

**Splurge** - Volume 3 Issue 2 (February 2008)

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Question:

### **WHY DO HEART ATTACKS OCCUR AND HOW TO I KNOW I'M HAVING ONE?**

Answer: Heart attacks occur when there is a sudden sensation of blood flow to the heart muscle. The heart muscle is supplied by small arteries that run along the surface called coronary arteries. There are three major coronary arteries, two on the left side designated as the left anterior descending and circumflex coronary arteries and one on the right side designated the right coronary artery. A blockage can occur in any one of these vessels including the main artery on the left side known as the left main artery. Needless to say the damage that a heart attack may cause and the danger of the heart attack itself are related to their location in the anatomic system. Two things to remember...the larger the artery, and the closer the blockage occurs to the origin of the vessel, will result in a larger and more dangerous the heart attack.

We have learned a great deal about the reasons why clots occur in heart arteries. We used to think that the arteries simply narrowed and over time the slow blood flow caused clot formation and a subsequent heart attack. We now know that heart attacks occur in arteries often which are not very severely narrowed. The type of plaque in the artery is important in the genesis of a heart attack. Soft, atherosclerotic plaque can be more unstable and can lead to sudden rupture of the plaque inside the artery shutting down blood flow. When this occurs, platelets in the blood stream which aid in clotting, rush into the area making the problem worse by adding to the amount of clot formation. If nothing is done to open the artery, damage then occurs to the muscle supplied by that particular vessel.

Almost all heart attack victims have atherosclerotic plaque or build up of cholesterol and fatty material in the wall of the artery. It is rare for a normal artery to go into spasm and cause a heart attack but it does occur, albeit rarely. Plaque formation is due to a host of risk factors including smoking, high blood pressure, family history, diabetes, being overweight and a sedentary lifestyle. A low, good cholesterol otherwise known as HDL, and high triglyceride levels and other lipid abnormalities can contribute to the formation of plaque inside the artery walls. Anything we can do to reduce these risk factors will lower our risk of a heart attack. A good example of lowering this risk would be to stop smoking, get more exercise, achieve an ideal body weight and possibly take a statin drug to improve the cholesterol profile. Maintaining a normal blood pressure or a blood pressure on the low side of normal certainly improves our odds against heart attack.

The warning signs of a heart attack include chest pain, shortness of breath, sweating, a feeling of nausea, a feeling of abject fatigue are all symptoms of a heart attack. Men are more likely to have a "Hollywood Heart Attack" with severe crushing chest pain radiating to the arm associated with sweating, nausea and extreme fatigue. Certainly all of the symptoms or none of these symptoms may occur during the time of a heart attack. In women, symptoms may be more subtle and consist of shortness of breath, sweating,

weakness, nausea and sometimes pain in the back. Rarely does a heart attack occur which is totally asymptomatic but this does occur occasionally when the clot forms in smaller arteries.

The most important thing to do if you have any of the warning signs of a heart attack is to call 911. Trying to get to the emergency room on your own, calling your doctor, your neighbor or someone else to help you is likely to delay the time when emergent medical care can be provided. Emergency medical teams today have the ability to cardiovert the patient, ie; shock patients back into a normal rhythm when a heart attack occurs. The most common cause of death is a type of cardiac arrhythmia known as ventricular fibrillation. When patients have v-fib and have immediate cardioversion their chances of survival are extraordinarily high. Administering CPR immediately is helpful but does not in anyway replace cardioversion. Immediate transport to a hospital that has the ability to perform emergent coronary angioplasty and stenting is likewise a very important factor. If we as cardiologists can open the occluded artery in less than one hour, the amount of heart damage is usually minimal. Every minute that passes however, from the onset of a heart attack results in more and more and more damage. Thus, we tend to open the arteries of heart attack patients at least until about six hours.

Having the right team available and taking prompt action is vital. Our goal at this time at the Galichia Heart Hospital is to have the patient in the cath lab within 30 minutes of arriving at the Emergency Room. So far we've been able to succeed about 95% of the time. Occasionally the presentation of the heart attack is not as straight forward and other tests may need to be done prior to going to the cath lab. However increasingly we have found that looking at the EKG and making the diagnosis of a STEMI (ST segment elevated MI) is relatively straight forward and enables us to go to the cath lab without doing a huge number of tests. The complication rate in the heart catheterization lab at the time of intervention of acute myocardial infarction is low and the survival rate is very high approaching 96%. Furthermore, when these patients leave the hospital their long term outlook is hugely improved. The death rate due to heart attack 20 years ago was in the range of 18-20% in the hospital setting. Today, this death rate has fallen into the range of 3-4%.

Not all heart attack victims are candidates for angioplasty or a stent procedure. Occasionally it is necessary to take a patient emergently to surgery for a bypass procedure. In other instances it may be necessary to treat the patient more conservatively with a clot busting drug or other anticoagulant agents. Increasingly we have learned however that direct angioplasty and stent placement has resulted in an extraordinary improvement in survival both long term and short term.

It is important that all of us know the warning signs of a heart attack. Knowing what to do upon the presentation of these symptoms may save your life or the life of a loved one.

## CASE STUDY

A couple of years ago a woman came in my office and said her life had been saved as a result of listening to one of our radio shows. She stated that three days previously she had been in Dallas and suffered a heart attack. She explained to me that her only symptom was that she woke up sweating in the middle of the night for no apparent reason. She quickly alerted her husband to which he said "I think you're going to be alright, try to go back to sleep". She then lay in bed and little longer and she recalled hearing on the radio show that in some instances sweating may be the only symptom that may occur during a heart

attack. She then herself called 911 and when the Emergency Medical Team arrived, she went into cardiac arrest. The paramedics shocked her immediately and took her to the hospital where she had direct angioplasty and a stent procedure by an interventional cardiologist. She left the hospital with no heart damage and as of this writing has never had another heart problem. Certainly in this instance knowing the “subtle” signs of a heart attack were lifesaving to this lady.

Listen to Dr. Galichia’s Radio Show – “Take Your Health to Heart” every Saturday from 11 AM to Noon on 1480 KQAM in Wichita. If you have any medically related questions, please call us during the LIVE broadcast at 1-800-TALK-997 or 1-800-825-5997. You can also e-mail your questions anytime to **GalichiaRadio@Galichia.com**. We would love to hear from you!!!

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