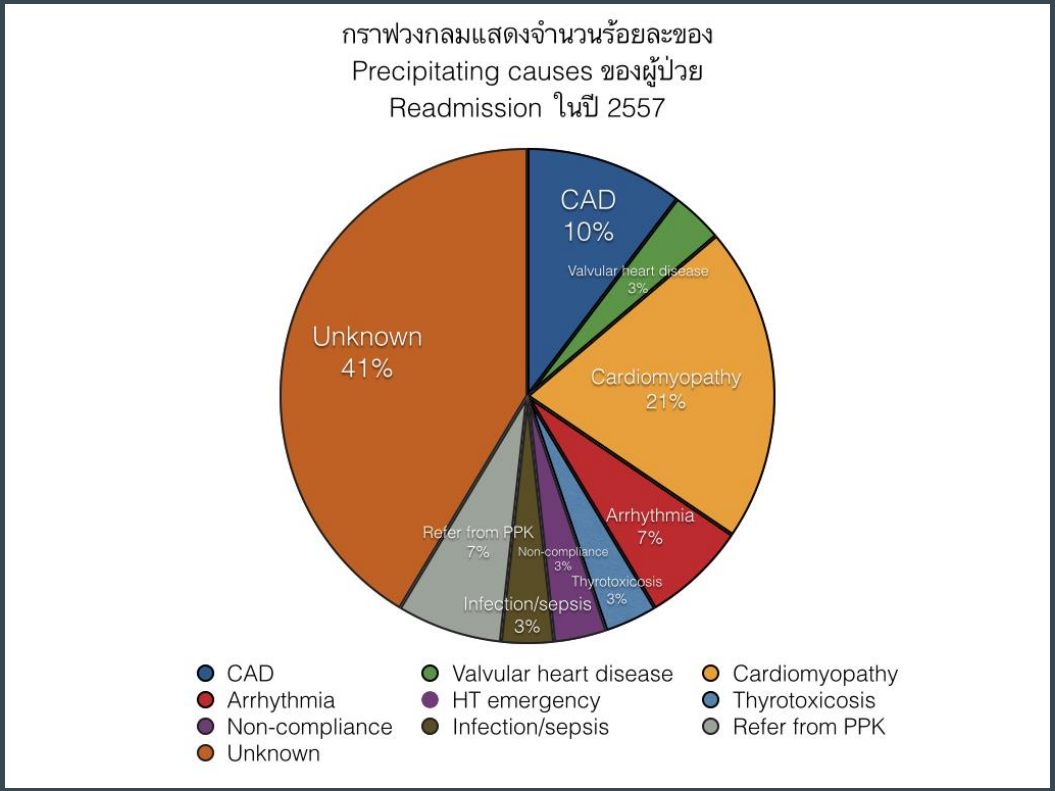
In 41 visits of readmission



36 visits of readmission

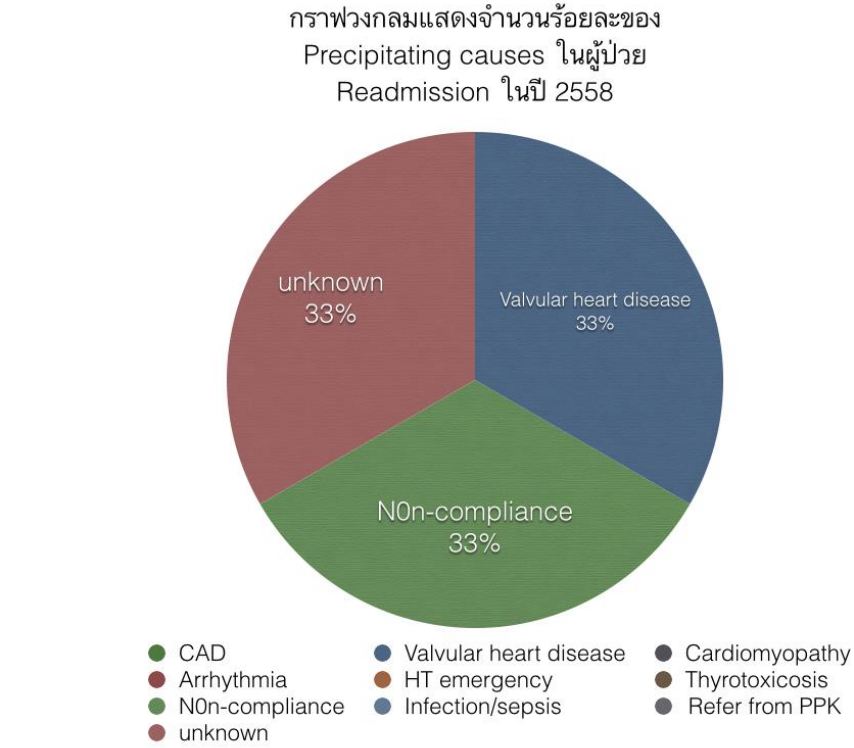
Cause and precipitating of congestive heart failure

