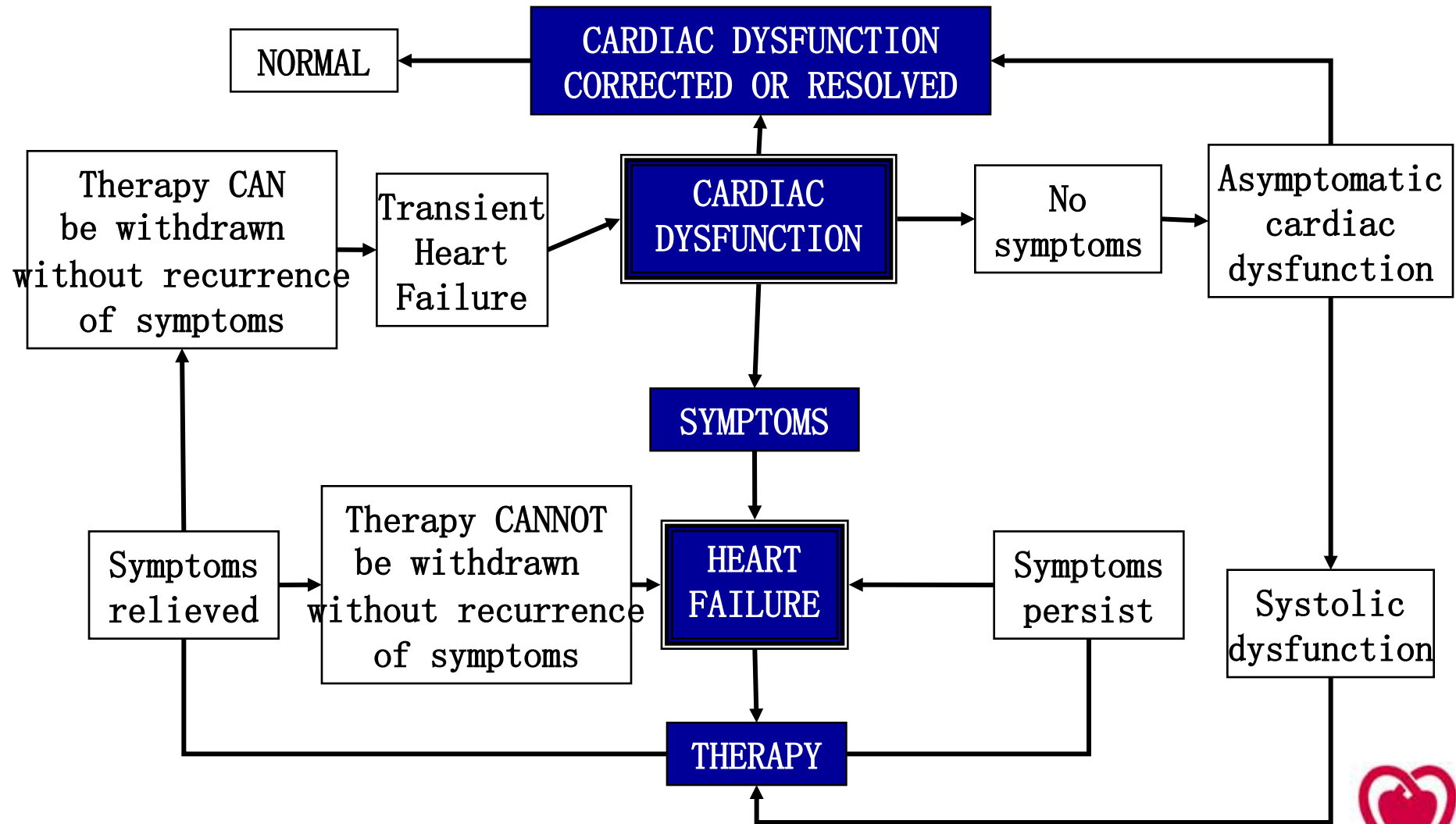


# Relationship between cardiac dysfunction, HF and HF rendered asymptomatic



# Diagnosis

- According to the Working Group in Heart Failure, Heart Failure is a syndrome where the diagnosis has the following essential components:
- A combination of:
  - Symptoms, typically breathlessness or fatigue
  - Cardiac dysfunction documented at rest
- The diagnosis is supported by:
  - Response to treatment directed towards heart failure

# Establish diagnosis

## Assessments in all cases

	Necessary	Supports	Opposes
• History with symptoms		+++	If absent
• Objective evidence	+++		If absent
• Response to treatment		++	

# Tests for Diagnosis

## Test

Necessary

SupportsOpposes

- 
- Electrocardiogram ++ If normal
  - Echocardiography +++ If normal
  - Chest x-ray If congestion If normal
  - Blood count If normal
  - Blood chemistry If normal

# Additional Tests for Diagnosis

## Test

Necessary

Supports Opposes

---

Exercise test

If normal

Natriuretic peptide

If elevated

If normal

Cardiac cath.

