

# Hypertention Heart disease

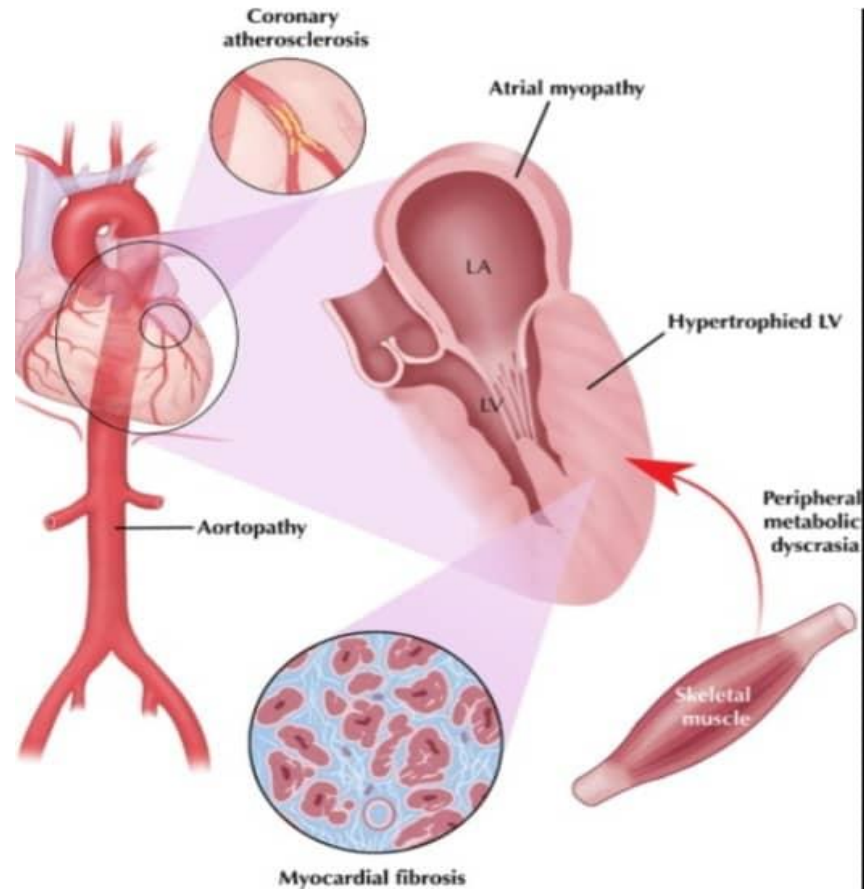
Present by

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MD

## What are Hypertensive Heart Diseases?

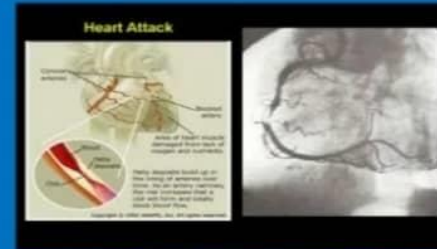
- **Hypertensive heart disease** includes a number of complications of systemic arterial hypertension or high blood pressure that affect the heart.
- They always involve myocyte hypertrophy as an adaptive response to pressure overload.



## HYPERTENSIVE HEART DISEASE - DEFINITION

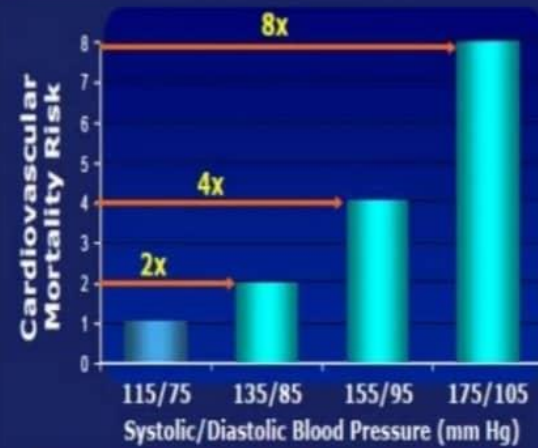
HTNve heart disease is a term applied generally to heart diseases, such as

- **LVH,**
- **CAD,**
- **Cardiac Arrhythmias,** and
- **CHF,** that are caused by the direct or indirect effects of elevated BP.



