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What is Cancer?

Now that is one loaded question!

We all know that it's something that we don't want to get or to have, but what is it?

In simplest terms, cancer is a bunch of cells that are "out of control" and multiply wildly.

To gain a better understanding of this, let's talk about what is normal first.

We're made up of cells. In a multicellular organism, such as a person, there are untold numbers of cells. There are also simple single-celled organisms such as bacteria and various parasites. The beauty of multicellular organisms is that we and other forms can develop division of labor among the different cells and different areas of the body. Brain cells are specialized and quite different from the cells that line the stomach; cells within the skeleton will be even different. Even among similar cell types such as muscles, we have varieties of smooth, striated and cardiac tissue or cells.

As a general rule, the more specialized a cell becomes, the less it's able to reverse its course and become a different type of cell or to replace itself after damage or injury. A cancer is derived from a specific type of normal cell. For lung cancer we have Large Cell cancers including adenocarcinoma, squamous cell carcinoma (and others) as well as small-cell cancers. These descriptions are given based on the appearance of the cells under a microscope.

We also have small reservoirs of "stem cells". You may have heard of these in the news. There has been a lot of talk about using stem cells to fix broken tissues and organs. In the future we may be able to treat certain diseases by giving intravenous stem cell infusions that will be targeted to go to the damaged area and differentiate into the cells that were damaged in that area or organ.

Cancer cells tend to work in the reverse of normal cells, they become less differentiated or specialized. This abnormal cell also is no longer under the control of the body and starts dividing all by its self, making more and more copies of its self. They're even able to develop new blood vessels to ensure an adequate supply of oxygen and nutrients. Usually cancer cells are not "functional". As they lose their specialized status they also lose the ability to do what they were supposed to do in the body. Some cancers will retain some ability to do some specialized functions, but often without the usual control of the body. Some of these cells may secrete chemicals into the body, perhaps hormones or other agents that can cause further problems and symptoms to the afflicted person. The good news is that sometimes there are blood tests that can be used to detect these cancers. The bad news is that sometimes the agents secreted can cause uncomfortable symptoms.

Cancer also causes pain as it grows.

Normally our cells are organized into specific, functional organs and tissues. The organs have a definite size and shape. Surgeon's can open the body and know where to find organs and how to recognize them.

Cancer cells don't recognize these boundaries and can erode or "eat into" other adjacent organs and tissues. Hence the name; cancer is derived from "crab" due to this ability to "eat into" other organs and tissues. This act of eating into destroys the other organs and tissues and typically causes a lot of pain.

How do we describe cancers?

Patient's often think of cancer as something they don't want to have but get confused listening to doctor's talk about what's going on with it.

"*Grade*" is a term that refers to the basic cell biology or the activity and behavior of the cells in the tumor (tumor simply means "mass" or "lump", there are many forms of benign tumors—such as a bruise).

Cancer is not like a simple light-switch; an "all or none" phenomenon in which the light is either off or on, or a cell is normal or abnormal. It's just not that easy. Think of a dimmer instead of a simple switch. Cancer can be almost normal cells that just aren't working right and multiplying a bit out of control but not terribly dangerous, they may look "almost normal" under the microscope. This would be akin to a dimmer on a barely glowing light. Cancer can also be very *anaplastic*, or highly abnormal, think of a bright floodlight. It's "more cancerous". Typically these are the cells that have the fewest of the original abilities of the cell it derived from and tend to grow the fastest and cause the most problems. This is where the concept of an "aggressive" tumor comes from. The more anaplastic/aggressive tumors tend to grow a lot faster, spread more and cause more complications. There are various grading systems used by pathologists (doctors who study diseases and tissues) to describe the cancer to other doctors and in our medical literature.

"*Stage*" relates to how far the cancer has spread in the body. This also varies by tumor type. Many cancers mimic each other in terms of what organ will be involved next. The lung and liver are the most common site for tumor spread via the blood stream or "*metastasis, mets*" if you will. A stage I tumor will often be confined to it's own initiating organ. Stage II may have spread through different layers of that organ or spread to a nearby organ, Stage III will often signify further spread. The stages are different

based on the host organ that initiated the cancer cell. Lung cancers are different than colon cancers, are different than breast cancers etc.

