

IN OFFICE ONLY



Breakthrough Immune Support System

Advanced Nutrition Specifically Formulated for People with Chronic Illnesses

LYMPHATIC SYSTEM

consists of bone marrow, spleen, thymus and lymph nodes.

Spleen:

The largest lymphatic organ in the body contains white blood cells that fight infection or disease.

Bone marrow:

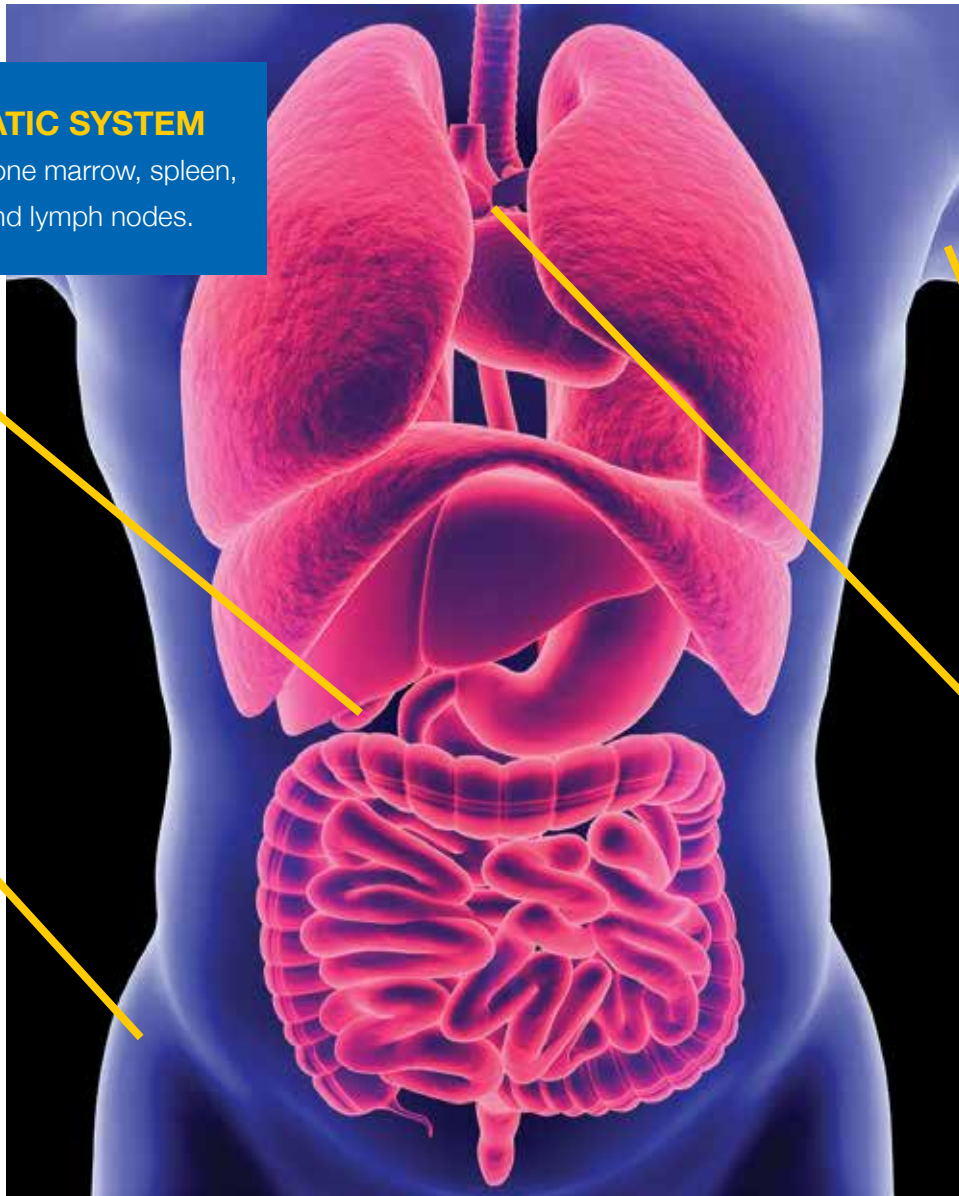
Produces white blood cells or leukocytes.

Lymph nodes:

Produce and store cells that fight infection and disease.

Thymus:

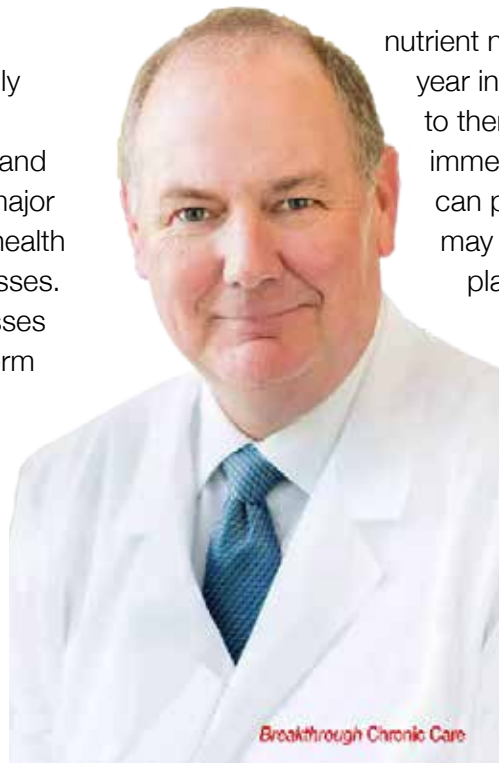
This organ is where T-cells mature. T-cells help destroy infected or cancerous cells.





“The *Breakthrough Immune Support System* is nutritionally advanced. The delivery of personalized **MEGA MEALS** and **MEGA JUICES** represent a major advance in immune system health for patients with chronic illnesses. Our world class team addresses the immune systems’ long-term nutritional needs by focusing on food toxicity and nutritional deficiencies.

The annual *Breakthrough Immune System Exam* provides *diet personalization*. It creates real time data to properly analyze what



nutrient needs the patient has now and then every year in the future. Our commitment and ability to then update the patients’ **MEGA MEALS** to immediately address new nutritional deficiencies can potentially prevent new chronic illnesses. This may provide years of healthy life. This is a lifetime plan, rethinking optimum immune system health. The immune system is complicated. This is the most comprehensive and innovative nutritional approach to strengthen the immune system for chronic care patients I have seen. That’s saying a lot... Scripps is known for innovation.”

Dr. Tom Buchholz,
Medical Director of Scripps Research Institute.
Voted the Most Innovative Medical Research Center in the World in 2018. **Dr. Buchholz is also Vice Chairman of the Scientific Advisory Board of Breakthrough Chronic Care, Inc.**



Breakthrough Immune Support System was created specifically for people with chronic illnesses to rebuild and potentially make their immune systems stronger than ever before. It's urgent for chronic care patients to make strengthening their immune system a part of their daily lives. **Breakthrough Immune Support System** is an important advance, uniquely personalized to the chronic care patient.



The **Breakthrough Immune Support System** is a turn-key solution. Dr. Tom Buchholz is a recognized leader in the field of Immunotherapy. He is the Medical Director at the world renown Scripps Research Institute in La Jolla, Ca. He heads our team of leading Immunologists, PhD nutritionists, food engineers and innovative chefs. They are redefining optimum immune system health with **MEGA MEALS** and **MEGA JUICES**. They only utilize the most nutritious anti-inflammatory and immune building foods. They are the optimum combination of protein, vitamins, micronutrients, macronutrients, phytonutrients, minerals, amino acids, enzymes and fiber.

MEGA MEALS are Advanced Super Food

Often a chronic care patient's immune system is compromised. We are committed to strengthening it and preventing new chronic illnesses. It's common for patients to have two chronic illnesses or more. Studies show cancer rates can be significantly increased for patients several different chronic illnesses. Chronic care patients have critical decisions to make. A healthy diet is



the foundation for optimum health and a strong immune system. Our tasty **MEGA MEALS** are literally 'comfort food' that are extremely healthy. They are low in sugar and sodium yet remarkably delicious. **They include only foods that studies have shown will build the**



immune system, from red peppers to shellfish. Our specialty chefs create innovative sauces, spices and recipes that make vegetables that many people have never liked before... love them.

MEGA MEALS are well planned and smart. They strike a fine balance of raw and cooked foods. Both are necessary to aid digestion and strengthen the immune system. The recipes have been influenced by Gerson Diet and Pritikin Diet. They would be extremely



difficult, and time consuming for chronic care patients to provide themselves. Now, it is delivered fresh to the patients door chef prepared or ready to cook. The price range for **MEGA MEALS** ranges from \$7.50 to \$13.50. They are simply nutritionally advanced meals that chronic care patients look forward to eating. This is a new world for advanced immune system health.

