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An Overview of Cardiomyopathy

Changqing Du*

Department of Cardiology, Zhejiang Hospital, Hangzhou, China

Editorial

Cardiomyopathy refers to a group of heart muscle illnesses. There may be little or no symptoms at first. Due to the beginning of heart failure, shortness of breath, fatigue, and swelling of the legs may occur as the condition progresses. It's possible that you'll experience an erratic heartbeat and faint. Those who are impacted have a higher risk of sudden cardiac death. Hypertrophic cardiomyopathy, dilated cardiomyopathy, restricted cardiomyopathy, arrhythmogenic right ventricular dysplasia, and Takotsubo cardiomyopathy are examples of cardiomyopathies (broken heart syndrome). The heart muscle thickens and enlarges in hypertrophic cardiomyopathy. The ventricles expand and weaken in dilated cardiomyopathy. The ventricle stiffens with restrictive cardiomyopathy.

In many circumstances, the root of the problem is unknown. Dilated cardiomyopathy is inherited in around one-third of instances, although hypertrophic cardiomyopathy is frequently hereditary. Alcohol, heavy metals, coronary artery disease, cocaine usage, and viral infections can all cause dilated cardiomyopathy. Amyloidosis, hemochromatosis, and various cancer treatments can all cause restrictive cardiomyopathy. Extreme emotional or physical stress can lead to broken heart syndrome. Treatment depends on the type of cardiomyopathy and the severity of symptoms. Treatments may include lifestyle changes, medications, or surgery. Surgery may include a ventricular assist device or heart transplant. In 2015 cardiomyopathy and myocarditis affected 2.5 million people. Hypertrophic cardiomyopathy affects about 1 in 500 people while dilated cardiomyopathy affects 1 in 2,500. They resulted in 354,000 deaths up from 294,000 in 1990. Arrhythmogenic right ventricular dysplasia is more common in young people.

Signs and symptoms

Symptoms of cardiomyopathies may include fatigue, swelling of the lower extremities and shortness of breath after exertion. Additional symptoms of the condition may include arrhythmia, fainting, and dizziness.

Causes

Cardiomyopathies are either confined to the heart or are part of a generalized systemic disorder, both often leading to cardiovascular death or progressive heart failure-related disability. Other diseases that cause heart muscle dysfunction are excluded, such as coronary artery disease, hypertension, or abnormalities of the heart valves. Often, the underlying cause remains unknown, but in many cases the cause may be identifiable. Alcoholism, for example, has been identified as a cause of dilated cardiomyopathy, as has drug toxicity, and certain infections (including Hepatitis C). Untreated celiac disease can cause cardiomyopathies, which can completely reverse with a timely diagnosis. In addition to acquired causes, molecular biology and genetics have given rise to the recognition of various genetic causes.

A more clinical categorization of cardiomyopathy as 'hypertrophied', 'dilated', or 'restrictive', has become difficult to maintain because some of the conditions could fulfil more than one of those three categories at any particular stage of their development.

The current American Heart Association (AHA) definition divides cardiomyopathies into primary, which affect the heart alone, and secondary, which is the result of illness affecting other parts of the body. These categories are further broken down into subgroups which incorporate new genetic and molecular biology knowledge.

Mechanism

The pathophysiology of cardiomyopathies is better understood at the cellular level with advances in molecular techniques. Mutant proteins can disturb cardiac function in the contractile apparatus (or mechanosensitive complexes). Cardiomyocyte alterations and their persistent responses at the cellular level cause changes that are correlated with sudden cardiac death and other cardiac problems.

Diagnosis

- Among the diagnostic procedures done to determine a cardiomyopathy are:[10]
- Physical exam
- Family history
- Blood test
- ECG
- Echocardiogram
- Stress test
- Genetic testing

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***Address for Correspondence:** Changqing Du, Department of Cardiology, Zhejiang Hospital, Hangzhou, China, E-mail: changqing@gmail.com*

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