## CV MORTALITY RISK

Cardiovascular Mortality Risk Doubles with Each 20/10 mmHg BP Increment\*

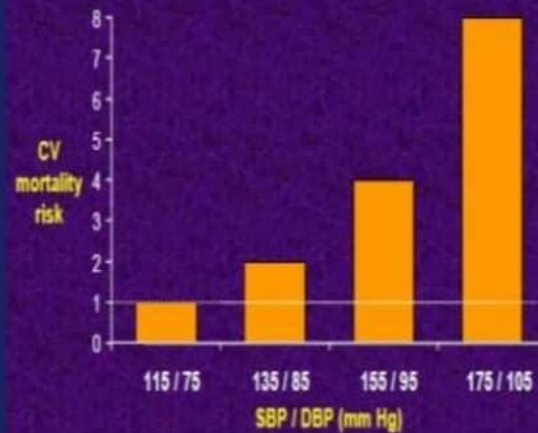


\*Measurements taken in individuals aged 40-69 years, beginning with a blood pressure of 115/75 mm Hg.

Lewington S, et al. *Lancet*. 2002;360:1903-1913;

Chobanian AV, et al. *JAMA*. 2003;289:2560-2572.

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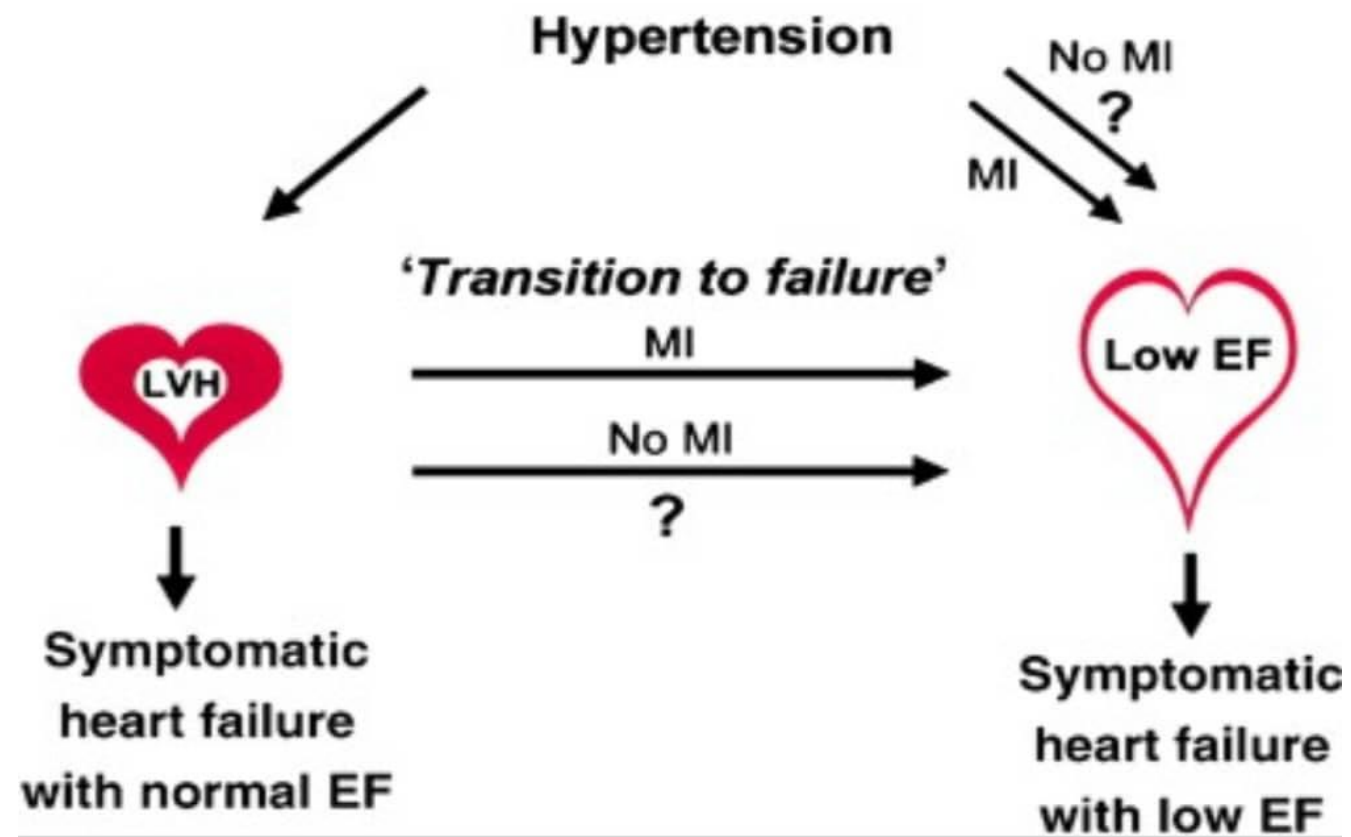