Chronic illnesses unfortunately create large amounts of confusing news stories. Articles are constantly sending mixed signals and fabrications in traditional media and on the Web. It's virtually endless. Social media and fake news promote dangerous misinformation. It is common today. Much comes from a vested interest. If you have a chronic illness in today's culture of misinformation, it can kill you. There are several critical questions that require immediate and intelligence answers. Doing nothing is the holy grail of bad decisions.

Many patients start with the question... what's the best diet to help strengthen my immune system?

A low fat or high fat diet, or vegetarian diet, or a high protein diet, or low carb diet, or high carb diet, or 100% plant based diet, or no dairy diet, or high dairy diet. There is a *new diet plan* almost every day. Is your microwave safe or dangerous? Is steam cooking or grilling the healthiest?

The confusing part is that there are different research studies constantly in the news that take both side of these questions with 100% opposite conclusions. Whoever paid for the study can sometimes determine its findings. It's totally stressful. **Chronic care patients have no time for mixed signals and procrastination.** These are only a few of the questions. **MEGA MEALS** is the total solution.

Another highly controversial question patients must answer is whether to take vitamin supplementation.

One day a study is released showing many people have critically low levels of several vitamins, minerals, amino acids, enzymes, antioxidants and need a multivitamin. Their diets are radically inferior. Next day a study is released that any vitamin supplement is absolutely worthless. Almost zero bioavailability.

Your body virtually absorbs nothing ... total waste of money. And, they can be extremely bad for your health, accelerating several chronic illnesses.

Optimum nutrition comes from a superior diet. The *total package* has been extremely difficult to find until **MEGA MEALS**.

It's only natural for patients to ask what's really important to strengthen my immune system. What's real... what's not? Is 100% organic really important? What does **no antibiotics** and **growth hormones** mean? What does **vegetarian feed** mean? Why is **range fed** and raised stress-free important? How dangerous are **food additives**? For a healthy person, these questions are important. **But**, for a chronic care patient whose immune system has already been compromised, these questions can literally mean life or death.

USDA reports that 40% or more of foods labeled organic or with no antibiotics or hormones found in grocery stores and restaurants is inaccurate. We have eliminate this systemic deception for chronic care patients.

There's a new sheriff in town. We have one of the food industries most proactive and comprehensive '**Enforcement Teams**.'



They closely monitor the farmer and suppliers of the foods that go into making the **MEGA MEALS** and **MEGA JUICES**. Our comprehensive '**soil analysis**' determines if the soil has nutritional integrity. This is critical because many studies show that because of the depletion of the soil, with chemical fertilizers, toxic pesticides, and mass farming techniques today, many foods have less than 50% of the nutritional values they did just 50 years ago. We make are committed to minimize, or eliminate, nitrates or GMO products in our in our *Breakthrough Immune Support System*.

Our fish, shellfish, chicken and turkey, are free from antibiotics or growth hormones. We require our farmers and suppliers to use feed that is 100% vegetarian and the protein source is raised stress-free in an open range environment. Our fish are caught in the wild. **We set the gold standard for food quality control.** Chronic care patients have no more confusion. No more guessing. No more scouring grocery stores looking for organic fruits and vegetables that are perfectly ripe.

100% organic vegetables and fruits grown in nutrient rich soil provides many health benefits. It's far better for the immune system to get its minerals, vitamins, micronutrients, macro-nutrients, phytonutrients, enzymes, and amino acids from the daily diet than from pills.

We have created a new way of eating for chronic care patients. **MEGA MEALS** and **MEGA JUICES** are for breakfast, lunch and dinner. **Now eating a complete diet of super foods is remarkably simple and tasty.** It's inexpensive, delicious and delivered fresh to our patients' front door. No more guessing about a food's toxicity or nutritional deficiencies. Every meal is a masterpiece of mother nature's finest nutrition.

MEGA MEALS really are a fun addition to the patient's life. Our **Dark Chocolate Treats!** are the ultimate comfort food. They can be enjoyed everyday guilt-free. They are super food. Our special processing of 'raw cacao' at low temperatures makes them one of the most antioxidant rich foods on the planet. They include delicious chocolate cake, chocolate cookie and chocolate candies. Many of our **Dark Chocolate Treats!** are available with **Medical Marijuana** for patients with chronic pain. Patients need a doctor prescription, and it must in compliance with their residence state laws.



The Best Replacement for a Missed MEGA MEAL

Optimum nutrition is only possible through a well planned healthy diet. Two **MEGA MEALS** and one **MEGA JUICE** daily are a patients best and easiest option. But, we realize some days that's hard. Patients are traveling, entertaining, working late, and sometimes run out of **MEGA MEALS**. For these days we offer this supplementation plan ...



2 MEGA JUICES

Juicing is a proven method to capture a high percentage of the vitamins, enzymes, mineral, trace elements, antioxidants and micronutrients of fresh fruits and vegetables. Unfortunately, it is time consuming to juice at home everyday. It requires frequent shopping and extensive cleanup. Many chronic care patients don't have the time or energy. **MEGA JUICES** are the solution. They are the *closest thing* to daily juicing in the kitchen. We use an advance *cold-pressing* technique that allows **MEGA JUICES** to keep a high percentage of the fruits and vegetables nutritional integrity for up to 21 days. It comes in five delicious flavors.

1 MEGA SHAKE ...

One scoop has 20 grams of complete protein the equivalent to 3.5 eggs. The equivalent of six cups of broccoli, kale, and spirulina and chlorella, 50% of all daily required vitamins and minerals from organic fruit and vegetables, six grams of soluble and insoluble fiber the equivalent of three slices of organic whole wheat bread, 1.5 grams of omega-3 free fatty acids from flax seed and hemp that is the equivalent of a serving of salmon. One billion probiotics equivalent to a cup of yogurt, and antioxidants equivalent to three cups of blueberries.



2 MEGA SUPPLEMENT CAPSULES

Our high potency multivitamin softgels have ultra high bioavailability. Two capsules per day provides the optimum form of life-sustaining nutrients, including bioactive B vitamins, three forms of selenium, alpha-lipoic acid, five milligrams of bioavailable quercetin and important enzymes including pancreatic enzymes. These powerful enzymes promote healthy digestion and optimal nutrient absorption.



Free Immune System Exam is Proactive Disease Prevention

The immune system is complicated. It has several 'vital components'. For the **Breakthrough Immune Support System** to provide long-term health we need current data. Preferably every year. That's why we provide our loyal patients a free annual **Breakthrough Immune System Exams**.

The results are a real-time blue print for the patients' **MEGA MEALS** and **MEGA JUICES** now and in the future. Unprecedented customization for chronic care patients.



Breakthrough Immune System Exam provides an annual review to address the patients long-term immune system health.

We recommend to new patients to have their first free **Breakthrough** Immune System Exam after being on **MEGA MEALS** and **MEGA JUICES** for six months. We prefer our first exam to include 8 different vitamins A, E, K, D, B6, B9, B12, and Beta carotene. Also included is a *Complete Blood Count* exam determine how the immune system is working. The annual free **Breakthrough** Immune System Exams include Lipid Panel, Thyroid Hormone, Immunoglobulins, Autoimmune. The patients' **MEGA MEALS** and can be updated annually based on the results.

Example, a patient's exam could show a deficiency in vitamin D. Their **MEGA MEAL** could **now** include a focus on salmon, spinach and other foods rich in vitamin D.

Our Concierge Chronic Care Doctors Are Special

We have *Concierge* Chronic Care Doctors in many cities in America. They are leading physicians with a unique compassion for patients with chronic illnesses. They are focused on the power of a healthy immune system. They have a special interest in immune system health and the importance of optimum nutrition to strengthen it. They address the issue head-on that chronic care patients can have significantly higher cancer rates. They believe in prevention.

They work closely with healthcare professionals at Breakthrough Immune system support. Example, if a patient is suffering from high blood pressure that can recommend their **MEGA MEALS** focus on foods to help that condition.

They believe our **MEGA MEALS, MEGA JUICES, Breakthrough** Immune System Exam and a regular *low intensity* exercise program is next generation healing. They are committed to make sure our patients receive the maximum benefits from their **Breakthrough Immune Support System**. They want to give patients control over their chronic illness.

Our *Concierge* Chronic Care Doctor is optional for our patients. They will provide a comprehensive analysis of the patient's immune system health.

They will also re-enforce the importance of weight management, drug management, exercise management, treatment management and attitude management. The *Concierge* Chronic Care Doctor provides it all. Our patients can see them once or make them a permanent part of their medical team as their primary care physician.

They take insurance and Medicare. Their practices are busy but they will accept our patients because they respect their commitment to staying healthy. It's a important and potentially life changing option for **Breakthrough Immune Support System** patients to consider.