In 41 visits of readmission



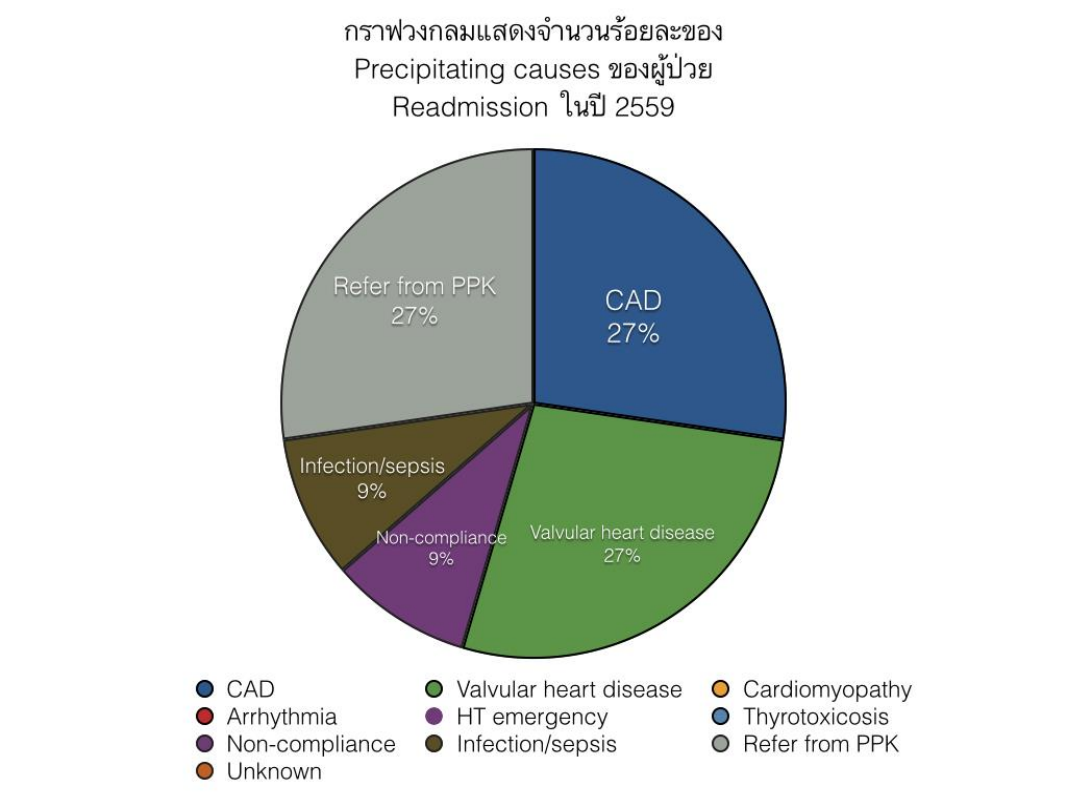
2557	Characteristic	Visits of readmission
Etiology and precipitating cause (27 visits)	Coronary artery disease	3
	Valvular heart disease	1
	Cardiomyopathy (reduced EF)	6
	Arrhythmia	2
	HT emergency	0
	Thyrotoxicosis	1
	Non-compliance (drug,food,water etc.)	1
	Infection/sepsis	1
	Refer from PPK	2
	Unknown	12