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### 3. HEART FAILURE

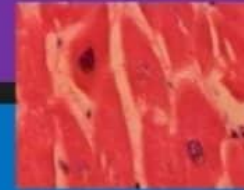
- HTN as a cause of CHF is frequently under recognized, partly because at the time heart failure develops, the dysfunctional LV is unable to generate the high BP, thus obscuring the heart failure's etiology.
- **The prevalence of asymptomatic diastolic dysfunction in patients with hypertension and without LVH may be as high as 33%.**
- Chronically elevated afterload and the resulting LVH can adversely affect the active early relaxation phase and the late compliance phase of ventricular diastole.







## AETIOPATHOLOGY 1. LVH .....

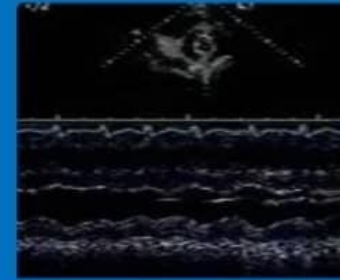


Various patterns of LVH includes :

concentric remodeling,

concentric LVH, and

eccentric LVH.

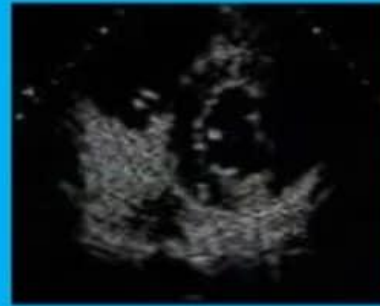


LVH plays a protective role in response to increased wall stress to maintain adequate CO it later leads to the development of diastolic and, ultimately, systolic myocardial dysfunction.



## 4. DIASTOLIC DYSFUNCTION

- Diastolic dysfunction is common in persons with HTN.
- It is often, accompanied by LVH.
- Other factors that may contribute to the development of diastolic dysfunction:
  - **Coexistent CAD,**
  - **Aging,**
  - **Systolic dysfunction,**
  - **and Structural abnormalities such as fibrosis and LVH.**



## 5. SYSTOLIC DYSFN. & DECOMPENSATION

- **IN THE FACE OF ELEVATED BP LV CAVITY DILATES TO INCREASE THE CARDIAC OUTPUT AS THE LVH FAILS TO COMPENSATE.**
- **AS THE DISEASE ENTERS END STAGE, LV SYSTOLIC FUNCTION DECREASES FURTHER >>>>>>**
- **THERE IS ACTIVATION OF NEUROHUMERAL AND RENIN ANGIOTENSIN SYSTEM >>>>>>**
- **RESULTS IN SALT AND WATER RETENTION AS WELL AS INCREASED PERIPHERAL VASOCONSTRICTION**
- **EVENTUALLY PATIENT PROGRESSES TO SYMPTOMATIC SYSTOLIC DYSFUNCTION**

## 6. ARRHYTHMIA

### Common Arrhythmias :

- \* Atrial fibrillation (paroxysmal, recurrent, or chronic persistent), or chronic
- \* Premature ventricular contractions (PVCs),
- \* Ventricular tachycardia (VT)

PVCs, ventricular arrhythmias, and SCD are observed more often in patients with LVH than in those without LVH.

The etiology of these arrhythmias is thought to be concomitant CAD and myocardial fibrosis.