Patients can Volunteer Part-Time and Receive Free MEGA MEALS

We want average Americans with a chronic illness no matter what their financial condition to benefit from our **MEGA MEALS** and **MEGA JUICES**. Patients wear our 'Advocate' Apparel to fundraising events, grocery store, mall, restaurants, church events, or walking the dog. Fellow patients with a chronic illness, or their family and friends, 'ask' for information. Home Office simply emails them a free 5 minute video with all the details. Patients use their smart phone or tablet and fill-out a [Patient](#)

[Information Form](#) ... [PIF](#) as we call them. **Wherever patients go fellow patients respond with appreciation and enthusiasm.**

We want to save patients thousands of dollars a year on their grocery bills, and save them thousands on out-of-pocket medical costs by keeping them healthy. We want to reduce or eliminate **financial stress** which is toxic to their immune system. [Peace-of-mind is the holy grail of healing.](#)

A PIF filled-out can qualify for a free MEGA MEAL

Debbie is taking a walk, and a neighbor's sister has kidney disease. Debbie volunteers to send a 5-minute video.

Debbie has her smart phone and fills out a Patient Information Form (PIF), takes just 60 seconds.

For Helping, Debbie receives a free **MEGA MEAL**. Eating free has never been easier, and gratifying.





A Possible 'Cancer Connection' With Several Chronic Illnesses

Concierge Chronic Care Doctors believe in the importance of a strong immune system for their patients. Chronic care patients with diabetes, heart disease, rheumatoid arthritis, sleep apnea, cancer and strokes survivors may have 'significantly higher' cancer rates than the general population. They recommend the *Breakthrough* Immune Support System to patients for maximum prevention.

Please review the following articles for informational purposes only.

'Link between diabetes and cancer risk firmly established'

Published Friday 20 July 2018 By Maria Cohut Fact checked by Jasmin Collier

That diabetes and cancer are linked in some way is by no means a new idea, but it had never previously been confirmed. Now, a major new study draws a firm conclusion: diabetes raises a person's risk of developing cancer.

Research suggests that a diagnosis of diabetes places a person at an increased risk of various types of cancer.

Now, a review analyzing the data collected by 47 studies from across the globe — including the United States, United Kingdom, China, Australia, and Japan, to name but a few — confirms, beyond doubt, that diabetes heightens the risk for cancer.

The study authors note that women with diabetes are especially affected. They appear to be more exposed than men to the development of malign tumors.

The findings of this global review — which assessed the health-related data of almost 20 million people — are discussed in a paper now published in the journal *Diabetologia*.

Women at higher risk than men

The review was conducted by researchers led by Dr. Toshiaki Ohkuma, from the George Institute for Global Health at the University of New South Wales in Sydney, Australia. His colleagues hailed from the University of Oxford in the U.K., and Johns Hopkins University in Baltimore, MD.

Dr. Ohkuma and his colleagues discovered not only that diabetes — both type 1 and type 2 — put people at risk of developing specific types of cancer, but also that this

risk is much higher for women than it is for men.

Women with diabetes are 27 percent likelier to develop cancer, compared with healthy women. By contrast, men with diabetes are 19 percent more likely to develop cancer than healthy men.

And, women with diabetes are 6 percent likelier than men with the same diagnosis to develop a type of cancer.

Specifically, in contrast to men with a diagnosis of diabetes, women with this condition have an 11 percent higher risk of developing kidney cancer, a 13 percent higher risk for oral cancer, and a 14 percent higher chance of developing stomach cancer, as well as a 15 percent higher chance of being diagnosed with leukemia.

One exception was liver cancer, for which men with diabetes have a 12 percent higher risk than women with the same metabolic condition.

"The link between diabetes and the risk of developing cancer is now firmly established."

Dr. Toshiaki Ohkuma

"We have also demonstrated for the first time," he adds, "that women with diabetes are more likely to develop any form of cancer, and have a significantly higher chance of developing kidney, oral, and stomach cancers and leukemia."

'Women are often undertreated'

Why does diabetes raise vulnerability to cancer? The mechanisms that drive this predisposition are still poorly understood. Nevertheless, some researchers argue that overly high levels of blood sugar may damage a person's DNA, thereby heightening their risk of cancer.

And why are women, in particular, more at risk than men? Study co-author Dr. Sanne Peters thinks that this might be due to the fact that women live with prediabetes

conditions for 2 years longer than men, on average, which may contribute to exacerbating their vulnerability to cancer.

But there are also other reasons. “Historically,” says Dr. Peters, “we know that women are often undertreated when they first present with symptoms of diabetes, are less likely to receive intensive care, and are not taking the same levels of medications as men.”

“All of these,” she goes on to say, “could go some way into explaining why women are at greater risk of developing cancer. But, without more research we can’t be certain.” She calls for a more concerted effort to investigate the roots of these sex-specific differences.

“The differences we found are not insignificant and need addressing,” Dr. Peters stresses.

“The more we look into gender-specific research the more we are discovering that women are not only undertreated, they also have very different risk factors for a whole host of diseases, including stroke, heart disease, and now diabetes.”



Sleep-disordered breathing (SDB), commonly known as sleep apnea, is associated with an increased risk of cancer mortality, according to a new study.

While previous studies have associated SDB with increased risks of hypertension, cardiovascular disease, depression, and early death, this is the first human study to link apnea with higher rate of cancer mortality. Lead author Dr. F. Javier Nieto, chair of the department of population health sciences at the University of Wisconsin School of Medicine and Public Health, says the study showed a nearly five times higher incidence of cancer deaths in patients with severe SDB compared to those without the disorder, a result that echoes previous findings in animal studies.

“Clearly, there is a correlation, and we are a long way from proving that sleep apnea causes cancer or contributes to its growth,” says Nieto, an expert in sleep epidemiology. “But animal studies have shown that the intermittent hypoxia (an inadequate supply of oxygen) that characterizes sleep apnea promotes angiogenesis—increased vascular growth--and tumor growth. Our results suggest that SDB is also associated with an increased risk of cancer mortality in humans.”

Researchers examined 22-year mortality data on 1,522 subjects from the Wisconsin Sleep Cohort. This cohort is a longitudinal, community-based epidemiology study of sleep apnea and other sleep problems that begun in 1989 under the leadership of Dr. Terry Young, also a

member of the UW population health sciences faculty. The cohort began was a random sample of Wisconsin state employees.

The participants undergo overnight sleep studies that include polysomnography – an all-night recording of sleep and breathing – and many other tests at four-year intervals. The studies are conducted in a specially designed unit at the federally funded UW Institute for Clinical and Transitional Research Center (ICTR).

After adjustment for age, sex, body mass index, and smoking, Nieto’s study found that both all-cause and cancer mortality were associated with the presence and severity of SDB in a dose-response fashion. People with severe SDB died of cancer at a rate 4.8 times higher than people with no sleep breathing problems.

These associations were similar after excluding the 126 subjects who had used continuous positive airway pressure and were stronger among non-obese subjects than obese subjects.

“In our large population-based sample, SDB was associated with an elevated risk of cancer mortality,” concluded Dr. Nieto. “Additional studies are needed to replicate these results. If the relationship between SDB and cancer mortality is validated in further studies, the diagnosis and treatment of SDB in patients with cancer might be indicated to prolong survival.”

Everyday Health > Sleep Disorders > Sleep >



Why Sleep Apnea Might Raise Your Cancer Risk



By [Robert Rosenberg, DO](#)

Several recent studies have demonstrated an increased risk of premature death in those with sleep apnea, implicating several different possible reasons. Cancer and cardiovascular effects have been among the leading candidates.

In this month's issue of the *Journal of Clinical Sleep Medicine*, another paper once again points out this relationship. The report is a 20-year follow-up of all causes of mortality in 400 residents in the Western Australian town of Busselton, making it part of the Busselton Health Study Cohort done at the University of Sydney.

The researchers found that moderate and severe sleep apnea (meaning more than 15 respiratory obstructions per hour) was associated with a higher incidence of cancer and cancer-related deaths. In fact, people with moderate or severe sleep apnea were 2.5 times as likely to get cancer, and 3.4 times as likely to die from cancer. Mild sleep apnea did not impact cancer risk.

Two other recent studies have related cancer incidence and death to sleep apnea. In one, researchers found the growth rate of melanoma cells was accelerated by sleep apnea. Another found that mild sleep apnea resulted in a 10 percent increased risk of death, and that moderate and severe sleep apnea led to a two-fold and five-fold increased death risk, respectively.

We estimate that 18 million Americans have sleep apnea. Of those, only about 20 percent have been diagnosed and treated. As a result, sleep apnea is of major public health significance. There have been a few encouraging studies demonstrating that with treatment, the risk of cancer decreases. In one, effective treatment was

associated with positive changes in cancer-related genetic pathways, according to a white blood cell analysis.

