

Cancer Simplified - From Cause to Elimination

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Introduction

There were two defining life changing events in my life that compelled me to become involved in cancer research. The first occurred in June 2004 when my wife, Robin at age 43, was diagnosed with stage III breast cancer. Robin was otherwise a healthy and vibrant young woman and we were raising our 2 1/2 years old twins when the devastating news arrived from the pathologist. Out of extreme fear, Robin choose the route of a double mastectomy but the cancer had already spread because it reappeared 2 years later in lymph nodes in her chest area. Chasing it around with radiation only made matters worse and it spread to her spine. Hormonal treatment helped but she lost her will to fight and passed September 2008 which was the second defining event. I was left with my 7 year old twins and tried my best to recreate a family but found this much easier said than done. They are now 18 and doing very well thanks to the loving care of their older sister. The loss of my wife is an incredibly tragic loss and 10 years later, I feel like it happened yesterday.

I guess that part of my healing process was to bring some sort of positive outcome to a most tragic loss of a wife, mother, soul and beautiful human being. What happened to my family is not a rare occurrence and I believed that there must be a better way. During the time after Robin's diagnosis, I discovered through extensive scientific research that there have been many leads towards nontoxic methods for cancer treatment. I focused my research on what I saw as the most perfect agent for nontoxic cancer treatment, sodium selenite. I also understood that plant-based nutrition can play a major role in cancer therapy. In 2011 I established NORI and set out to develop and clinically evaluate a protocol based on high dose sodium selenite and a special type of plant-based diet. The NORI protocol has evolved tremendously since but the basic approach is unchanged.

I learned a great deal about both conventional and alternative cancer treatments after the diagnosis up until passing. I found it highly disturbing that with all our advanced science and technology we don't have effective treatments for the most common forms of cancer. I soon realized that the science is there but the economic structure of our medical system limits room and innovation for anything outside the pharmaceutical dominated mainstream medical practice. I saw an opportunity to help advance medical practice by generating case studies of patients utilizing integrative and alternative treatments with or without conventional interventions.

I do not hold a PhD. and I am not a licensed medical doctor. My expertise is the the field of clinical nutrition and the development of nutraceuticals. My previous background was in biomedical engineering and neuroscience. I felt that my scientific background gave me tools and abilities to pursue my mission. One of my skills is connecting the dots meaning taking fragmented information and building a high level framework and understanding. I already had a clear understanding how diet can prevent, treat and reverse heart disease, diabetes, arthritis and other degenerative diseases. Why should not cancer be treatable through a nutritional approach? Estimates range from 30-80% of cancers as diet related. There is no question that colon cancer is absolutely diet related. Other cancers may be diet modulated meaning dietary factors may prevent some cancers or may slow down the progression of others. There are numerous studies and articles on anti-cancer and cancer causing foods. I wish the solution was as simple as construction an optimal diet and supplements to treat cancer. Unfortunately, this is not the reality. Diet and supplements are powerful tools but much more is required to destroy cancer cells. This is where nutraceuticals enter the scene.

Nutraceuticals are different than nutritional supplements. Nutraceuticals are more like pharmaceutical agents that have specific functions and targets. The role of nutraceuticals in cancer is to directly kill cancer cells while causing no harm to normal cells. Some nutraceuticals are nutritional supplements but are administered at much higher doses to achieve the desired effects. Other nutraceuticals are herbal extracts or highly concentrated natural compounds.

NORI exists within a grey zone between integrative and conventional oncology. It is my hope that both fields adopt some or all of the practices and principles that NORI has developed. Resistance to change is inevitable but progress must move forward. Cancer claims way too many lives. The costs of conventional cancer care are obscenely high bankrupting many families. My vision is an eventual abandonment of the antiquated methods of surgery, radiation and toxic chemotherapy.

This publication is intended as a guide to help cancer patients and survivors make highly informed decisions regarding their treatment options and to select the most optimal diet/lifestyle choices to prevent recurrence. It is written in a manner such that the material is easily accessible to the layperson.

