

Heart disease and radiation of the left breast

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Breast cancer patients have benefited from advanced techniques in radiation therapy protocols. Certainly, many have used such therapy in pre or post operative techniques to control the size or the expansion of such tumors. Although one can appreciate the shrinking effects of such technique on the tumoral tissue and the metastatic lesions, it becomes clear that Radiation therapy may cause adverse reactions to the intrathoracic organs and especially the heart, according to a study done by the JACC Cardiac Oncology.

Studies have shown that women who have undergone a left side mastectomy and additional radiation therapy to the chest wall, between 1985 and 2008 have developed over twice the risk of coronary heart disease almost 30 years in follow-up. If we consider that almost 50% of women with breast cancer may undergo radiation therapy, one can realize. This is why the heart can become exposed to incidental exposure especially when at Sloan Kettering Center women under 50, diagnosed with Stage I and Stage II disease may become exposed to incidental radiation. This study is on-going and has shown growing evidence that Radiation therapy is a contributor factor to coronary artery disease.

Physicians involved in the care of such patients and specially the younger patients suffering from breast cancer should be aware of the cardiac complications directly related to radiation to the left breast or even to the chest wall. Modern techniques have standardized and controlled better the delivery to avoid the risk of developing such complication. Survivors of Breast cancer have been involved in the Women's Cancer and Radiation Epidemiology Study to evaluate the risk of coronary artery disease. 972 women were found eligible for the study for having left breast cancer between 1985 and 2008. All were under of 55 the age and all have terminated their radiation therapy treatment. A cardiovascular questionnaire was completed on each survivor.

Coronary artery disease (CAD) causes impaired blood flow in the arteries supplying the heart. It is also called coronary heart disease (CHD), CAD is the most

common form of heart condition affecting 16.5 million of American over the age of 20. It is also the leading cause of death in men and women in the USA. It is estimated that every 36 seconds someone in the USA has a heart attack. Any heart attack can become an uncontrolled coronary artery disease (CAD).

We will briefly enumerate the symptoms when a heart does not get enough arterial blood. You may experience symptoms of Angina. Chest discomfort or tightness remain the most common symptom of CAD. Others will describe Chest pain, Heaviness, Tightness, Burning, Squeezing or Heartburn or even Indigestion, Shortness of breath, Sweating, Pain radiating to the shoulders or the arms, Dizziness. If the blockage is complete or almost complete. If your blood flow is restricted because of an almost complete or a complete block, the heart muscle will start to die and this will create a Heart attack. It is important not ignoring such symptoms especially when any excruciating pain last longer than five minutes... Immediate treatment is then required.

We have seen women with CAD presenting signs of Nausea and Vomiting, back pain and even jaw pain as well as shortness of breath without any chest pain. They may become weak and develop arrhythmia until the heart fails to pump. Others with obstructive sleep apnea, emotional stress and even with a history of preeclampsia can be at risk. This risk increases with age (45) for men and (55) for women and become higher with anyone presenting a family history of heart disease. If one remembers that a healthy heart move approximately 3000 gallons of blood to the entire body every day. It is then important that the same heart receives adequate amount of blood supply and oxygen to work properly. Any reduced blood flow can cause a coronary artery disease.

This risk for coronary vascular disease has not been previously documented in the literature but a Coronary Calcium Score is now often obtained to determine the risk of a heart attack or the degree of coronary artery disease... Two years ago, I took that road after an episode of chest tightness while going to Ste Croix Virgin Islands for an assignment and this technique was able to measure my coronary artery calcium level (CAC). The CAC procedure was ordered by cardiologist.

Ordered by my cardiologist, the CAC is a simple test, a CT scan requiring only minutes to be performed allowing the technician to demonstrate the amount of calcium in the coronary vessels. It is certainly a low-study, non-invasive tool that I

would recommend. The amount of calcium in the lumen of the coronary arteries can affect the delivery of blood and oxygen to the cardiac muscle. The CAC score become an indicator of heart disease with substantial risks for heart attack. Proper medication can lower the risks or decide on the appropriate treatment, symptomatic or not. The CAC is calculated according to the Agatston or volume method. The location and the size of the calcium plaque will determine quickly a score while other factors like age, gender may need also to be considered: A score 1-100 indicate a low probability, compared to 199-300 brings a moderate risk and other scores above 300 suggest a higher risk of heart attack, necessitating further treatment.

Middle-aged and older persons should be candidates for such test especially if you have a family of heart condition, high cholesterol, Diabetes Mellitus or if you are overweighted or use tobacco. The CT of the coronary's vessels can take 10 minutes to be performed by a trained technician. No preparation in necessary prior to the procedure. You will be required to remove all metal. Some electrodes will be attached to your chest, monitoring the heart rate while you lay flat on the CT Scan platform table. A technician will adjust your position and request at time that you hold your respiration while he is performing the test. No previous preparation in necessary.

Other tests may be performed as well to detect coronary artery disease with specific blood work, EKG, Echocardiogram, stress test, and finally a cardiac catheterization. I will mention appropriate treatments for this condition like simply regular exercises. A balanced nutritional diet avoiding excessive salt, fat, and sugar, cessation of Smoking ad Drinking and the use of Statin medications to lower the level of cholesterol in the blood.

Once theses options abused, surgery is the last option with balloon angioplasty allowing to widen any blocked arteries and smooch down the plaque buildup to insert a Stent to help keep the lumen open. The shunting procedures with by-passes graft surgery allowing to restore the blood flow to the area which lost their vascularization. The shunting procedures are done through an open chest. I have discussed such procedure in a previous Newsletter, in its totality. Recently enhanced external counter-pulsation, a non-invasive procedure to stimulate the

formation of a neovascularization (new vessels) can encourage the bypass of the clogged arteries.

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