

Whole Body CT Scanning and Heart Scans: When Too Much Information May Not Be A Good Thing

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There has been a recent interest, particularly in the US, in paying for whole body scans and heart scans in an attempt to diagnose unsuspected cancer and heart disease. The hope is that early detection will lead to a cure before we develop a cancer that has reached the incurable stage or we have suffered a heart attack. Ads shout to us from billboards and the media to find what “time bomb” is lurking inside of us before it’s too late. This is particularly the case in a border city such as ours.

Sounds like a great idea, right? Just a few hundred or so (yes- Canadian dollars at par) and we’re well on the way to better health. Well, before you hand over your hard earned dollars there are a few things you should know.

First of all let’s be clear on the type of tests which are currently being most aggressively marketed. The two most popular are Full body or Whole body Computed Tomography (WBCT) scanning and Coronary Artery Scanning with Electron Beam Computed Tomography (EBCT).

These are not the same as directed diagnostic CT scans, MRI scans, Heart angiograms or Nuclear Medicine Heart Scans (MIBI or Thallium scans) which are specifically designed to investigate patients who have undergone previous clinical investigation and screening studies. Those tests have been shown to accurately detect disease and are well established tools in everyday use throughout North America and available here in Windsor.

Whole body CT scans are ultrafast scans designed to image your body in an attempt to screen for, most notably, cancer. The hope is that a fast, relatively low radiation dose image of your entire body will detect abnormal structural changes in your body. This, hopefully, will lead to more directed investigations and an ultimately correct diagnosis.

EBCT scans are directed at detecting calcium in the blood vessels of the heart. A relationship does exist between the amount of calcium deposits in those vessels and the degree of plaque present in the heart arteries. There is not, however, a simple one-to one relationship between the Calcium score one is given from this test and the development of a heart attack or “event” as we term it medically.

So, what’s the problem? Well, all tests used in medicine to diagnose disease have differing accuracy in detecting different diseases. The accuracy is composed of how sensitive the test is in finding something AND how important or real that finding is (that is how specific is the test’s finding for a real disease). A test that is 100% sensitive and

only 50% specific, (depending on how many people actually have the disease in that population), can lead to a wrong diagnosis half of the time.

Furthermore, when even a very accurate test is used in a screening mode, in a population where not many people have the disease it is looking for, a potentially large number of people will be told they have a problem when none exists.

This frequently leads to unnecessary anxiety for patients and extra costs (ultimately to everyone) for chasing down false leads. More concerning, however, is the potential for harm coming to patients undergoing more relatively risky procedures to obtain a final diagnosis. All this for the low likelihood of detecting a very small number of potentially curable cases.

For example, it has been shown that almost half of whole body CT scans detect abnormalities that ultimately lead to more tests. Almost 100% of these abnormalities are not on the basis of cancer. Of course if you happen to be the one case where the screening test has truly detected a hidden cancer, the test is a success for you. The problem is that if you don't have cancer or heart disease and the test has resulted in anxiety or worse, a serious complication from say a biopsy which was unnecessary, then that's not a success for you. Unfortunately you can't magically predict beforehand precisely in each case who will benefit and who will suffer because of the test.

The major concern is that these tests are being applied in a screening mode so the chances of a lot of false findings is likely greater. Certain screening tests are in use in medicine such as mammography, but even these tests screen certain segments of the population. The key is to use these tests in those patients where the probability of disease is great enough to result in true detection of disease, with the lowest number of false results.

When it comes to both WBCT and EBCT studies, the best target population of patients has not yet been clearly identified. There are also concerns that patients who have already been identified with disease will be falsely reassured by an erroneous test result (a false negative) and not seek the proper test indicated in their particular case.

Both leading organizations in Radiology and Cardiology in North America urge caution as the scientific study of these testing techniques has not been fully completed. Large scale studies are currently underway which will give your doctor the information he or she needs to determine if these tests are right for you.

It is probable that both these tests will find their way into the diagnostic regimen we, as physicians use, but likely in a more targeted role than they are currently being used south of the border.

Until then discuss with your family physician if there are particular medical reasons why one or both of these tests may be a reasonable option or, if indeed more directed and already validated testing is better indicated for you. If you then do undergo these tests, he or she can advise you what next steps are or are not indicated in your particular case.