The NORI protocol continues to evolve with experience and the emergence of new research. It is not the only approach but it has developed a good track record for response rate, remissions and is a very economical mostly home-based program. Prevention is the ultimate answer for combating this insidious condition. However, it is challenging while living within our modern world with toxins everywhere. This is why we need nontoxic and effective treatments, or cancer may become the ultimate backlash from our way of living and treating this planet.

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Part 1: What is Cancer?

This section is intended to explain the nature of cancer in the most basic, simple and understandable terms. It is important to accept that cancer in all its different forms share common characteristics, behavior, biology and challenges for treatment. Whether cancer originates in the breast, prostate, colon, lung, pancreas, liver, thyroid, blood or brain, there are common cellular level defects as opposed to widely varying genetic mutations. We are lead to believe that cancer is a cluster of over 200 different diseases. This is untrue and creates a sense of powerlessness among us, powerless against the disease itself and the cancer monopoly. More diseases equals more drugs. In the US, in 2018, there were over 1.7 million new cases of cancer diagnosed and there were over 600,000 deaths. The actual number of deaths due to cancer is likely much higher because of how death certificates are recorded. Many deaths are not from the cancer itself but from toxic treatments and complications that render the cancer sufferer far worse off than if they did nothing. It is a very sad state of medical tyranny, greed, arrogance and distortion of the truth.

There is a 200 billion dollar per year cancer industry in the US that has failed miserably in developing safe, effective and affordable treatments. It is time to move past chemotherapy, surgery and radiation. These are completely outdated methods that can be replaced by safe, effective, nontoxic and low-cost treatment approaches. There may or may not be an actual cancer conspiracy but there is definitely a monopoly that does not allow any room for innovation, alternative approaches and places profits above real solutions. There is collusion among the major players within the cancer industry which includes the American Cancer Society, Food and Drug Administration, National Cancer Institute, The American Medical Association and the pharmaceutical manufacturers. There is a revolving door between the FDA and pharmaceutical companies. The same pattern exists today between lobbyists, industry and regulatory agencies. This is quite apparent with the Trump administration appointees that are bent on gutting the Environmental Protection Agency. It is no longer government for and by the people but instead, government for the wealthy 1% and large corporations. Cancer, like many problems facing us, has deep political and economic roadblocks to developing solutions efficiently and for the direct benefit of the cancer sufferer.

Cancer Defined

In the simplest of terms, cancer is uncontrolled cell growth and division. The key feature of cancer is the formation of malignant tumors or in the case of blood cancers, an accumulation of defective cells within the bone marrow or lymphatic system. Cancer can be completely harmless and symptom free at early stages. It only becomes life threatening when major organs are affected and growth control is lost. One view on cancer is that it is a process not unlike wound healing. This view makes perfect sense since stem cells, angiogenesis, immune suppression and inflammation are all involved in both processes. Cancer is a cellular level malfunction rather than a widespread systemic disease.

“The Hallmarks of Cancer” is a famous peer reviewed article by cancer researchers Hanahan and Weinberg published in 2000. Here are their basic hallmarks of cancer that are still valid today but better understood through additional research.

1. Self-sufficiency in growth signals
2. Insensitivity to anti-growth signals
3. Evading programmed cell death (apoptosis)
4. Limitless replicative potential (immortality of cancer cells)
5. Sustained angiogenesis (new blood vessel growth)
6. Tissue invasion and metastasis (spread to distant organs)

An update published in 2011 added two new hallmarks.

7. Abnormal metabolic pathways (glycolysis, insufficient mitochondrial respiration)
8. Evading the immune system (immune system ineffective in identifying and killing cancer cells)

From these hallmarks, one can see that cancer is a process that is relentless, destructive, powerful and seems to have no weaknesses. What is important to understand is that all cancers share these characteristics which removes much of the mystery and complexity surrounding this condition. Different types of cancer are much more alike than they are different. The organ where a cancer originated has very little relevance to the tumor biology, pathogenesis and treatment options. There is a wide variation in the rate of growth between various cancers. Thyroid cancer is very slow progressing while pancreatic cancer may be the fastest progressing form. Some cancers are more sensitive to treatment than others.

