How Coronary Artery Disease Happens

JIM FIXX was an avid runner who died tragically from Heart Attack in July, 1984 at the age of 52 while running in route 15 in Vermont, near Hardwick. He ran every day in that route. He was the author of famous book , THE COMPLETE BOOK OF RUNNING. His autopsy showed 95% blockage in one artery, 75% in the second and 70% in the third.

Why I am saying this is to inform you that nobody is immune, specially, Indian population.

We often hear the word " hardening of the arteries". These people experience, pain or pressure in the chest during physical exertion or emotional stress. Resting release the discomfort, and this is known as Angina. If the discomfort failed to resolve, they were likely to have a heart attack.

While hardening of the arteries can still cause heart attack, it's more common cause is the rupture of a soft plaque, which often occurs without warning. To understand the dangers of soft, vulnerable or unstable plaque, it's important to know how coronary artery disease develops.

Coronary artery disease is caused by atherosclerosis and the process start early in childhood, way before symptoms appear in later years.

Exposure to unrelenting stresses and toxins such as cigarette smoking ,high blood pressure, high blood sugar levels, and other cardiac risk factors damage the normal smooth inner layer of the arteries called endothelium .Cholesterol, and other fats crawl between the layers of tissues in the walls of the arteries.

Body responds to the injured endothelium by sending armies of white blood cells to repair the damage. But the injured endothelium grabs these white blood cells and add them to the cholesterol deposits, forming plaques.

Unless the source of the stress or toxin is removed, the process of recruiting cells and growing Plaques will continue indefinitely.Hence the need for us to modify our risk factors.

Types of plaques. There are two general types of atherosclerotic plaques that can trigger heart attack and other signs of Coronary artery disease. HARD PLAQUES: Hard plaques, the type associated with hardening of the arteries, grow slowly, absorbing calcium in the process. Overtime, they narrow the inside channel, otherwise called lumen of the blood vessel.

As the artery fill with calcium, they become stiff and hard, gradually preventing the blood vessel from dilating, when increased blood flow is needed. It is this complication that produces the chest pain known as angina when exertion exceeds the amount of blood that can flow to the heart muscle.

When plaques grow large enough to prevent blood from flowing through the artery, a heart attack occur occur.

SOFT PLAQUES: Soft plaques otherwise called vulnerable Plaques or unstable plaques. They have a tendency to rupture before they have time to harden. These plaques are covered by thin fibrous caps. Usually they do not cause narrowing of the artery to have any symptoms. Because of the absence of the symptoms, people do not know that they have this kind of unstable plaques.

They have a tendency to rupture without any warning. When their fibrous, cap ruptures it releases its fatty contents into the bloodstream. The body responds by releasing enzymes that cause the blood to clot and block blood flow through the artery and causes the heart attack.

This process usually happens when the plaques are young and small, and therefore symptoms do not occur until the plaque ruptures. A heart attack or sudden, cardiac arrest may be the first symptom of this kind of soft unstable or vulnerable plaques.

ARE YOU AT RISK Presence of calcium in the hard plaques makes them visible on calcium scoring. However, the presence of calcium filled plaques does not determine the risk of heart attack. Rather, it is how quickly angina appears with minimal exertion, how severe it feels and how easily it resolves that correlates with heart attack risk.

On the other hand, soft, calcium free Plaques can be seen on Coronary artery CT Scans. Unfortunately, at this time, there is no way to know whether you have a plaque that is vulnerable or unstable that might rupture .Your best protection againstheart Attack is to modify your risk factors as much as possible.

There is evidence suggesting that taking statin drugs may help to reduce the risk of plaque rupture.

As for as, coronary Artery Disease is concerned, prevention is not better than cure-PREVENTION IS THE ONLY CURE. As illustrated by the case of Jim FIXX, NO BODY IS IMMUNE.

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