We have begun to realize which specific sleep apnea factors may encourage tumor growth. The most likely factor is the low oxygen that results from repeated respiratory obstructions. We believe this encourages new blood vessel growth (neovascularization), which ends up feeding the tumor cells and promoting their growth. Genetic changes that result from sleep apnea may also be to blame.

We need to take this disorder very seriously. The incidence of sleep apnea is increasing, in great part due to our love of fast food, sugary drinks, and the resulting epidemic of obesity, which predisposes many of us to the disorder. Therefore, as if we did not already have enough reasons to treat sleep apnea, we can now add cancer. Here are easy signs of sleep apnea to look out for: loud snoring, daytime fatigue, interrupted breathing, or large neck (men 17" and women 16"). If you or a loved one has any of these, get it checked out. I think that before long we will be adding "check for sleep apnea" to such things as a colonoscopy and breast or prostate exams.

Last Updated:4/22/2014

April 16, 2018

Addressing the Increased Risk for Malignancy in Rheumatoid Arthritis

By Salynn Boyles

Findings from various studies indicate that the overall risk for malignancy is higher among patients with rheumatoid arthritis (RA) compared with the general population.

The incidence of cancer may be highest within the first several years after RA diagnosis.

The following observations have been noted in patients with RA compared with the general population:

An overall reduced risk for breast, gastrointestinal, liver, and colon cancers,⁵ but with worse prognosis associated with these cancers; for example, 40% higher mortality among people with RA and breast cancer vs people from the general population who have breast cancer

Worse cancer-related mortality and prognosis for squamous cell carcinoma, hematopoietic malignancies, and cancers of the upper aerodigestive tract and prostate; for instance, 50% higher mortality among patients with both RA and prostate cancer vs people who do not have RA and have prostate cancer

Increased incidence of lung cancer, with worse survival prognosis

Increased risk for lymphoproliferative malignancies, including Hodgkin and non-Hodgkin lymphoma (NHL), with similar survival rates for NHL compared with people with NHL from the general population, whereas lymphomas in patients with RA “are more likely to be low grade and mortality less likely to be lymphoma related,” wrote the authors.

Although some data suggest that disease-modifying antirheumatic drugs (DMARDs) may increase the risk for cancer, it does not appear that these agents increase the overall risk. However, certain traditional DMARDs may increase the risk for specific cancers. For example,

azathioprine has been linked with an increased risk for lymphoproliferative and other malignancies in patients with RA, and cyclophosphamide has been found to increase the risk for hematologic malignancies, urinary tract and bladder cancers, and other malignancies.

Additionally, although methotrexate does not appear to increase the overall incidence of lymphomas, it “may have divergent effects on lymphoma development, decreasing the development of some lymphomas via decreased RA-related immunologic activity (which is linked to lymphoma development) and promoting other lymphomas through immunosuppression, leading to an overall null impact on incidence,” as explained in one paper.

RA and the therapies used to manage the disease have been associated with increased malignancy risk, thus presenting a significant challenge to researchers attempting to elucidate these connections.

For further insight into the relationship between RA and malignancy risk, Rheumatology Advisor interviewed one of the authors of the Rheumatology and Therapy article, Eric L. Matteson, MD, MPH, chair of rheumatology and professor of medicine at the Mayo Clinic in Rochester, Minnesota, and Laura Cappelli, MD, MHS, assistant professor of medicine in the division of rheumatology at Johns Hopkins School of Medicine in Baltimore, Maryland.

Rheumatology Advisor: What is known about the risk for malignancy in RA and the potential underlying mechanisms?

Related Articles

Clinician Roundtable: Statins for CV Risk Reduction in Rheumatoid Arthritis

Bone Strength Significantly Lower in Patients With ACPA-

Positive Rheumatoid Arthritis Incidence of Multiple Psychiatric Disorders Evaluated in Rheumatoid Arthritis

Dr Matteson: RA is associated with a greater than twofold increased risk for lymphoma. This risk is higher in patients with high disease activity and with more severe disease, including extraarticular involvement. This risk is related to the pathobiology of the underlying rheumatic disease, including the inflammatory burden, immunologic defects such as overexpression of Bcl-2 oncogenes, traditional risk factors such as smoking, and in some cases, associated viral infection.

Dr Cappelli: Patients with RA have some increased risk for lymphoma and lung cancer compared with the general population. This risk appears to be related to having RA itself rather than with the use of biologic medications, as recent large studies have shown. The mechanisms behind this risk are not well understood but probably have to do with immune dysregulation in RA leading to decreased tumor surveillance or chronic inflammation, which is a known risk factor for some cancers. Patients on immunosuppression therapy, regardless of their autoimmune disease, are at some increased risk for nonmelanoma skin cancer.

Rheumatology Advisor: In light of these findings, what are the top takeaways for clinicians?

Dr Matteson: With respect to management of the inflammatory disease, it is imperative to achieve optimal disease control and the lowest level of clinical disease activity possible using the least intensive treatment regimen available.

Patients for whom immunomodulatory therapy, including nonbiologic and biologic DMARDs, is being contemplated, should undergo routine cancer screening that is appropriate to their age, sex, familial cancer burden, and risk factors such as smoking.

Dr Cappelli: Patients with RA, like the rest of the population, should avoid smoking. Counseling your patients who smoke about the importance of smoking cessation is a key part of any clinic visit. Patients should go to the dermatologist yearly for skin cancer screening. Rheumatologists should make sure their patients are up to date on age- and sex-appropriate cancer screening. If there are unusual symptoms, such as unexplained weight loss, night sweats, lymphadenopathy, or fevers, an

evaluation for underlying malignancy may be warranted.

Rheumatology Advisor: What should be the focus of future research in this area?

Dr Matteson: [Further investigation is needed regarding] identification of patients at high risk, the pathobiology of the immune system and how it contributes to the risk for cancer, and development of treatment strategies to reduce this risk.

Dr Cappelli: Future research should focus on defining the underlying mechanisms by which RA contributes to cancer risk so that they can potentially be addressed early in a patient's course. Whether patients with certain autoimmune diseases could benefit from expanded cancer screening is also a very important area of inquiry.

References

- Simon TA, Thompson A, Gandhi KK, Hochberg MC, Suissa S. Incidence of malignancy in adult patients with rheumatoid arthritis: a meta-analysis. *Arthritis Res Ther*. 2015;17:212.
- Gridley G, Klippel JH, Hoover RN, Fraumeni JF Jr. Incidence of cancer among men with the Felty syndrome. *Ann Intern Med*. 1994;120(1):35-39.
- Huang W-K, Chiou M-J, Kuo C-F, Lin Y-C, Yu K-H, See L-C. No overall increased risk of cancer in patients with rheumatoid arthritis: a nationwide dynamic cohort study in Taiwan. *Rheumatol Int*. 2014;34(10):1379-1386.
- Chen Y-J, Chang Y-T, Wang C-B, Wu C-Y. The risk of cancer in patients with rheumatoid arthritis: a nationwide cohort study in Taiwan. *Arthritis Rheum*. 2011;63(2):352-358.
- Wilton KM, Matteson EL. Malignancy incidence, management, and prevention in patients with rheumatoid arthritis. *Rheumatol Ther*. 2017;4(2):333-347.
- Nayak P, Luo R, Elting L, Zhao H, Suarez-Almazor ME. Impact of rheumatoid arthritis on the mortality of elderly patients who develop cancer: a population-based study. *Arthritis Care Res (Hoboken)*. 2017;69(1):75-83.
- Related Articles

8 Types of Cancer Linked to Rheumatoid Arthritis



RA AND CANCER RISK

If you have rheumatoid arthritis (RA), you may be at increased risk for certain cancers because of RA medications—or RA-related inflammation itself.

The best thing you can do is to be aware, but don't worry excessively. "The risk of all of these is very, very low," says Stanley Cohen, MD, clinical professor of internal medicine at the University of Texas Southwestern Medical School and co-director of the division of rheumatology at Presbyterian Hospital, in Dallas. "When you look at the numbers, the relative risk is higher but the actual risk is low."

RA has even been linked to a lower risk of some types of cancer.

RA has been linked to lung-cancer risk, possibly because smoking increases the chances of getting RA in the first place. Research suggests, however, that even nonsmokers with RA have a slightly higher risk of getting lung cancer.

"In the absence of smoking, the numbers are really small," says Marc Hochberg, MD, MPH, professor of medicine

and head of rheumatology and clinical immunology at the University of Maryland Medical Center, in Baltimore. "But there is a higher risk due to inflammation and scarring in the lungs from RA."

If you smoke, quit. RA patients with lung disease should avoid taking methotrexate or leflunomide because they may worsen lung damage, Dr. Hochberg says.

SKIN CANCER

Research suggests that melanoma, the most dangerous type of skin cancer, is more likely in people who take TNF inhibitors, possibly because these drugs suppress the immune system.