Treatment Approaches

Does it make sense to offer the cancer patient treatments that create sickness, more disease, risk of secondary cancers and poor quality of life only to at best extend survival a couple of months? Or, is it much more sensible to build one's health, stamina, energy and wellbeing to support one's healing journey?

Cancer is not a disease, illness or sickness. Cancer is an environmental injury.

Cancer is not a disease of aging, an accumulation of random genetic mutations or is related to bad luck as some experts claim. Cancer is far from a normal part of life or an inevitable condition that can shorten one's lifespan.

Cancer is not really a disease, illness or sickness. Instead, cancer may be looked upon as an environmental injury. One can be in absolutely perfect health while experiencing

tumor progression or widespread metastatic cancer spread. One's immune system may be perfectly normal, there may be no nutritional deficiencies or there may be no other underlying illnesses. This is a very strange circumstance to be experiencing, a so called life threatening disease with no apparent symptoms and overall excellent health. Cancer produces no symptoms at all in many cases until it has reached a very advanced stage.

Triggers and Cells of Origin

Cancer may be triggered by a single event such as a viral infection, an exposure to radiation, antibiotic use or to a toxic substance. Everything else along the way is either cancer promoting or cancer inhibiting. The point is that cancer can be initiated by one single event rather than a long term process. All that is required is sufficient damage to one cell and that cell will divide into trillions of defective cells over years to decades.

Cancer originates in stem cells.

Cancer originates in stem cells. Stem cells have unique properties in the manner in which they replicate, proliferate and metastasize. Throughout most of the body, there are adult quiescent stem cells. These cells exist in a very low oxygen and low nutrient environment. In fact, these cells generate all their energy from glycolysis which is fermentation of glucose. Their mitochondria are shut down from any energy production by a high expression of UCP2 (uncoupling protein 2). Interestingly, UCP2 is highly expressed in cancer cells. When stem cells divide and replicate, they produce an exact copy of themselves and a progenitor cell. This is called "self renewal" and is exactly how cancer stem cells behave. Understanding stem cells is essential in understanding the basic nature of cancer. It has been suggested that cancer is not unlike the process of wound healing which involves activation of stem cells and all associated processes.

There is a suggestion that all of us have cancer cells at all times in our body and our immune system destroys these cells for us. There is no scientific evidence for this idea as there is no evidence that our immune system can under natural conditions identify, seek and destroy cancer cells.

Cancer is the result of direct damage to mitochondrial DNA, not nuclear DNA. Cancer is a genetic disorder but is not directly associated with chromosomal abnormalities.

Cancer can take 20-50 years to develop into a tumor of sufficient size that can be detected. Cancer is typically initiated by a single event that created a specific type of damage to a few cells. Evidence suggests that cancer is the result of mitochondrial DNA damage that alters a cell's metabolic processes and interferes with apoptosis. Every type of cell in our body, except red blood cells, contain mitochondria. Mitochondria function as highly efficient energy factories producing ATP from pyruvate which is derived from glucose. Understanding mitochondria is the key to understanding cancer.

Cancer cells exhibit abnormal metabolism and consume more glucose, fatty acids and glutamine than normal cells. Unfortunately, there are practical limitations in starving cancer cells of these nutrients (energy sources).

Because of dysfunctional mitochondria and limited oxidative phosphorylation, cancer cells generate the bulk of their energy through glycolysis and glutaminolysis. In simpler terms, cancer cells metabolize glucose in a highly inefficient manner and glutamine which is an abundant amino acid is burned for energy. This is a very abnormal metabolic state but very challenging to exploit through dietary modifications. There is always glucose and glutamine in the blood stream no matter what one is eating.

Attempting to starve cancer cells of their energy substrates is not the most fruitful approach. A later chapter will discuss a back door approach which is to starve cancer cells of building blocks for synthesizing proteins. This is both practical and is validated by many scientific studies.

Growth Stimulating Factors

Cancer is a growth process involving rapidly dividing cells. Cancer stem cells produce an exact copy of itself and a progenitor cell. Tumor cells divide like regular cells. The best way to view cancer is a wound healing process that is out of control. Part of what is going on in cancer is a normal process dictated by normal genetic expression. Part is not because of broken and dysregulated cellular components.

