What is hypertensive heart disease?

Hypertensive heart disease refers to heart conditions caused by high blood pressure.

The heart working under increased pressure causes some different heart disorders. Hypertensive heart disease includes heart failure, thickening of the heart muscle, coronary artery disease, and other conditions.

Hypertensive heart disease can cause serious health problems. It’s the leading cause of death from high blood pressure.

Types of hypertensive heart disease

In general, the heart problems associated with high blood pressure relate to the heart’s arteries and muscles. The types of hypertensive heart disease include:

Narrowing of the arteries

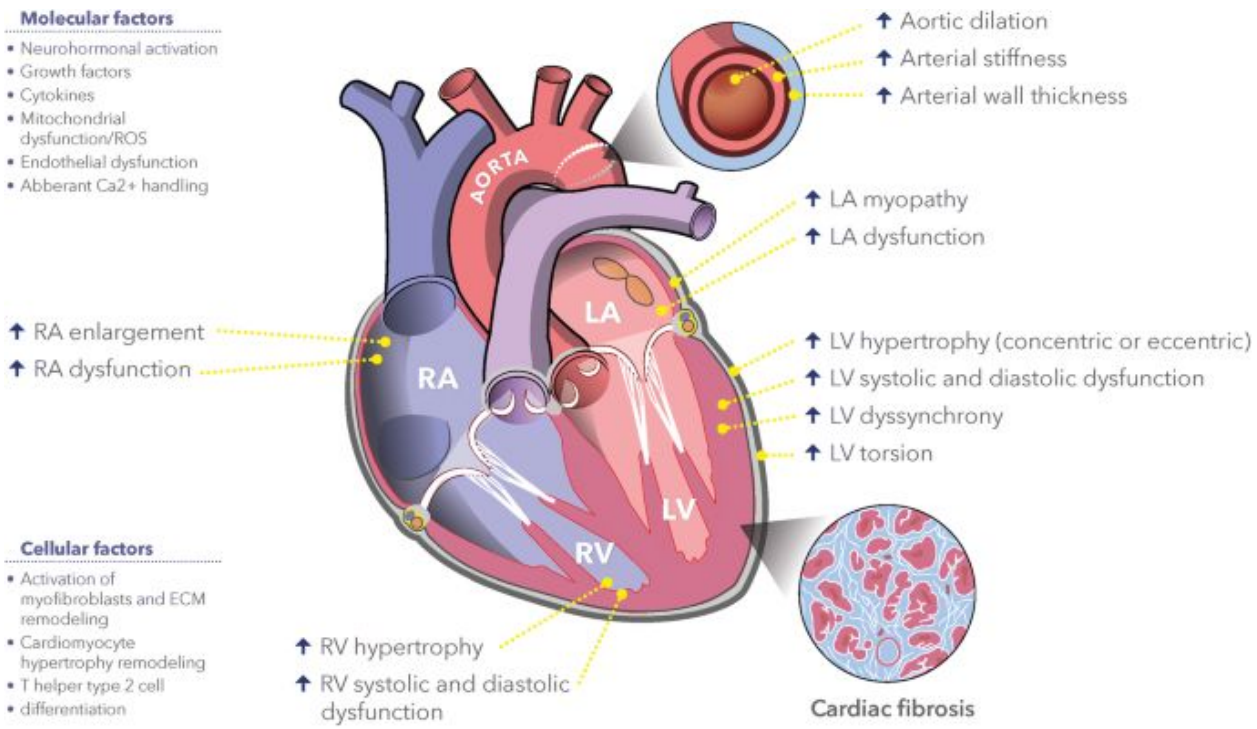
Coronary arteries transport blood to your heart muscle. When high blood pressure causes the blood vessels to become narrow, blood flow to the heart can slow or stop. This condition is known as coronary heart disease (CHD), also called coronary artery disease.