A 2007 study found that people with RA who take TNF inhibitors have more than double the risk of melanoma as RA patients who do not, although the actual risk was low (32 out of nearly 14,000 RA patients developed melanoma).

People with RA also appear to be at higher risk of developing more treatable types of non-melanoma skin cancer. A 2011 analysis found that people taking TNF inhibitors had a 45% greater chance of developing non-

melanoma skin cancer. (The authors of both studies received money from pharmaceutical companies that make RA drugs.)

MYELOMA

Multiple myeloma is a relatively rare form of cancer that affects white blood cells called plasma cells; about 20,000 new cases will be diagnosed in 2011, according to the American Cancer Society.

People with RA seem to have a 17% higher chance of getting the disease, according to a 2008 study. Dr. Hochberg says people who have RA for long periods of time may produce excess antibody-related proteins in the blood, a condition called hyperglobulinemia. This can sometimes develop into multiple myeloma, a disease characterized by the abnormal production of plasma cells.

On the other hand, some studies suggest that multiple myeloma could lead to RA.

NON-HODGKIN'S LYMPHOMA AND HODGKIN'S DISEASE

More than any other malignancy, RA seems to increase the risk of non-Hodgkin's lymphoma and Hodgkin's disease, cancers of immune cells called lymphocytes. A 2003 study of more than 76,000 Swedish RA patients found they had a two- and three-times higher risk of non-Hodgkin's lymphoma and Hodgkin's disease, respectively, than people without RA. (Of the patients, 458 and 77 developed non-Hodgkin's lymphoma and Hodgkin's disease, respectively, over a 35-year period.) Moreover, a 2006 study found that those with the most severe RA symptoms are at the highest risk of lymphoma.

Dr. Hochberg says this may be due to chronic stimulation of the immune system, which occurs in patients who have had long-term moderate to severe arthritis that is not well controlled.

LYMPHOMA LINKED TO TNF INHIBITORS

There have been two cases of RA patients developing a rare and fatal type of non-Hodgkin's lymphoma called hepatosplenic T-cell lymphoma while taking Humira (adalimumab), a TNF inhibitor.

The FDA also reported 40 other cases in patients (mostly adolescents) with Crohn's disease and ulcerative colitis who were taking Humira, as well as other TNF inhibitors and immunosuppressants, many of which are also prescribed for RA. Although the agency says it is difficult

to know the risk of these drugs because the conditions on their own are associated with increased lymphoma risk, it says the risks and benefits should be "carefully weighed when prescribing these drugs to children and young adults."

LEUKEMIA

Data is mixed on the link between RA and leukemia. A Finnish study of almost 12,000 men and 35,000 women found higher rates of leukemia among men with RA compared to those without it, but there was not a significant increase among women with RA.

Dr. Hochberg says the link between leukemia and RA is rare and is a complication associated with immunosuppressive therapies like Cytoxan (cyclophosphamide) and Azasan (azathioprine), which are used to treat severe RA. Methotrexate has also been associated with increased incidence of leukemia. Dr. Hochberg is a paid consultant for several companies that make RA medicines, including Bristol-Myers Squibb, which makes Cytoxan.

BREAST AND COLORECTAL CANCER

People with RA appear to have a slight advantage when it comes to breast and colorectal cancers; their risk is a bit lower than people without RA.

A 2008 research analysis estimated that people with RA had a 16% and 23% lower chance of developing breast and colorectal cancers, respectively. (Bristol-Myers Squibb, a maker of RA medicines, funded the study.)

Dr. Hochberg says it is not known exactly why this happens, but it may be because many RA patients frequently take nonsteroidal anti-inflammatory drugs (NSAIDs) such as aspirin and ibuprofen, which curb inflammation. This may lower the risk of these cancers.

PROSTATE CANCER

Long-term usage of NSAIDs may also reduce the risk of death in men with RA who develop prostate cancer.

A study of nearly 100,000 Swedish prostate-cancer patients presented at a 2008 meeting of the American Society of Clinical Oncology found a 12% reduced risk of death among men with RA compared to those without. Men who had been hospitalized for RA treatment six or more times (thus more likely to be taking NSAIDs) had the lowest mortality rates.

Understanding the breast cancer-heart disease link

Research will help cancer survivors reduce their heart risk



There is a well established link between treatments for breast cancer and the onset of heart disease — both leading causes of death in Canada. However, little information exists about how the balance of these risks might affect any individual woman.

Until now that is. Research overseen by Dr. Geoffrey Anderson and supported by Heart & Stroke donors has come up with some surprising and valuable insights into the link. The findings will help pave the way for women treated for breast cancer to avoid future heart failure.

Working with Dr. Anderson at the University of Toronto, cardiologist and PhD candidate Dr. Husam Abdel-Qadir undertook a comprehensive analysis of data from Ontario's health insurance plan (OHIP) records covering 1998 to 2012.

"What we did," says Dr. Abdel-Qadir, "is track the results of nearly 100,000 Ontario women over more than a decade. It is a genuinely representative sample from the real world."

The results were both predictable and surprising. While it is well-recognized that many breast cancer patients

receiving treatment experience some damage to the heart, it was not necessarily severe enough to cause hospitalization or death.

They discovered that the risk of dying from cardiovascular disease depends on the woman's age at diagnosis as well as her history with cardiovascular disease. The older the patient, the greater the risk of dying from cardiovascular causes.

It is a genuinely representative sample from the real world.

Dr. Husam Abdel-Qadir Heart & Stroke researcher

If you are older than 65 years when diagnosed with breast cancer, your risk of dying from heart disease becomes comparable to that from breast cancer after surviving five years past the cancer diagnosis.

For women under 65 with no history of heart disease, the likelihood of dying from heart disease is negligible in comparison with breast cancer.

Not surprisingly, it's different for women who have

established heart disease before their breast cancer. These women had a comparable risk of dying from cardiovascular causes and breast cancer for the first five years. After that, cardiovascular disease becomes their leading cause of death.

In another study, Dr. Abdel-Qadir examined how heart failure after breast cancer relates to other forms of cardiovascular disease. Heart failure in this setting is commonly thought to be a direct consequence of the cancer treatment. He discovered that most cases of heart failure that are severe enough to cause hospitalization only happen if a woman has a prior history of cardiovascular disease, or risk factors for it.

With this knowledge, doctors and breast cancer survivors both can pay greater attention to maintaining heart health rather than reducing cancer treatment. Through exercise, diet, lowering blood pressure and controlling cholesterol, breast cancer survivors may be able to reduce their risk of heart failure.

For his groundbreaking work, Dr. Abdel-Qadir received Young Investigator awards at two major conferences in Europe.

Learn more about women and heart disease in the Heart & Stroke 2018 Heart Report.

Learn more about women's unique risk factors for heart disease.

The Clear Connection Between Heart Disease and Cancer (and What You Can Do About It)

By Dr. Veronique Desaulniers

September 10, 2018

Did you know that heart disease is the #1 cause of death for both men and women in the U.S. as well as the rest of the world?

Cancer comes in a close second when looking at both U.S. and worldwide causes of mortality. With so many people being affected by both these “heavy hitters,” it just makes sense that common risk factors have to exist that can contribute to both heart disease and cancer. And there is. According to a 20-year study of 13,000 men and women conducted by the American Heart Association, people who practice healthy heart habits have a 38% lower risk of developing cancer.

Heart Disease and Cancer: What are the Connections?
Heart disease is a broad term used to describe a number of possibly life-threatening cardiovascular conditions, including angina, arrhythmias, arteriosclerosis, heart failure, and heart attacks. High blood pressure (BP), diabetes, and Chronic Obstructive Pulmonary Disease (COPD) should also be considered when thinking about overall heart health and its connection to cancer risk.

Here are just a few studies which show a clear connection between cancer and various forms of heart disease:

The most obvious connection comes in the form of type 2 diabetes and obesity. Both conditions develop mostly because of the deadly combination of a stressful yet sedentary lifestyle – and by eating the SAD, or the “Standard American Diet,” which is notoriously rich in commercial meat and dairy, processed foods, sweets, salts, and simple carbs.

According to studies conducted by the World Cancer Research Foundation, obesity itself is the likely cause of close to 20% of all major cancers, including breast, colon, esophageal, cervical, and more. At the same time, being

overweight is a major factor in the onset of 58% of type 2 diabetes conditions as well as 21% of “ischemic heart disease” diagnoses.

Patients suffering from cardiovascular disease also share elevated levels of “cytokines” with those diagnosed with cancer, according to a 2015 University of Colorado study and others. Cytokines are small proteins which can cause inflammation. Their levels are usually elevated in those with type 2 diabetes and in individuals with cancer tumors.