Identifying and understanding all potential growth factors is half the battle against cancer.

Many different growth factors influence the rate of cancer progression. Cancers of the breast and prostate can be primarily driven by estrogen or testosterone respectively. Simply suppressing the production of estrogen or testosterone will shrink breast or prostate tumors. There are other growth stimulating factors that can be affected by diet, lifestyle and stress.

Inflammation is a key driver of tumor growth.

Inflammation can be major tumor growth stimulating factor. An anti-inflammatory diet, anti-inflammatory herbs and anti-inflammatory drugs can greatly slow down tumor growth. COX-2 inhibitors are known to be effective in slowing tumor growth. The pharmaceutical steroidal anti-inflammatory, dexamethasone can be very beneficial during cancer treatment. Ginger is a very good natural anti-inflammatory agent.

Boswellia Serrata (tree resin from which frankincense is derived) is another powerful anti-inflammatory and there are many extracts on the market. There are many others that can be incorporated within one's treatment plan. Diet and gut health are probably the most essential aspects for lowering inflammation.

Forms and Stages of Cancer

There are two major types of cancer. One type originates and forms solid tumors in organ tissue like breast, prostate, colon, liver, lung, thyroid, brain, pancreas, stomach, esophagus, bladder, etc. The other form is related to white blood cells and is either lymphoma, leukemia or multiple myeloma which does not form a solid tumor.

Solid tumors are composed of many elements besides cancer cells. Within a typical tumor, only 20% of its mass may be malignant cells. The remainder is blood vessels, lymphatic vessels, fibroblasts, immune cells, necrotic cells and connective tissues. Of the malignant cells, a small population is composed of cancer stem cells or sometimes called tumor initiating cells. Cancer stem cells are the real source of new tumor cells and are the cells most resistant to treatment. Much is being discovered about cancer stem cells and their unique vulnerabilities.

Staging of cancer is somewhat misleading because in reality there is not a clear black and white delineation between stage I-III and stage IV (metastatic) cancer. We are lead to believe that stage I-III has not spread to other organs but because of the limits of detection, one can not be 100% certain. Metastasis can occur very early in the development of a tumor meaning that cancer cells may have escaped into lymphatic or blood circulation well before the tumor is detectable.

Emotional and Psychological Burden of Cancer

Just the word "cancer" brings up feelings of fear, death, suffering and hopelessness. That is natural for one with little understanding of the true nature of cancer. Cancer is a very serious condition that must be treated appropriately. Treating cancer in an integrative and holistic manner will offer the best outcome.

Concluding Thoughts

Cancer can be viewed from a perspective that is overwhelmingly complex or it can be viewed as a process with very basic underlying characteristics. The internal workings of our cells is is dynamic, adaptive and highly interactive with the surrounding microenvironment. Each individual cell is part of a much larger system.

For cancer to exist at all, there must be stem cells and mitochondria. Red blood cells are the only cells in our body that do not contain mitochondria and there are no red

blood cell malignancies. There are organs in our body that contain very few or no stem cells. One example is our heart. Heart cancer is extremely rare or may be nonexistent.

For cancer to be initiated, there must be a threshold exceeded for mitochondrial DNA damage within a stem cell. One single stem cell that has sufficient mitochondrial damage is capable of becoming a stage IV cancer. One only has to do the math and recognize that cancer can take 20-50 years to be detected. Mitochondria are highly sensitive to our environment and lack DNA repair mechanisms.

Part 2: Can Cancer be Cured?

Before answering this question, let's define "cured" and maybe redefine what might be reasonable treatment goals. Cured in the context of a disease implies gone or eliminated. A cancer "cure" would have to completely eliminate or neutralize every single cancer stem cell and tumor cell from the body. This is an unreasonable goal and there are no means to detect complete elimination of malignant cells.

The Numbers Game

Conventional oncology utilizes 5 year benchmarks in defining curative treatments or chances for survival. Many slow progressing cancers have very good 5 year survival but this statistic may not look so good at 10 or 15 years. Certain cancers like pancreatic have very poor 5 year survival and many die within the first year after diagnosis.