In 41 visits of readmission



2558	Characteristic	Visits of readmission
Etiology and precipitating cause (3 visits)	Coronary artery disease	0
	Valvular heart disease	1
	Cardiomyopathy (reduced EF)	0
	Arrhythmia	0
	HT emergency	0
	Thyrotoxicosis	0
	Non-compliance (drug,food,water etc.)	1
	Infection/sepsis	0
	Refer from PPK	0
	Unknown	1

In 41 visits of readmission



2559	Characteristic	Visits of readmission
Etiology and precipitating cause (11 visits)	Coronary artery disease	3
	Valvular heart disease	3
	Cardiomyopathy (reduced EF)	0
	Arrhythmia	0
	HT emergency	0
	Thyrotoxicosis	0
	Non-compliance (drug,food,water etc.)	1
	Infection/sepsis	1
	Refer from PPK	3
	Unknown	0

ข้อมูลเกี่ยวกับผลการรักษา
และการให้ยาที่ช่วยลด morbidity and mortality

In 63 visits (all admission of 22 persons)

2557		
Discharge type 11 persons 40 visits	Improve	38 (95%)
	refer	2 (5%)
	death	0

2558		
Discharge type 3 persons 6 visits	Improve	6 (100%)
	refer	0
	death	0

2559		
Discharge type 8 persons 19 visits	Improve	14 (74 %)
	refer	4 (21 %)
	death	1 (5 %)

ตัวชี้วัดในการดูแลผู้ป่วย CHF รพ.สอยดาว

ตัวชี้วัด	เป้าหมาย	2556	2557	2558	2559
อัตราการ readmit	<1	0.82	2.66	3.94	0
อัตรา unplanned refer	<3	4.95	0	5.2	3.5
อัตราการเสียชีวิต	0	0	2.66	0	0
อัตราการให้ beta blocker ก่อน discharge	>60	19	17.7	45.8	61.5
อัตราการให้ ACEI /ARB ก่อน discharge	>60	47.1	53.3	63.9	76.9