Cancer and heart disease may also share the same culprits in the form of common pathogenic agents. A study conducted over 20 years ago by researchers at the National Heart, Lung, and Blood Institute and published in the journal *Science* (1994) discovered possible viral causes to heart disease that act similar to cancer cell growth. The commonly occurring cytomegalovirus can infect plaque cells in arteries, causing proteins responsible for stopping the growth of plaque to malfunction. These same proteins tend to fail in most human cancer cells as well.

Another common factor between heart disease risk and cancer is stress. The body is equipped to deal with short bursts of stress hormones during a crisis, after which the body will naturally begin to balance itself. When stress becomes chronic, however, the body pumps a constant stream of cortisol into the bloodstream, with devastating effects.

Inflammatory responses, a depleted immune system, and a whole host of other complications arise from chronic stress which can affect not only a person’s susceptibility to cancer but also the functions of the cardiovascular system. In particular, chronically high cortisol signals the constant production of adrenaline which can have a

profound effect on heart health – leading to high BP, high cholesterol levels, and increased risk of heart disease, strokes, and heart attacks.

Where cancer is concerned, chronic cortisol imbalance has been linked to the underproduction and malfunction of key immune system components that keep cancer at bay, including natural killer (NK) cells. A ground-breaking Stanford University study found that 65% of patients who had advanced breast cancer also had abnormal levels of cortisol in their system.

Considerations About Traditional Cancer Therapies and Heart Health

Many chemotherapy drugs are linked to both short and long term cardiovascular complications

If you have been diagnosed with cancer and are considering traditional therapies such as radiation and chemotherapy or if you have had these treatments in the past, this will be important information for you to consider.

Recent studies have confirmed that there is a distinct connection between certain chemotherapy drugs and the development of cardiovascular conditions. According to the Mayo Clinic, “chemotherapy side effects may increase the risk of heart disease, including weakening of the heart muscle (cardiomyopathy) and rhythm disturbances (arrhythmias). Certain types of chemotherapy also may increase the risk of heart attacks.”

Some chemotherapy drugs that may lead to short or long term cardiovascular complications include:

- Anthracyclines such as Doxorubicin and Daunorubicin
- Trastuzumab (Herceptin) and Pertuzumab (Perjeta), commonly given for HER2-positive breast cancer (a type of breast cancer that tests positive for a protein called human epidermal growth factor receptor 2 (HER2), which promotes the growth of cancer cells)
- Taxanes such as Paclitaxel and Docetaxel, which can lead to abnormal heart rhythms
- Fluorouracil and Capecitabine (Xeloda), which can cause coronary spasms and heart attacks
- Angiogenesis inhibitors such as Bevacizumab, Sunitinib, and tyrosine kinase inhibitors, which have been linked to high blood pressure (BP)

In addition, European studies have also linked the use of ionizing radiation, such as that used in X-rays and

traditional cancer radiation therapy, with a greater risk of developing atherosclerosis – a condition in which plaque builds up inside arteries, raising the risk of strokes and heart attacks.

The Curious Case of Fats, Cholesterol, and Heart Disease
For the last 60-plus years, the American medical establishment has used mass media and biased studies to make the false claim that fat in all its forms, and subsequently cholesterol as well, are the main culprits when it comes to heart disease. This biased focus has created a multi-million dollar “low fat / low cholesterol” foods industry.

Without getting too political, it is important to point out how corporate agendas have played a part in the “demonization of fats.” As the recent documentary *Sugar Coated* points out, the “all fat is bad” rhetoric was spurred on in large part by research conducted in the 1950s by Dr. Ancel Keys, a health research scientist with some rather questionable ties to the sugar industry.

And the bias against fat and cholesterol over the years has left an American population that is still in a state of confusion over the issue. In 2015, a survey sponsored by the International Food Information Council Foundation discovered that 31% of Americans have changed their mind completely about fats in recent years – approximately 75% now believe that saturated fats are worse for them than before, while the remaining 23% believe they are healthier for them than before!

The truth is that both camps are right in a way. Some kinds of fats are very bad for your health – while others are not only healthy, but even considered to be essential for normal functioning of the cardiovascular system, the brain, the digestive tract, and even the immune system.

First of all, not all saturated fats are inherently bad for you. “Saturated” simply means that the fat molecules in the substance are “saturated” with hydrogen. This is why most saturated fats are usually solid at room temperature. Most are derived from animal products such as meats, butter, and cheese.

Some very healthy oils can also be categorized as saturated as well, such as palm oil and coconut oil. Coconut oil in particular is considered a “superfood” for the many health benefits it provides, including inflammation reduction – a key factor in cancer prevention and healing.

And while everyone admits that artificially created trans fats, which are manufactured when companies turn liquid oils into solids such as with shortening and margarine, should be avoided for heart health as well as for cancer prevention, even well-respected mainstream health organizations disagree about the merits of other forms of saturated fats.

The American Heart Association (AHA) still states that “replacing foods that are high in saturated fat with healthier options can lower blood cholesterol levels and improve lipid profiles.” At the same time, other well-respected institutions are producing studies which prove the opposite. A 2010 analysis sponsored by Children’s Hospital in Oakland, California, gathered information about approximately 350,000 adults. They found that there was no difference between the risks of heart disease and stroke for people who ate the highest amounts of saturated fat and those who ate the lowest.

Mainstream messages about cholesterol can be just as confusing as well. Cholesterol is a fat-like substance that is found within cells of the body and is needed for the production of certain hormones and vitamin D and is also required for the digestive process. The U.S. Dietary Guidelines Advisory Committee’s latest guidelines reflect a complete “about face” regarding cholesterol, stating that “cholesterol is not considered a nutrient of concern for over consumption.”

Common sense points to the benefits of naturally sourced fats, including some saturated fats. After all, how many thousands of years have humans consumed animal fat as part of a healthy diet? It has only been in the last half a century or so, since the rise of the fast food culture, that the world has seen heart disease rates rise so dramatically and high cholesterol levels began to have an adverse impact on our health.

Monounsaturated Fat is a Must for Breast Health

There is ample research that shows how monounsaturated fats can help prevent and heal breast cancer. A study conducted in Sweden in the late 1990s gathered information on over 60,000 women. It found that while overloading on polyunsaturated fats, found in many commercially produced vegetable oils, may promote breast cancer, monounsaturated fats may actually have a protective effect against cancer.

A Rutgers University study conducted in 2015 discovered the substance oleocanthal in olive oil, which can cause

chemical reactions in cancer cells that allows them to be killed by their own enzymes.

Besides olive oil, monounsaturated fats can be found in sesame oil, avocados, walnuts, almonds, macadamia nuts, pistachios, and olives.

5 Things You Can Do NOW to Reduce Your Risk of Cancer and Heart Disease

Here are 5 STEPS you can take NOW to reduce your risk of both cancer and heart disease:

1 | Avoid trans fats and keep your consumption of polyunsaturated fats to a minimum. In addition to trans fats, try to keep the amounts of polyunsaturated fats – such as corn, soybean, and canola oils – you consume to a minimum. If you do consume these kinds of oils, realize that even if they are labeled as “organic,” they may still be genetically modified. Approximately 85% of all sources of yellow corn in the U.S. are now GMO, as is much of the soy and canola produced worldwide.

2 | Give your diet a do-over. Boost the intake of fresh veggies and healthy fats in your diet. If you eat meat, commit to eating a moderate amount and make sure it is organic, grass-fed, and hormone-free.

3 | Move! Just 30 minutes of moderate exercise five times a week can not only lower your risk of heart disease and diabetes, it can also boost your immune system, help to keep your weight down, and lower your cancer risk. The National Cancer Institute urges cancer survivors to make moderate exercise a serious part of their everyday health regime.

4 | Don’t smoke and keep alcohol to a minimum. It goes without saying that smoking cigarettes increases your risk of both heart disease and cancer. But did you know that a study published in the Journal of the American Medical Association found that women who have more than three drinks a day have a 15% higher risk of breast cancer? As for heart disease and alcohol, more than two drinks a day for men and one for women can increase risk for heart disease and stroke, according to the American Heart Association.

5 | Keep stress levels down. Stress is an inevitable part of daily life. You CAN learn how to manage it and keep your cortisol levels down, however. Meditation, taking a walk, being in nature, exercise, practicing a hobby you enjoy, or even laughing at a funny movie can turn off stress

hormones and turn on healing. Experiment with what works for you and commit to doing that one thing just a few minutes each day.

The vast connections that exist between heart disease and cancer may seem overwhelming. The mixed messages that continue to exist within the mainstream scientific community regarding cholesterol and fat don't help either. With heart disease and cancer rates so high, chances are you or someone you know is dealing with the ramifications of either one or both of these disease conditions right now.

here are simple ways to prevent and even heal both cancer and heart disease, however – so don't despair! In addition to the five recommendations mentioned above, you can also follow these four steps:

Step #1: Educate yourself about the issue, which I hope this article has done.