It is widely stated that many cancers can be cured if detected early. This is based on the 5 year benchmark and is not true when looking at 10 year survival statistics.

A Magic Bullet?

Will there ever be a magic or silver bullet to safely and effectively treat cancer? Most likely not since cancer is a highly complex process. The key to effective treatment is a multi-targeted approach involving nutrition, combinations of selective cytotoxic agents, hormonal modulators and stress reduction. Drugs are not the ultimate answer but certain pharmaceutical agents that carry high therapeutic value and low risk can be an element within a nontoxic alternative approach.

Approach	Benefits	Risks/Side Effects	Cost
Conventional Surgery, Chemotherapy, Radiation	Covered by insurance. Most diagnostic procedures covered.	Permanent neurologic damage. Second cancers. Complications including infection, cardio-toxicity, brain fog, neuropathy	Out of pocket can be substantial.
Integrative	Mostly covered by insurance.		Higher than conventional.
Alternative Nutrition, nutraceuticals, herbs	Low risk of complications or side effects. Improved quality of life. General improvement in overall health.	Very few. Many of therapies incorporated have no scientific basis and may not offer any benefit	Cost can be very high within a clinical setting.

Approach	Benefits	Risks/Side Effects	Cost
Holistic/Natural	Low-cost, virtually no side effects, improvement in overall health status	None if one is properly monitored through blood tests and scans.	Low-cost for a home-based program

A Science and Evidence-Based Approach

There is a vast amount of scientific evidence supporting nutrition and natural compounds for both cancer prevention and treatment. Because of several reasons, these opportunities have not been utilized with mainstream oncology. There is basically an artificial roadblock highly limiting the use of many powerful tools found in nature to treat cancer. The pharmaceutical monopoly has prevented simple, nontoxic and very low-cost nutraceuticals to become part of mainstream oncology. One of the best examples is sodium selenite which has decades of science supporting it as a highly effective selective chemotherapeutic agent. There are numerous other examples and the key reason for the lack of development is patentability. Sodium selenite is a natural compound and can not be patented. If altered in some manner, it could be potentially patented but it is highly effective as is.

Incorporating nutrition in the right manner is a very powerful tool in cancer treatment. It is mind boggling how oncologists routinely advise their patients to eat anything they want when we know that there is a strong cancer and diet connection. An example is the high association of diabetes with cancer. This represents a simple mechanism involving insulin as a tumor growth promoter. A cancer patient should be advised to change their diet to bring their diabetic condition under control to help slow down tumor growth.

A much more reasonable and realistic approach to cancer is long-term management.

Clearly, since cancer originates from our own cells, it is very challenging to destroy all of these defective cells without harming normal healthy cells or creating secondary diseases. Chemotherapy is non-selective as it affects all fast dividing cells in the entire body. Fortunately, there are selective chemotherapeutic agents but these are not utilized within conventional oncology. These selective agents are non-patentable natural compounds without economic incentive to be developed into FDA approved drugs. For the most rapid and optimal treatment response, combinations of these selective agents should be administered.

The key to effective cancer treatment is tipping the balance between tumor growth and cancer cell die-off towards die-off.

Addressing all tumor growth stimulating factors is essential while also eliminating cancer cells. If cancer cells are dividing slower than they are dying, tumors will shrink and be eventually non-malignant.

Concluding Remarks

There is an abundance of scientific studies demonstrating that natural compounds are able to trigger apoptosis in cancer cells while causing no harm to normal cells. It is unlikely that one single compound will be the solution but highly likely that combinations or cocktails of natural compounds will offer cancer patients full recovery. It is a simple matter of overcoming economic and political barriers to enable development of this approach at a highly accelerated level. A real “cancer moonshot” that pulled out all the stops would surely lead to major breakthroughs within 1 to 2 years.

There will be a cure for cancer but it will not be in the form of pharmaceutical agents. What a real cure will look like is a system composed of nutritional intervention, cocktails of natural compounds, natural anti-inflammatories and stress reduction. There may be other useful components of such a system that can be developed. The cure for cancer will be developed but will not happen soon until the power and control of the pharmaceutical industry diminishes and innovation is allowed to flourish.