If normal

# Test to Exclude Alternatives

- Chest x-ray (Lung disease)
- Pulmonary function
- Blood chemistry (Renal and hepatic disease)
- Blood count (Anaemia)
- Exercise tolerance (if impaired)

# Electrocardiography

- A normal ECG suggests that the diagnosis of heart failure should be carefully reviewed.
- The predictive value of a normal ECG to exclude LV systolic dysfunction exceeds 90%

# Chest X-ray

- A high predictive value of X-ray findings is only achieved by interpreting them in the context of clinical findings and ECG anomalies.
- It is useful to detect cardiac enlargement and pulmonary congestion
- In chronic heart failure, increased cardiac size and pulmonary venous congestion are useful indicators of abnormal cardiac function with decreased ejection fraction and/or increased LV filling pressure
- However, cardiomegaly is frequently absent in acute heart failure and in cases with diastolic dysfunction



# Pulmonary function tests

- Measurements of lung function are of little value in diagnosing chronic heart failure.
- However, they are useful in excluding respiratory causes of breathlessness

# Exercise testing

- In clinical practice exercise testing is of limited value for the diagnosis of heart failure.
- However, a normal maximal exercise test, in a patient not receiving heart failure treatment, excludes heart failure as a diagnosis

# Invasive investigation

- Invasive investigation is generally not required to establish the presence of chronic heart failure, but may be important in elucidating the cause or to obtain prognostic information

# Echocardiography

- As objective evidence of cardiac dysfunction at rest is mandatory for the diagnosis of heart failure, echocardiography is the preferred method for this documentation
- The most important parameter for identifying patients with systolic cardiac dysfunction and those with preserved systolic function is the LV ejection fraction
- When the diagnosis of heart failure is confirmed, echocardiography is also helpful in determining its aetiology

# Natriuretic Peptides

- These peptides may be most useful clinically as a “rule out” test due to a consistent and very high negative predictive values
- Especially in primary care patients suspected of having heart failure can be selected for further investigation by echocardiography or other tests of cardiac function on the basis of having an elevated plasma concentration of a natriuretic peptide
- In those in whom the concentrations are normal, other causes of dyspnoea and associated symptoms should be considered
- The added value of natriuretic peptides in this situation has yet to be determined