Is cancer contagious? Can I catch it from somebody?

We know that certain cancers derive from infections. Human Papilloma virus causes cancer of the cervix (mouth of the womb). Hepatitis C patients have a higher risk of developing hepatocellular cancer in the liver. Those with H. Pylori infections in the stomach are more likely to later develop gastric cancer. HIV is linked with development of Kaposi's sarcoma. The good news is that these are not easily caught by casual contact, certainly not likely to be spread as easily as a common cold.

What other things can cause cancer?

We know that certain environmental toxins are strongly linked with cancer. Cigarette smoking should obviously be avoided as carefully as second-hand smoke should be avoided. We know that various heavy metals, which are toxic, can be linked with future development of cancer. A variety of toxins encountered early in life can form cancer later in life. Interestingly, not everybody has the same tendency to get cancer. There appears to be a genetic link as well.

A commonly held belief is that it takes a combination of genes + environment and/or behavior.

Promiscuous sexual contact is linked to development of cervical cancer, smoking is linked to lung and airway cancers. Heavy alcohol use is linked with a variety of cancers. By the same token, we've all known folks who abuse themselves with heavy toxin exposure, drugs, alcohol, cigarettes, generally unhealthy lifestyle and seem to experience no ill-effects and even look pretty good as they age. Others among us try to take great care of ourselves and seem to be a magnet for the biological problems. For those in the latter group, perhaps they should have picked better parents...

Seriously, there is a huge range of genetic variability that provides some of us protection and others with that fatal flaw.

In the future we'll be able to understand these genetic predispositions and hopefully have therapies to help "level the playing field" with good preventive medicine. Right now there are tests for Single Nucleotide Polymorphisms (SNiPs), which are genetic changes that may leave some of us requiring larger amounts of various vitamins and other nutrients. NutritionWise in Tequesta has the ability to run a panel of these tests currently, it's clearly cutting edge stuff and a lot of work remains to be done in this area.

A simple approach is to avoid as many toxins as possible. Organic foods and plenty of clean water free of pesticide residues and other toxins are clearly in our best interests. Eating manufactured and modified foods such as the trans-fats and artificial sweeteners may prove to not be in our best interest as well: God designed us to run on certain nutrients. Too often, we find out years or decades later that it wasn't smart or nice to "fool around with Mother Nature" due to higher risk of various illnesses including cancer.

A slightly more aggressive approach would be to go through detoxification protocols as well. It just makes sense to try to get as many of these potential toxins out of our systems as possible. Maintaining an ideal body weight is also of key importance. Fat can store many toxins for prolonged periods of time.

Chelation therapy is another very good way to pull heavy metals out of the body. Heavy metals have been linked with a variety of cancers and other illnesses. Proper testing can't

be done without a chelation challenge to expose these toxins and remove them from their hiding places within our bodies.

Diagnosis and treatment of cancer is to large a topic to deal with in a brief article of this nature. One of the key ideas of good treatment is to do everything possible to maintain good overall health. Adequate rest, nutrition, hydration, exercise (where possible) are good for body, mind & soul. Further approaches can include consultation with practitioners of Ayurvedic Medicine, Traditional Chinese Medicine, and Homeopathy. Doing everything possible to restore health to the body while getting ready for possible surgery, radiation and chemotherapy makes a lot of sense to promote healing. Some fear that this will also allow the cancer to grow more. While this is a valid concern, don't forget that these are not "normal" cells. If we lose adequate "immune surveillance" then our innate immune systems are not doing their job to find small cancers and kill them before they become larger, lethal problems. Many scientists and physicians feel that the immune system is constantly finding and removing small cancers before they get out of control.

The body wants to heal its self; it has the innate ability to do so. Perhaps instead of trying to poison ourselves when sick, we should try to do all we can to support our natural healing mechanisms.

Stay Healthy!

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