Part 3: What Causes Cancer

There are many theories, speculations and there is some hard evidence on what causes cancer. There are factors that promote cancer and there are direct triggers for cancer. A trigger can create cellular damage that transforms a normal cell into a malignant cell. A cancer promoter is something that causes cancer cells to divide faster which means faster tumor growth. There are many possible triggers for cancer but what is the common thread is mitochondrial damage.

Mitochondria- Powerhouse of the Cell

Our cells contain between 200-2000 mitochondria and they are essentially cells within our cells. They contain their own DNA and their primary function is generating energy (ATP) for the cell. Mitochondria when functioning properly convert pyruvate, which is derived from glucose, into ATP through a complex chain of metabolic steps. Mitochondria may be viewed as very high energy reactors that require precise control of oxidative byproducts. Robust antioxidant systems are essential for protecting both nuclear and mitochondrial DNA from damage by free radicals (ROS).

Recognizing that mitochondria within our cells can be damaged by short-term exposure to toxins or radiation, we can see that cancer is a warning signal that we have created a world full of threats to our existence. Perhaps the best way to view cancer is as a byproduct of our modern way of life and that cancer rates will only continue to rise with increasing exposure to toxic chemicals, pharmaceuticals, pesticides and ionizing radiation.

Mitochondrial DNA damage in stem cells is the key event in initiating cancer. Damaged mitochondria prevents apoptosis.

The key difference between a normal and a cancerous cell is mitochondrial DNA damage. Damaged mitochondrial DNA causes defects in metabolism and regulation of apoptosis. Mitochondrial DNA is very different from nuclear DNA in that mitochondrial DNA is circular and nuclear DNA is linear. Mitochondrial DNA lacks repair mechanisms but maintains multiple copies. Perhaps enough assaults on mitochondria causes the loss of all normal DNA copies wherein the cell becomes malignant.

Chronic inflammation is a key factor in cancer promotion. It is not likely to be a cancer initiating factor but the scientific evidence clearly points to inflammation as a driver of tumor growth. Chronic inflammation is caused primarily by a poor diet.

Ionizing radiation exposure is known to cause cancer while non-ionizing radiation which refers to radio frequency fields is under investigation. It is pure speculation that home Wi-Fi and smart meters carry any risk for cancer.

About 20% of cancers are known to be induced by viruses. The best example is cervical cancer which is believed to be initiated by exposure to the human papilloma virus (HPV). Gardasil is a vaccine against HPV and is being marketed as a means to lower the risk of cervical cancer. There are serious safety concerns surrounding Gardasil.

What Does Not Cause Cancer

There are numerous speculations, theories and there is direct evidence on what causes certain forms of cancer. Understanding what does not cause cancer or what is very unlikely to cause cancer is helpful for prioritizing preventive measures and treatment options.

Consumption of sugar does not cause cancer. However, insulin can act as a tumor growth promoter.

There is a strong association between obesity, diabetes and cancer. Chronically elevated insulin most likely promotes faster tumor progression. Sugar, in this discussion, refers to refined table sugar, sucrose. Sugar itself does not cause cancer but is definitely not good for us in large amounts. Fruit sugar is completely different and does not spike insulin under normal conditions related to insulin sensitivity.

Stress or emotional trauma does not cause cancer.

Stress and emotional trauma can be a factor in the promotion of cancer. Chronic stress involves an elevated adrenaline level which can act as a tumor growth driver. Stress itself can not cause cancer because it can not cause the deeper cellular damage required to initiate cancer.

Part 4: The Immune System and Cancer

Unknowledgeable and misinformed individuals have stated that cancer is due to a faulty or weak immune system and that boosting and building the immune system will cure cancer. Nothing can be further from the truth. Cancer cells are highly effective in evading the immune system and even more so than our normal healthy cells. Evading the immune system is one of the previously stated hallmarks of cancer.