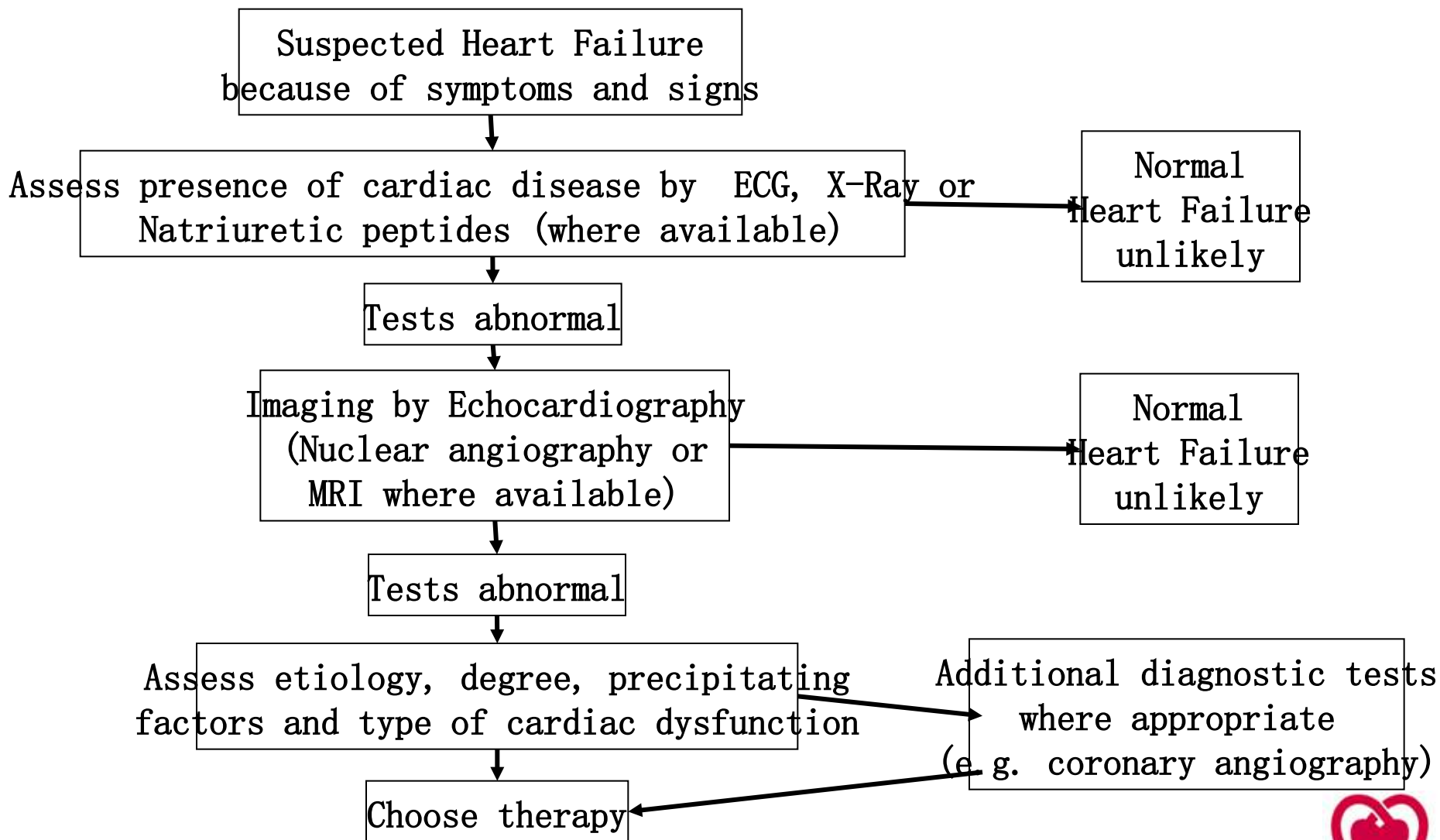
# Natriuretic Peptides

- High levels of natriuretic peptides identify those at greatest risk of future serious cardiovascular events including death
- There is also recent evidence that adjusting heart failure therapy in order to reduce natriuretic peptides levels in individual patients may improve outcome

# Other neuroendocrine evaluations

- Other tests of neuroendocrine evaluation are not recommended for diagnostic or prognostic purposes

# Algorithm for Diagnosis of Chronic HF





# Management Outline

**Establish that patient has heart failure**

**Identify presenting symptom**

**Assess severity of limitation**

**Determine etiology**

**Exclude or confirm concomitant diseases**

**Predict prognosis**

**Choose therapy**

**Monitor progress**

# Guidelines Treatment - Contents

- General advice and measures
- Exercise and exercise training
- Pharmacological therapy
- Surgery and devices
- Special subsections (elderly, diastolic CHF)
- Care management programmes



# General Measures and Advice

## *Patient and family education*

- explain heart failure
- symptoms –what therapy does
- self-weighing
- exercise vs rest

# General measures and advice

- Diet-salt intake and fluid restriction
- Smoking-cessation
- Alcohol-moderate intake permitted
- Obesity-weight reduction
- Abnormal weight loss
- Travelling
- Sexual activity-counselling, reassurance patients/partner
- Vaccinations-influenza, pneumococcal

# General measures and advice

## Drug counselling :

- Self-management (diuretics)
- Desired effects and side effects
- Duration treatment before effects become apparent
- Need for slow up-titration
- Interaction with other drugs

# Ace-inhibitors

- ACE inhibitors are recommended as first-line therapy in patients with a reduced LV systolic function (LVEF<40-45%) (Level A)
- In the absence of fluid retention ACE inhibitors should be given first, in the presence of fluid retention together with diuretics (Level B)
- ACE inhibitors should be up-titrated to the dosages shown to be effective in large trials .
- They should not be titrated based on symptomatic improvement

# The recommended procedure for starting an ACE inhibitor

1. Review the dose of diuretics
2. Avoid excessive diuresis before treatment.
3. Start with a low dose and build up to maintenance dosages
4. If renal function deteriorates substantially, stop treatment.
5. Avoid potassium-sparing diuretics during initiation of therapy.
6. Avoid non-steroidal anti-inflammatory drugs (NSAIDs).
7. Check blood pressure, renal function and electrolytes 1-2 weeks after each dose increment, at 3 months and subsequently at 6 monthly intervals (Level C)



# Beta-blockade in Heart Failure

- Beta-blocking agents are recommended for the treatment of all patients with stable mild, moderate and severe heart failure from ischemic and non-ischemic origin... on standard treatment including ACE inhibition and diuretics (level A)
- Beta-blocking agents are recommended in patients with LV dysfunction with/without heart failure post-MI for survival benefit (level B)

# Initiation and uptitration of beta-blockade in heart failure

- Patients should be on a background therapy of ACE inhibition and diuretics
- Stable condition
- Titrate slowly and carefully from low initial dose to target doses used in large RCT
- Patients may initially worsen or experience adverse effects (hypotension) – monitor and adapt other therapy first before changing dose beta-blocker.
- Consider PDE inhibitor when positive inotropic support is needed

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