CT Scans and Cancer Risk [1]

A computed tomography (CT) scan, also called a CAT scan, is an imaging test used to detect cancer and determine the cancer's stage (a way of describing a cancer, such as where it is located, whether or where it has spread, and whether it is affecting the functions of other organs in the body). Doctors will often repeat the test to help determine whether cancer treatment is working or to look for signs that cancer has come back.

A CT scan creates a three-dimensional picture of the inside of the body with an x-ray machine. A computer then compiles these images into a detailed, cross-sectional view that shows any abnormalities or tumors. Because of its many benefits, the use of CT scans has increased in the past few decades. However, concerns have been raised about the safety of CT scanning because it uses a form of radiation, and exposure to radiation increases cancer risk. Recent research suggests that the use of CT scans may slightly increase cancer risk in the U.S. population.

Doctors have long known that exposure to high doses of radiation can cause cancer, often years later. Most of the data come from survivors of the atomic bombs in Japan during World War II. However, the doses of radiation these individuals received were much higher than a person receives with repeated CT scans.

The radiation dose from CT scans depends on the size of the body part being imaged, the number of scans in a study, and many other factors. The dose should be tailored to the size of the patient and the type of CT scan.

Many experts have looked at the evidence regarding the safety of CT scans. Most doctors agree that a CT scan should be performed only if it is medically necessary; typically, a CT scan should not be used to screen for disease in a healthy person without symptoms. However, for a person diagnosed with cancer or suspected of having cancer, the benefits of having a CT scan always outweigh the risks.

Benefits and risks of CT

If your doctor wants you (or your child) to have a CT scan, consider the benefits and risks of this test.

Benefits:

- A CT scan painlessly captures images of your internal organs and other parts of your body that standard x-rays cannot examine. This avoids the need for almost all exploratory surgeries.
- CT saves lives. A CT scan helps detect a tumor, guide a biopsy, determine the stage of cancer and whether cancer has spread, and monitor the effectiveness of cancer treatment.
- A CT scan is fast?€”less than one second per image. Thus, in children, it often can be done without the need for anesthesia to prevent them from moving during the test.

Risks:

- A CT scan uses much higher radiation doses than a standard x-ray examination and most other medical imaging tests. For instance, the radiation dose of a CT scan of the head is 25 times higher than that of a head x-ray.
- Children are at higher risk than adults because their bodies are more sensitive to radiation. They also have a longer lifetime left to develop cancer.
- Generally, a CT scan is not recommended for pregnant women because of the potential risk to the fetus.

Despite the risks, it is important to note that the chance of absorbed x-rays from a CT scan causing cancer is very small, and no instances of cancer in a person have ever been linked directly to CT scans.

Keep records of your tests

You can prevent unnecessary radiation exposure by avoiding unneeded or duplicate CT scans. Keep track of when you have CT scans and other imaging tests, where you had the tests, and why you had them. If your doctor wants you to have a CT scan, show him or her your records and make sure you still need the scan.

Questions to ask your doctor

Before you or your child has a CT scan, ask your doctor the following questions:

- Why do I need a CT scan? (Why does my child need a CT scan?)
- What are the risks and benefits of having a CT scan?
- What are the risks of not having the test?
- Does the benefit of a CT scan outweigh its risks?
- Is a CT scan the best diagnostic examination for me (my child)? Or are there options that we can consider?
- Is the radiation dose of the CT scan the lowest possible dose that produces diagnostic images?
- Is the radiation dose based on my (my child's) weight?
- Does this CT scan duplicate any previous tests?

More Information

***Expert Perspective from ASCO on the Link Between Cancer Risk and the Increased Frequency of CT Scans [2]

Computed Tomography (CT) Scan?€”What to Expect [3]

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Links:
[1] http://www.cancer.net/navigating-cancer-care/cancernet-feature-articles/ct-scans-and-cancer-risk
[2] http://www.cancer.net/vgn-ext-templating/v/index.jsp?vgnextoid=04f5fd7252c86110VgnVCM100000ed730ad1RCRD&cpsextcurrchannel=1
[3] http://www.cancer.net/node/24486