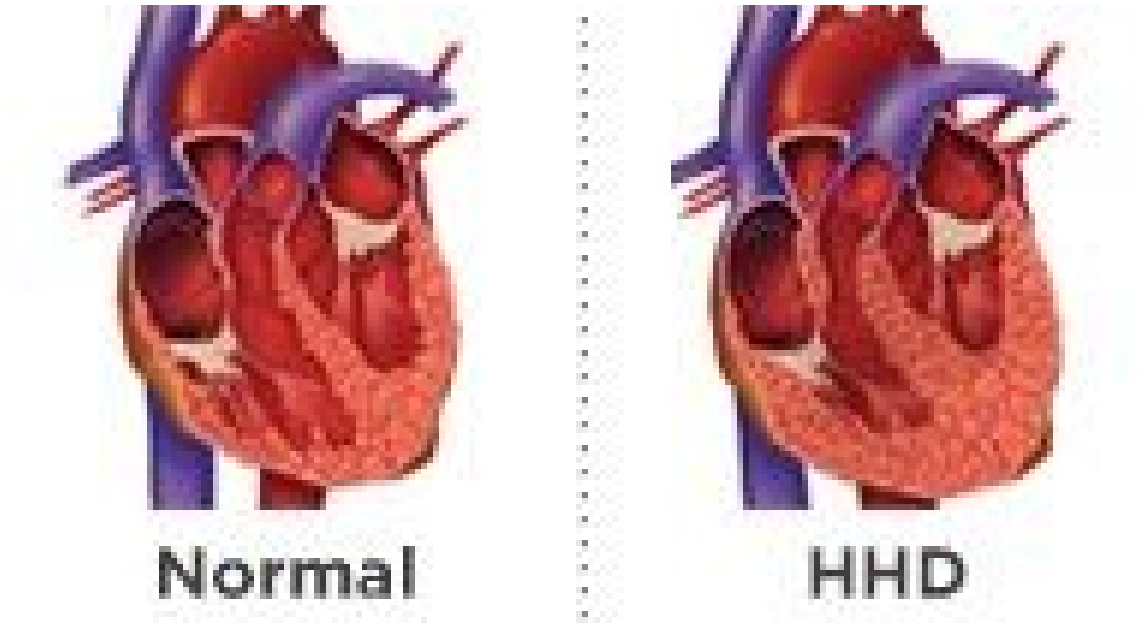
CHD makes it difficult for your heart to function and supply the rest of your organs with blood. It can put you at risk for heart attack from a blood clot that gets stuck in one of the narrowed arteries and cuts off blood flow to your heart.

Thickening and enlargement of the heart

High blood pressure makes it difficult for your heart to pump blood. Like other muscles in your body, regular hard work causes your heart muscles to thicken and grow. This alters the way the heart functions. These changes usually happen in the main pumping chamber of the heart, the left ventricle. The condition is known as left ventricular hypertrophy (LVH).

CHD can cause LVH and vice versa. When you have CHD, your heart must work harder. If LVH enlarges your heart, it can compress the coronary arteries.


Molecular factors
• Neurohormonal activation
• Growth factors
• Cytokines
• Mitochondrial dysfunction/ROS
• Endothelial dysfunction
• Abberant Ca2+ handling
↑ Aortic dilation
↑ Arterial stiffness
↑ Arterial wall thickness
AORTA
↑ LA myopathy
↑ LA dysfunction
LA
↑ RA enlargement
↑ RA dysfunction
RA
↑ LV hypertrophy (concentric or eccentric)
↑ LV systolic and diastolic dysfunction
↑ LV dyssynchrony
↑ LV torsion
LV
RV
Cellular factors
• Activation of myofibroblasts and ECM remodeling
• Cardiomyocyte hypertrophy remodeling
• T helper type 2 cell
• differentiation
↑ RV hypertrophy
↑ RV systolic and diastolic dysfunction
Cardiac fibrosis


Normal
HHD