การให้ยาที่ช่วยลด morbidity and mortality

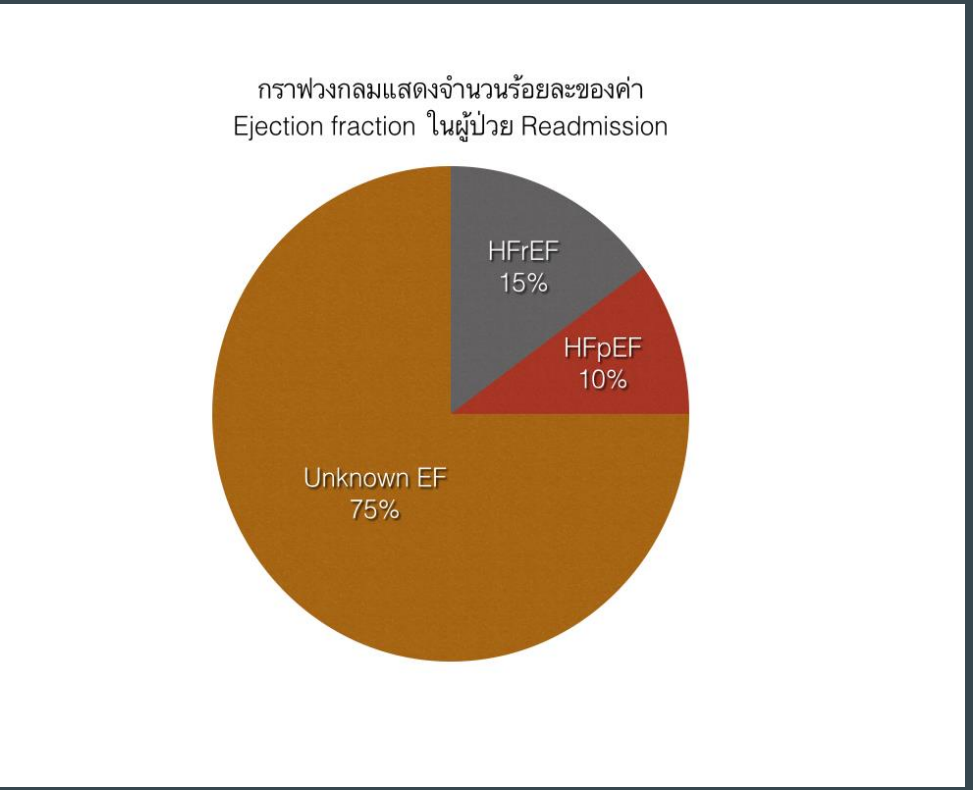
In 22 persons who has readmission

2557 (11 persons)		
Beta blocker	received	4 (36 %)
	Not received	7 (64 %)
ACEI/ARB	received	5 (45 %)
	Not received	6 (55 %)

2558 (3 persons)		
Beta blocker	received	1 (33 %)
	Not received	2 (67 %)
ACEI/ARB	received	1 (33 %)
	Not received	2 (67 %)

2559 (8 persons)		
Beta blocker	received	6 (75 %)
	Not received	2 (25 %)
ACEI/ARB	received	5 (62.5%)
	Not received	3 (37.5%)

Epidemiology



Characteristics		Persons who has readmission
Ejection fraction	Reduce Preserve Unknown	3 2 15

Discussion&Summary

- อัตราการ readmission ในปีงบประมาณ 2559 มีการเพิ่มขึ้นจากที่เคยลดลงมาในปี 2558
- จากข้อมูลดัชนีชี้วัดโรงพยาบาลปี 58 มีอัตรา readmission สูงเนื่องจากจำนวนคนadmit ด้วย Heart failure มีปริมาณน้อย
- ในผู้ป่วยที่มีประวัติ readmission มีโรคร่วมส่วนใหญ่ อันดับ 1 เป็น Hypertension, อันดับ 2 เป็น Diabetic Mellitus
- precipitate ที่สำคัญ คือพวกกลุ่มโรคทาง cardiovascular system เช่น Coronary heart disease, Structural heart ต่างๆ เป็นต้น ซึ่งถ้าหากมี underlying disease ของโรคเหล่านี้ อาจทำให้มีโอกาส readmission congestive heart failure ได้สูง แต่อย่างไรก็ตามยังมี บาง visit ของผู้ป่วยที่ไม่ได้มีการบันทึก หรือ หาสาเหตุของ precipitate cause ของครั้งนั้น ได้อย่างชัดเจน ทำให้ไม่สามารถสรุปได้ชัดเจนว่าปัญหาการ readmission ส่วนใหญ่เกิดจากปัญหา precipitate อะไร

Discussion & Summary

- แนวทางการรักษาในโรงพยาบาลน่าจะได้ผลดี จากการที่ status หลัง discharge ส่วนใหญ่ improve
- ในปี 2559 มีแนวโน้มในเรื่องของการให้ยาที่ช่วยลด morbidity and mortality มากขึ้น แต่อย่างไรก็ตามในผู้ป่วยบางรายอาจมีการใช้ยากลุ่มเหล่านี้อยู่เดิมแล้วจากการที่มี co morbid disease

Limitation

- ข้อมูล EF จากรพศ ทราบผลเพียง 5 ราย และไม่มีใบผลที่เป็นทางการจากรพศ ลงคอมไว้เป็นข้อมูลอย่างเป็นทางการ
- ไม่ทราบผล ECHO ทำให้ไม่สามารถประเมินว่าการรักษาครบถ้วนตาม CPG และไม่สามารถสรุปได้ว่าสาเหตุของการ readmission ครั้งนี้เป็นจากยา การรักษาที่ไม่ถูกต้อง หรือมาจาก Comorbidities
- คนไข้ refer กลับจากรพศ ถูกนับรวมเข้าเป็น readmission ทำให้อัตราการ readmission สูงกว่าปกติ
- ไม่ทราบว่าสาเหตุที่แท้จริงเป็นจาก compliance จริงรึเปล่า