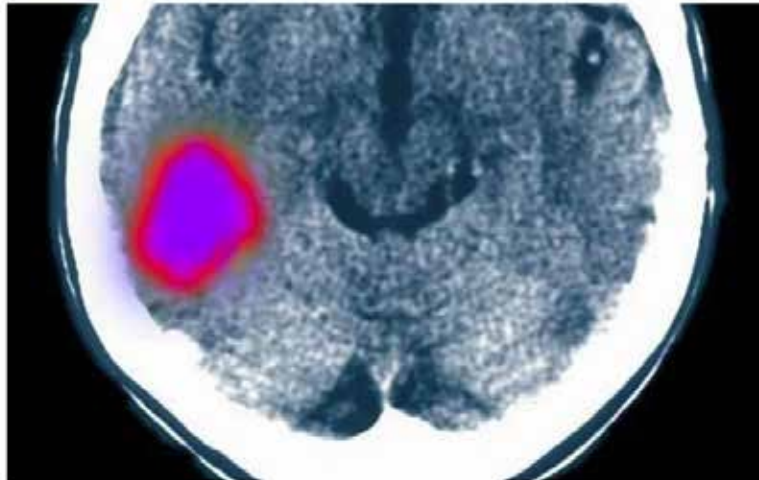
Step #2: Remember that no particular system in your body operates in a vacuum. Begin to view your body as an intelligent whole that has as its constant goal the healing and balancing of the total organism (i.e. your body).

Step #3: Make the necessary changes in your lifestyle and diet, such as the five recommendations mentioned above, that will promote health, not disease.

Step #4: Finally, remember that not all fats are bad for you! Avoid trans fats but also consciously choose to include more healthy fats, especially monounsaturated fats, into your diet in order to feed your brain, your heart, and your immune system. Being heart-healthy and cancer-free requires living a healthy lifestyle. It may not be easy at first, but when you begin to live the heart-healthy and cancer-free way, a whole new world of vital health and vibrant energy will open up to you on all levels!

The Telegraph

Stroke survivors doubly at risk of cancer, scientists warn



A scan showing an area of the brain hit by a stroke

Stroke survivors doubly at risk of cancer, scientists warn

Henry Bodkin

6 SEPTEMBER 2017

Stroke survivors should be closely monitored for cancer for at least 18 months because they are doubly at risk of developing the disease, new research indicates.

A study of 381 patients who had suffered a stroke also found that in nearly two thirds of cases where cancer did develop, it had already metastasised by the time it was discovered.

Doctors are not certain how the association between stroke and cancer works, but suspect that some strokes are triggered by underlying cancers that have not yet prompted any symptoms.

Presented at the European Society for Medical Oncology, the research followed patients treated for stroke at the Hospital de La Princesa in Madrid for 18 months. During the follow-up period, 7.6 per cent were diagnosed with cancer, most frequently of the colon, lung and prostate.

IN NUMBERS | STROKE:

85%

The percentage of strokes that are Ischaemic - i.e. caused by a clot, or blockage cutting off the blood supply to the brain

15%

The percentage of strokes that are haemorrhagic - i.e. caused by a blood vessel bursting within, or on, the surface of the brain. The damage can be greater than those caused by a clot because the blood leaks out into the brain tissue at a high pressure

1.2 million

The number of stroke survivors in the UK

12.5%

The percentage of stroke survivors who die within 30 days

50%

The percentage of stroke survivors who have a disability as a result

£48

The amount spent on medical research per stroke patient every year, compared to £241 per cancer patient

This was higher than the expected incidence of 4.5 per cent based on statistics for the general population.

Nearly 45 per cent of those who went on to develop cancer were diagnosed within six months of having a stroke, while sixty-two per cent were diagnosed with metastatic or locally advanced disease.

“Stroke survivors should be followed clinically for the development of cancer in the 18 months after the diagnosis of stroke,” said Dr Jacobo Rogado, who led the research.

“We found that the incidence of cancer in stroke survivors was almost twice that of the general population.

“When cancer was diagnosed it was usually at an advanced stage, and the diagnosis was made within six months after a stroke.”

“This indicates that the cancer was already present when the stroke occurred but there were no symptoms.”

At a glance | Stroke

A stroke is a brain attack that occurs when the blood supply to part of the brain is cut off. There are two kinds: Ischaemic (caused by a clot, or blockage cutting off the blood supply to the brain), or haemorrhagic (caused by a blood vessel bursting within, or on, the surface of the brain)

Who is at risk?

- People over the age of 55
 - South Asian, black African or black Caribbean people are at a higher risk than other people in the UK.
 - if a close relative has had a stroke, your risk is higher
- Certain genetic conditions, such as sickle cell disease, can cause a stroke
- Medical conditions such as high blood pressure, diabetes, atrial fibrillation and high cholesterol can increase the risk of a stroke
 - Our lifestyle choices can also raise the risk of having a stroke - smoking, drinking too much alcohol and being overweight can also raise the risk

Symptoms: Use the FAST test to diagnose

- Facial weakness: Has the person’s face fallen on one side?
- Arm weakness: Can the person raise both arms and keep them there?
- Speech problems: Can the person speak clearly or is their speech slurred?
- Time to call 999: If the person fails any one of these three signs, get help immediately by calling 999

Source: Stroke Association

Analysis showed higher levels of the glycoprotein fibrinogen in the blood stroke patients who were diagnosed with cancer.

The Spanish research team believe this suggests that stroke is in some way triggered by cancerous tumour cells activating the coagulation system.

Dr Fausto Roila, director of medical oncology at the Santa Maria della Misericordia Hospital in Perugia, Italy, cautioned that no firm conclusions could be drawn between stroke and cancer, and that more research is needed.

Stroke is the fourth largest cause of death in the UK, with more 100,000 incidents taking place each year and approximately 1.2 million survivors, according to The Stroke Association.

Stroke survivors may be at higher risk of having cancer

People who had a stroke may develop cancer at a higher rate than those who do not have a stroke, according to research presented at the American Stroke Association's International Stroke Conference 2015.

"We already knew that cancer patients are at increased risk of stroke. But what happens when you turn it around and look at cancer risks for ischemic stroke survivors? That was our question," said Malik Adil, M.D., from the research team at the Zeenat Qureshi Stroke Institute in St Cloud, Minnesota.

The team analyzed data from Vitamin Intervention for Stroke Prevention multicenter trial, which went from 1997 to 2001. The analysis consisted of 3,247 cancer-free participants, over the age of 35 who had a mild ischemic stroke.

Researchers found:

- The annual rate of age-adjusted cancer incidence was higher among ischemic stroke patients compared with the general population.
- The rate of cancer occurring among stroke survivors was 1.2 times higher at one year, and 1.4 times higher at two years.

Stroke survivors who developed cancer had up to three-times higher chance of dying, compared to those who didn't get cancer.

Having cancer is linked to higher ischemic stroke risks mainly because cancer patients' blood tends to clot more often, Adil said. "In addition, when tissues get less oxygen due to blocked blood vessels, it destroys tissue cells and sets off a series of events to alter the normal physiology and may lead to cancer."

Another risk factor for developing cancer was age. The study showed stroke survivors, over age 50, were 1.4 times more likely to develop cancer within two years than their counterparts who were age 50 and under.

The researchers used National Cancer Institute data for the general population's cancer rates. Then they calculated cancer rate differences between the stroke and non-stroke groups at one month, six months, one year and two years.

They also calculated the risk of death and other cardiovascular events, and compared those findings between stroke survivors who did and didn't develop cancer.

Participants developed a wide range of cancers, including skin, prostate, breast, lung and bladder cancer.

"If you've had a stroke before, especially with another high-risk factor, it's important that you talk to your doctor and discuss earlier cancer screening," said Adil. "Factors that may put a person at higher risk for developing cancer include: cigarette smoking, alcohol consumption and a family history of cancer."

Stroke Survivors May Face Greater Cancer Risk

Ischemic stroke increased likelihood of cancer within 2 years of the event.

NASHVILLE, Tenn. -- Survivors of ischemic stroke appear to have an increased short-term risk for skin cancer, prostate cancer, and other malignancies, findings from a 2-year follow-up study suggest.

The age-adjusted incidence for malignancies among stroke survivors included in the study was 20% higher than that reported in the general population 1 year after the stroke and 40% higher at 2 years. Having incident cancer was also associated with a threefold greater risk for death among stroke survivors in a 2-year follow-up study.

Study findings were reported here at the American Heart Association/American Stroke Association's International Stroke Conference 2015 by researcher Adnan Qureshi, MD, of the University of Minnesota.

Stroke survivors have an elevated risk of dying in the years following the event, and this risk is not entirely explained by deaths from cardiovascular causes, Qureshi noted. He said the new findings may partially explain this increased mortality, and they have implications for the management and follow-up of these patients. "From a public health perspective we have always considered cancer and stroke to be mutually exclusive diseases," he said. "I think this work points to the fact that they may not be."

