Cardiac Arrest in Apparently Healthy Young Adults

Sudden cardiac death is the Swift and unexpected ending of all heart activity. Breathing and blood flow stop right away. Within seconds the patient is unconscious and dies. Sudden cardiac death in apparently healthy people under the age of 40 is rare. It is more common in males than females .

In the literature “young” is arbitrary defined as an age of 35 to 40 years old or less. Beyond this age, coronary artery disease is the commonest cause of sudden unexpected cardiac death. Even though, coronary artery disease and heart attacks can occur in younger people, it is not as common as in older individuals.

Heart condition that are not diagnosed such as congenital heart disease (including coronary artery anomalies) can cause sudden death in teenagers and young adults during physical activity, such as competitive sports. But sudden cardiac death can also occur without activity .

HOW COMMON IS SUDDEN CARDIAC DEATH IN YOUNG PEOPLE Most sudden cardiac deaths are in older adults, particularly those with heart disease. However, sudden cardiac death is the leading cause of death in young athletes. Estimates vary, but some reports suggest that about one in 50,000 to 1 in 100,000 young athletes dies of sudden cardiac death each year

CAUSES OF SUDDEN CARDIAC DEATH Changes in the heart’s electrical activity often causes sudden cardiac death. Anything that strains the heart or damages heart tissue can increase the risk of sudden cardiac death. Some of these conditions that can lead to sudden cardio that in young people are: THICKENED HEART MUSCLE, ALSO CALLED HYPERTROPHIC CARDIOMYOPATHY.

This genetic condition is the most common cause of sudden cardiac death in young people. It causes the heart muscle to become too thick. This thickening makes it hard for the heart to pump blood, and this can cause fast and irregular and chaotic heartbeat. The heart can’t pump the blood to the body. This life threatening type of irregular heart beat is called VENTRICULAR FIBRILLATION.

LONG QT SYNDROME . This is a cardiac rhythm, problem in which electrical conduction system takes longer than normal to reset between beats. This is shown in the electric cardiogram as prolonged QT interval. This heart rhythm condition can cause fast, chaotic heartbeats. It is linked to fainting for no apparent reason and sudden death, especially in young people.

If one is born with this condition, it is called congenital Long QT syndrome. It can also be caused by several medications or health condition, in which case it is called acquired Long QT syndrome . OTHER HEART RHYTHM CONDITIONS. These include Brugada Syndrome and Wolf- Parkinson- White Syndrome (WPW SYNDROME).

FORCEFUL HIT TO THE CHEST A blunt chest injury that causes sudden cardiac death is called COMMOTIO CORDIS. This may occur in athletes who are hit hard in the chest by sports equipment or by another player. This condition does not damage the heart muscle. Instead, it changes the heart electrical signaling.

The blow to the chest can trigger ventricular fibrillation which can lead to cardiac arrest. The hit must occur at a specific time in the heart's signaling cycle. CONGENITAL HEART DISEASE Some people are born with changes in the heart and blood vessels. These changes can reduce blood flow and lead to sudden cardiac death. NONCARDIAC CAUSES OF SUDDEN CARDIAC DEATH.

These include drug overdose, blood clot in the lungs called pulmonary embolism, bleeding around the brain, called subarachnoid hemorrhage, seizures, anaphylaxis (Severe allergic reaction) and certain infections. WARNING SIGNS. Many times sudden cardiac death occurs without warning or warning signs may not be noticed. Some of the warning signs include.- Fainting, also called syncope.

Fainting that cannot be explained and occurs during activity or exercise could mean there may be a heart problem SHORTNESS OF BREATH OR CHEST PAIN. These symptoms could be a sign of a heart problem. But condition such as asthma also can be the cause. That is why it is important to get a complete health check up.

FAMILY HISTORY OF SUDDEN CARDIAC DEATH This family history makes a person more likely to have the same type of heart event. If there is a family history of death that cannot be explained, it's important to talk to the physician about screening options.

CAN SUDDEN CARDIAC DEATH IN YOUNG PEOPLE BE PREVENTED if someone is at high risk of sudden cardiac death, doctors may tell him or her not to play competitive sports. Depending on the underlying condition, medicine or surgery maybe recommended to lower the risk of sudden death. For example, a device called an implantable cardioverter-defibrillator (ICD) maybe be placed in the chest.

This device continuously check the heart rhythm. If life-threatening heart rhythm occur, the ICD delivers electrical shocks to reset the heart. Many athletic training centers, schools, offices, airports,gyms-and other places have a portable device called an automated external defibrillator called AED. An AED is used to treat someone during cardiac arrest.

It delivers shock to reset the heart rhythm. No training is needed to use it. The device tells you what to do. It is programmed to give a shock only when necessary.

PROGNOSIS OF YOUNG ADULTS WHO HAVE CARDIAC ARREST Among all apparently healthy young adults who have a cardiac arrest, about 60% die before reaching the hospital, and only 9 to 16% are discharged from the hospital alive.

However, survival rate increases to about 35%, for those who have a witnessed cardiac arrest with shockable heart rhythm and receive prompt initial chest compression with cardiopulmonary resuscitation (CPR) or use of AED which provides an electrical shock to the heart.

RESPONSIBILITY OF BYSTANDERS Bystandards should call 911 and immediately start CPR. If available, an AED should be used. Once its box is opened, the AED provides verbal instruction about how to attach sticky pads to the chest and advices when to press a button to deliver a shock to the heart or announces that a shock will be given automatically.

All resuscitative efforts, including CPR should continue until emergency medical service professionals are at the scene and take over the care of the victim.

WHO SHOULD BE SCREENED FOR SUDDEN DEATH RISK FACTORS There is no agreement on this in the medical community. One Italian study found that mandatory heart checks of young people with an electrocardiogram leads to a lower rates of sudden cardiac death. But some worry, this type of screening can suggest something is wrong when there is not a problem. This is called a false positive result.

Another worry is that screening would lead to over diagnosis of conditions that may never cause harm. One idea was to do routine electric cardiogram on athletes before they play competitive sports to identify risk and prevent sudden cardiac death. However, it is not clear that routine electrocardiogram for athletes can prevent sudden cardiac death.

But such testing might help to identify some who are at a higher risk. If there is a family history or risk factor for conditions that cause sudden cardiac death, screening is typically recommended. American Heart Association does not recommend sudden cardiac death screening for young people who are not atheles and who don't have heart disease symptoms.

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