

Why me? Think DDT

One of the most common questions patients ask me after being told they have breast cancer is, "why me?" Following this question they typically inform me that no one in their family has ever been diagnosed with breast cancer.

This is a frustrating question to be asked right after informing a woman that she has just been diagnosed with breast cancer. The reality is that we simply do not know the cause of breast cancer in the majority of cases.

My current approach to answering the "why me" question is to say it's a G.O.K. Of course they have no idea what I am talking about until I tell them it stands for GOD ONLY KNOWS! To my surprise, this answer seems to work. It lightens the start of what is typically a high-intensity conversation.

Despite that fact we do not know the cause of most breast cancers, we are making progress in understanding what causes certain types of breast cancer. We now know that 5-10 % of all breast cancers are caused by a high-risk gene mutation inherited from either the mother or father. The most common mutations occur in the BRCA genes.

Angelina Jolie had the BRCA 1 mutation, which put her at an 85% lifetime risk of developing breast cancer. More recently another 15 high-risk genes have been identified that can also increase a woman's risk of developing breast cancer.

There is another 20% of women who have a family history of breast cancer, but test negative for all known mutations. In the future, it is likely new gene mutations or combinations of gene mutations will be identified to explain what caused the breast cancers in this group of women.

So it appears we have a fairly good understanding about what causes breast cancers in about one fourth of the women who are diagnosed with breast cancer, but what about the other 75%?

The answer is we don't know, but there are promising theories that may provide us with answers. One theory that has been on the back burner for decades is the pesticide, DDT. It could be one of the environmental toxins that influences a woman's risk of developing breast cancer.

The theory that exposure to toxic chemicals could lead to increased cancer risks has been around for a long time, and the background to this concept is fascinating.

In the early seventeenth century a British surgeon, Percival Potts, identified a large number of chimney sweeps who had cancer of their scrotums. Scrotal cancer is

extremely rare, and most physicians will not see a case in their entire careers. Dr. Potts assumed something within the soot was causing the cancer. It was later proven that an ingredient in coal soot was causing these rare cancers. The toxic agent was subsequently proved to be a benzopyrene. These compounds are now known to cause direct damage to DNA.

Years later a similar story took place in the dye industry. Dye workers were found to have an exceptionally high rate of bladder cancer, and it was soon determined that carcinogens in the dyes were causing the bladder cancers. More recently, asbestos has been identified as a cause of mesothelioma, and it is now well established that the nicotine in tobacco causes lung cancer.

For decades scientists have been looking for a chemical agent that could cause breast cancer. There is a list of potential candidates, but to date the proof of a cause and effect relationship is lacking.

However, a breakthrough study has recently been reported in National Geographic which indicates DDT may prove to be the first identified chemical that can have a direct impact on the risk of developing breast cancer.

The chemical in question is DDT. Virtually the entire population of the USA was exposed to DDT in the 50's and 60's when spraying was rampant. The goal was to eliminate the malaria-carrying mosquitos, and the efforts were successful. DDT was banned in the USA in the early 70's because of possible side effects.

DDT is an estrogen like compound. It is well established that estrogen plays an important role in breast cancer. It has been theorized that DDT could also play a role in breast cancer risk by mimicking or disrupting the effects of the body's natural estrogen.

Theories are great, but without proof they are of limited value. The challenge for scientists was to come up with a study to evaluate the potential relationship between exposure to DDT and the risk of developing breast cancer.

A remarkable study was performed in Berkeley California that dates back to the early 1960's that attempted to answer the question. Literally thousands of pregnant women agreed to have their blood drawn and stored for the future. These women were followed for three generations.

Over the period of observation, 118 daughters developed breast cancers before the age of 52. The researcher then compared DDT levels of the mothers of the 118 daughters who were diagnosed with breast cancer to DDT levels in a large group of mothers whose daughters did not have breast cancer.

After adjusting for risk factors including family history and age, it was determined the daughters of mothers with the highest DDT levels were approximately 4 times more likely to have been diagnosed with breast cancer than the daughters whose mothers had the lowest DDT levels.

A four time increased risk is substantial and almost reaches the risk of having an inherited mutation such as the BRCA gene which is associated with a 5 times increased risk of developing breast cancer.

This study does not prove DDT exposure causes breast cancer. The authors are the first to point out that more study on the subject is needed. The study does provide strong support for the concept that exposure to DDT can increase breast cancer risk.

DDT spraying was banned in the USA in early 1970's so exposure to DDT spraying is no longer an issue. The concept that environmental toxins could increase a woman's risk of developing breast cancer should be a wake-up call to all of us.

There is a long list of other toxins that have been identified that in theory could increase a woman's risk of developing breast cancer. For the most part, they have not been adequately studied and remain under the public radar.

The entire subject of environmental toxins seems to be firmly placed on the back burner for a variety of reasons. I think the time has come to look at this subject in more detail. The next few issues of "Ask the Doctor" will explore the issue of environmental toxins. Please feel free to contact me if you have questions or suggestions: beawarefoundation.com

The end

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