Skin Cancer Was Most Common Diagnosis

Qureshi and colleagues included 3,247 survivors of nondisabling ischemic stroke enrolled in the Vitamin Intervention for Stroke Prevention study in their analysis.

The mean age of the cohort was 66 (± 11 years) and 2,013 of the included study participants were men. Within 2 years of the stroke event, 133 of the survivors received a diagnosis of cancer. Breakdown by cancer type included 47 skin cancers (35%), 24 prostate cancers (18%), eight breast cancers (6%), seven lung cancers (5.3%), six colon cancers (4.5%), five bladder cancers (3.8%), four esophageal cancers (3.0), and 32 other cancers (24%).

The majority of the cancers were diagnosed between 12 and 24 months after the stroke, and most baseline characteristics between those who did and did not have a later cancer diagnosis were similar.

The analysis revealed that:

The age-adjusted annual rate of cancer in patients with ischemic stroke over 1 year after recruitment was 581.8/100,000 persons, which was higher than the age-adjusted cancer rate of 486.5/100,000 persons in the general population (SIR 1.2; 95% CI 1.16-1.24).

This risk continued to be higher in the ischemic stroke patients 2 years after follow-up (1,301.7/100,000 versus 911.5/100,000 persons in the general population (Standardized incidence ratio or SIR 1.4, 95% CI 1.2-1.6).

Stroke survivors who developed cancer had a higher risk for death (OR 3.1, 95% CI 1.8-5.4), fatal/disabling stroke or death (OR 2.3, 95% CI 1.4-3.7), and composite endpoint of stroke, coronary heart disease, and/or death (OR 1.4, 95% CI 1.0-2.2) compared with the survivors without a cancer diagnosis.

Inflammation, Surveillance May Explain Link

While many risk factors for stroke and certain cancers are the same, Qureshi said further study will be needed to determine if this is the main mechanism linking the two diseases.

Phillip Gorelick, MD, who is medical director of the Mercy Health Hauenstein Neuroscience Center, in Grand Rapids, Mich., suggested that the common denominator may be systemic inflammation. "If you look at cancer and cardiovascular disease there is the common pathway of inflammation," he said.

AHA/ASA spokesman Robert J. Adams, MD, of the Medical University of South Carolina, Charleston, suggested that the observed link may be largely due to increased medical surveillance of stroke survivors. "When someone has a stroke they are going to be under increased surveillance compared with the general population," he said. "This might explain why more stroke survivors are discovered to have cancer when the underlying rates may not be that different."

Qureshi agreed that this may explain some or all of the observed association. He said the high rate of skin cancers seen in the study population appears to support this hypothesis.

Newsroom – Published on: July 22, 2018

Global Review Confirms Diabetes Elevates Cancer Risk, Especially in Women

MARY CAFFREY

While the connection between diabetes and cancer has been known, this study was the first to show that women with diabetes face a higher risk than men with the disease.

A review that covered nearly 20 million people has confirmed that people with diabetes face a higher risk of cancer, and that risk is higher among women than men.

Findings published in *Diabetologia*, the journal of the European Association for the Study of Diabetes, showed that women with type 1 or type 2 diabetes were particularly at risk for cancers of the stomach, mouth, and kidney.

The authors reviewed articles appearing in PubMed through December 2016, and ended up including data from 106 articles in the study. This allowed the review to evaluate gender-specific effects of diabetes on overall cancer risk as well as 50 site-specific cancers.

Results covered data from 47 countries. Authors called it “the most comprehensive analysis to date on the sex-specific effects of diabetes on cancer risk.”

Overall, the review showed diabetes is a risk factor for most cancers, and that women with diabetes were 6% more likely than men with the disease to develop some form of cancer. Among people with diabetes, researchers also found:

Women were 27% more likely to develop cancer than those without diabetes. Men faced a 19% higher risk of cancer.

Of note, women faced an 11% higher risk of kidney cancer, a 13% higher risk of oral cancer, a 14% higher risk of stomach cancer, and a 15% higher risk of leukemia than men.

Liver cancer was an exception: the risk for women with

diabetes was 12% lower than that of men.

Sanne Peters, PhD, of The George Institute for Global Health at the University of Oxford and a study coauthor, said that women may be more likely to develop cancer than men with diabetes because they are in prediabetes longer than men; typically, women develop impaired glucose tolerance that goes unaddressed for up to 2 years longer than men.

“Historically, we know that women are often untreated when they first present with symptoms of diabetes, are less likely to receive intensive care and are not taking the same levels of medications as men,” Peters said in a statement. “All of these could go some way into explaining why women are at greater risk of developing cancer. But without research we can be certain.”

Peters and lead author Toshiaki Ohkuma, a research fellow at the Global Institute, said the results show why gender-specific research is important. While the link between diabetes and cancer has been known for some time, Ohkuma said, “We have also demonstrated for the first time that women are more likely to develop any form of cancer, and have a significantly higher chance of developing kidney, oral, and stomach cancers, and leukemia.”

Elevated blood glucose seen in diabetes is believed to damage DNA, causing cancer. However, the authors wrote, “Further studies are needed to clarify the mechanisms underlying the sex differences in the diabetes–cancer association.”

More than 30 million people in the United States have diabetes, with 95% of the cases being type 2 diabetes. Worldwide, more than 415 million people have the disease.

People with diabetes appear to have a higher risk of developing cancer than those without diabetes, and the risk is greater in women than men, a new meta-analysis finds.

In 2015, more than 400 million people had diabetes and 17.5 million people had cancer worldwide. And although previous studies have found a link between diabetes and cancer risk, it wasn't clear whether gender also played a role.

In the study, published today (July 19) in the journal *Diabetologia*, the researchers sifted through earlier studies that reported a link between cancer and diabetes. After removing studies that looked at only a single gender and studies that hadn't adjusted for age, the researchers ended up analyzing data from more than 19 million individuals with either type 1 or type 2 diabetes across more than 100 studies and data sets. . [10 Do's and Don'ts to Reduce Your Risk of Cancer]

The researchers found that women with diabetes had a 27 percent higher risk of cancer compared with women without diabetes, while men with diabetes had a 19 percent higher risk of cancer compared with men without diabetes. Comparing men and women, the researchers found that women with diabetes had a 6 percent higher risk of cancer than men with diabetes.

"Given the epidemic of both diabetes and cancer, it is important that both women with and without diabetes, as well as health care providers, are aware [of] the heightened risk of cancer following diabetes in women than men and try to prevent the onset and manage the progression of diabetes," said lead author Toshiaki Ohkuma, a research fellow in the renal and metabolic division at the George Institute for Global Health in Australia.

When the researchers looked at specific types of cancer, they found that woman with diabetes again had a higher risk for most cancers than men with diabetes. For example, compared with men with diabetes, women with diabetes had an 11 percent higher risk of developing kidney cancer, a 13 percent higher risk of oral cancer, a 14 percent higher risk of stomach cancer and 15 percent higher risk of leukemia. Men with diabetes had a 12 percent higher risk of developing liver cancer compared with women with diabetes, however.

It remains unclear why women with diabetes would, for

most cancers, have a higher risk than men with diabetes do, but the researchers had some hypotheses. For example, having higher blood-glucose levels can damage DNA, which could, in turn, lead to cancer, Ohkuma said.

"Women often spend longer duration than men in the prediabetic stage [of the disease], where glucose levels are high," Ohkuma told Live Science in an email. (Prediabetes means that a person's blood sugar levels are higher than normal but not high enough to be classified as type 2 diabetes, according to the Mayo Clinic; people with prediabetes often go on to develop type 2 diabetes.) And after diagnosis of diabetes, "women are often undertreated or not getting the same level of treatment as men," Ohkuma said. What's more, a 2015 study showed that women were less likely than men to take the medication needed to lower blood glucose levels.

In other words, as shown in all three cases, women with diabetes are more likely than men to have uncontrolled blood sugar levels for longer periods of time. Because of this, women with diabetes may be "at greater risk of developing cancer than men" with diabetes, Ohkuma said.

However, when looking at specific cases, the researchers noted that there isn't much data on sex differences in specific types of cancers, so the reasons why men or women might have a higher or lower risk of developing these illnesses remains unclear.

Ohkuma said that "women with diabetes should try to achieve better [blood sugar] control through lifestyle modifications and medications by consulting health practitioners." What's more, women with diabetes "should also participate in any available cancer-screening checkups to detect cancer earlier," he added.

One limitation to the study is that the researchers did not adjust for other factors that could be associated with diabetes and cancer in women, such as pregnancy, menopause and hormone-replacement therapy, the researchers wrote.

Originally published on Live Science.



A Founding Sponsor of ...

