

Heart Failure•

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CONTENET•

Introduction

Epidemiology

Pathophysiology

diastolic/systolic

Risk factors

Signs and symptoms

Classification of HF severity

Stages in the development of HF

Investigation

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Shall we move on ??

INTRODUCTION•

_(HF) is a complex clinical syndrome that can result from any structural or functional cardiac disorder that impairs the ability of the ventricle to fill with or eject blood.

_There are many ways to assess cardiac function. However, there is no diagnostic test for HF, since it is largely a clinical diagnosis that is based upon a careful history and physical examination.

Epidemiology:•

_A 2013 update from the American Heart Association (AHA) estimated that there were 5.1 million people with HF in the United States in 2006 .There are an estimated 23 million people with HF worldwide.

_its primarily a disease of aging.

_prevalence of HF rises from < 1% in individuals < 60 yrs to nearly 10% in those over 80%.

Pathophysiology:•

_systolic functions of the heart is based on 4 majors determinants:

1 **_Contractile state of the myocardium** →

eg: MI, CARDIOMYOPATHY

2 **_pre load of ventricles (end diastolic volume)** →

eg:Valvular Regurgitation.

3 **_After load (the impedance to L.V ejection** →

eg: AS, HTN

4_HR →

eg: too slow , too rapid

Pathophysiology:•

Also,

→→ **Cardiac Pump function** may be Supra-normal

BUT inadequate when

→ metabolic demands & blood flow required are excessive.

So called : **HIGH OUT-PUT HF**

CAUSES:

_ **THYROTOXICOSIS**

_ **SEVER ANEMIA**

_ **ARTERIO-VEINOUS SHUNTING**

_ **OTHERS**

di/Pathophysiology:systolic• astolic

→→ cause reduced cardiac output and HF

→→ each may be due to a variety of etiologies.

Systolic dysfunction —

The most common causes are coronary (ischemic) heart disease, idiopathic dilated cardiomyopathy (DCM), hypertension, and valvular disease.

Diastolic dysfunction —

Diastolic dysfunction can be induced by many of the same conditions that lead to systolic dysfunction.

The most common causes are hypertension, ischemic heart disease, hypertrophic obstructive cardiomyopathy, and restrictive cardiomyopathy.

di/Pathophysiology:systolic• astolic

However, many patients with symptoms suggestive of HF (*shortness of breath, ankle edema, or paroxysmal nocturnal dyspnea*) who have intact left ventricular systolic function may not have diastolic dysfunction, but have other etiologies that can account for their symptoms, including obesity, lung disease, or occult coronary ischemia .

Risk factors:•

Risk factors for HF include:

coronary heart disease,
cigarette smoking,
hypertension,
overweight,
diabetes,
valvular heart diseases

• Signs and symptoms

Heart failure symptoms are traditionally divided into "left" and "right" sided,

• Signs and symptoms

Left-sided failure: (symptoms of low cardiac out-put)

Common respiratory signs are tachypnea (dyspnea) .

poor systemic circulation such as dizziness, confusion and cool extremities at rest.

Rales or crackles, heard initially in the lung bases →

pulmonary edema →→→ Cyanosis

laterally displaced apex beat

gallop rhythm (additional heart sounds) may be heard as a marker of increased blood flow, or increased intra-cardiac pressure.

Heart murmurs → (valvular heart disease), either as a cause (e.g. aortic stenosis) or as a result (e.g. mitral regurgitation) .

Backward failure of the left ventricle : (failure of the left atrium, the left ventricle or both)

Orthopnea, paroxysmal nocturnal dyspnea

Easy fatigueability

"Cardiac asthma" or wheezing may occur.

• Signs and symptoms

Right-sided failure: (signs of fluid retention)

peripheral edema, ascites, and hepatomegaly.

Raised Jugular venous pressure →→ hepatojugular reflux.

Dilated RV →→ parasternal heave

Backward failure of the right ventricle: (congestion of systemic capillaries)

peripheral edema or anasarca) and usually affects the dependent parts of the body ;

Nocturia

ascites

Hepatomegaly → impaired liver function, and jaundice and even coagulopathy

Classification of HF • severity:

_Developed by the New York Heart Association (NYHA) .

_Depending on the degree of effort needed to elicit symptoms :

Class I — symptoms of HF only at activity levels that would limit normal individuals

Class II — symptoms of HF with ordinary exertion

Class III — symptoms of HF with less than ordinary exertion

Class IV — symptoms of HF at rest

investigation •

Lab:

_CBC:

→ → anemia

_U&E:

→ → impaired?? b/c of

-renal insufficiency.

-?ass with pre-renal azotemia.

-low K: increase risk of arrhythmia.

-high K: ??ACE/??ARB ?Omit its usage .

_LFT:

→ → Affects structure & function

Mechanism: ? Role of congestion.

investigation •

Lab:

_TFT:

→ → check for occult thyrotoxicosis / myxedema.

_taking biopsy??:

→ → unexplained HF give an example?

_pro BNP:

→ To assess & guide management.

investigation •

ECG:

_may indicate underlying disease.

_2ndry arrhythmia, _new MI, _LVH.

_low voltage

→ → non specific.

CHEST X-ray:

- _tell about the size & shape of the heart.
- _evidence of pulmonary edema/congestion, interstitial edema.
- _plural fluid collection bilateral.

investigation •

ECHO:

- _shape & size.
- _function assessment → systolic / diastolic.
- _valvular disease & shunting.
- _pericardial effusion / thickening.
- _wall motion activities ? MI.

Dobutamine stress ECHO:

- _more sensitive to ischemia.

Cardiac CATH:

- _Go & read 😊
- _if coronary artery disease suspected.
- _unexplained HF.

MANAGEMENT •

A-) correction of reversible causes:

B-) pharmacological treatments:

B-) non-pharmacological treatments:

MANAGEMENT •

A-) correction of reversible causes:

_common reversible causes:

- valvular diseases
- MI.
- uncontrolled HTN.
- arrhythmia.
- alcohol & drug side effects.
- high out-put status.

_partial reversible causes:

- infiltrative causes ...

MANAGEMENT •

B-) pharmacological treatments:

_Diuretics:→

_inhibitors/blockers of Rinin-Angiotensin-Aldosterone system:

_spironolactone.

_B-blockers:

_Digitalis:

_Vasodilators:

_Ca-Channel Blockers:

_Anti-Coagulation

_anti-arrhythmic

MANAGEMENT •

B-) non-pharmacological treatments:

_diet & exercise.

_coronary revascularization.

_ICD.

_cardiac transplant:
_palliative care.

That's enough

Thanx for attention

Have a nice day