It is accepted knowledge that up to 20% of cancers are directly induced by viruses but this is believed to be a hit-and-run assault. It is certainly important to maintain a healthy immune system and avoid risky lifestyle choices to lower the risk of viral infections. To maintain a healthy immune system, one must pay close attention to the gut microbiome. Here is where a plant-based diet is critical and regular consumption of fermented vegetables. Consumption of animal products creates a very unhealthy gut microbiome.

Cancer is not caused by a failure of our immune system.

Like normal cells, cancer cells express various proteins on the outer membrane that signal immune cells to stay away. One such protein is CD47 which is called the “don’t eat me signal”. CD47 is highly expressed in cancer cells.

Attempting to build or boost the immune system is not effective in treating cancer.

Attempting to build or boost the immune system to treat cancer is a futile exercise. This should never be the focus of any cancer treatment program.

Cancer cells are well protected by a strong barrier composed of albumin and fibrin. There is evidence for cancer cells building a highly impermeable outer layer. Only very powerful enzymes like trypsin can breakdown this layer.

Cancer cells hijack the immune system to their advantage. It may actually be beneficial to suppress the immune system.

Cancer cells are known to hijack the immune system to their advantage. It is possible that immune system suppression may tame down cancer. The interactions between cancer cells and other types of cells within a tumor are highly complex but it appears that the cancer cell is highly adept in evading the immune system.

Immunotherapy

The introduction of conventional immunotherapy has failed to meet its promise as a safe and effective cancer cure. Checkpoint inhibitor drugs essentially unleash the immune system and allow immune cells to indiscriminately attack everything in their path. Immunotherapy drugs are known to create permanent neurologic damage and severe gastrointestinal side effects. The response rate for immunotherapy is only 20-30% for melanoma and from zero to a few percent for other cancers. Taking the brakes off our immune system is dangerous and can lead to very serious complications that can be far worse than chemotherapy. The pharmaceutical industry is raking in billions on these new drugs while offering practically nothing in terms of improved overall survival and quality of life. Don't be confused by progression free survival statistics. Too many drugs are approved today on progression free survival benefit with no benefit on overall survival.

There are other forms of immunotherapy purported to be more selective such as CAR-T therapy. The same issues regarding off target tissue damage apply here. Engineering the immune system to attack only cancer cells is not a simple task.

Part 5: Slowing Down and Weakening Cancer

Many different growth stimulating factors promote the growth of tumors. Cancer cells have many different receptors on their outer membrane that are very sensitive to the environment. Certain environmental signals or conditions can greatly speed up tumor growth. Various hormones, dietary factors, inflammation and stress can greatly affect the rate of cancer cell division. Even certain dietary supplements can speed up tumor growth.

One major growth factor is IGF-1 which can be modulated by diet. Consuming animal products elevates IGF-1 and adopting a plant-based diet lowers IGF-1.

Insulin is another tumor growth stimulating factor that stimulates the IGF-1 signaling pathway. There is a strong correlation between cancer and obesity. This relationship is most likely due to poor insulin regulation and probably also due to a diet with low intake of fruits and vegetables.

Reducing inflammation is probably the most important element in any cancer treatment program.

Diet, herbs and in some cases powerful drugs are necessary to quench inflammation.

Cancer cells exhibit methionine dependence.

Cancer cells have an unusually high appetite for amino acids because of their rapid growth and division. It is important to understand that our body does not and can not directly utilize dietary protein. Dietary protein whether from animal or plant sources must be broken down within the digestive tract to amino acids. Some amino acids are essential while others are nonessential. Methionine is an amino acid known to be essential for tumor growth and human studies demonstrate a high uptake of methionine in tumor tissue. Reducing or restricting dietary methionine can potentially severely limit cancer cell's ability to synthesize proteins and can impair energy metabolism. A low methionine diet is therefore a powerful tool in cancer treatment. A zero methionine diet would be ideal but there are technical challenges to overcome before this is practical.

Tumor growth requires new blood vessel formation. This process is called angiogenesis. Suppressing angiogenesis is important for effective cancer treatment. This is mostly controlled by dietary factors.

Alkaline extracellular fluids help contain tumor invasion into normal surrounding tissues.

The pH of blood is very tightly regulated within a range of 7.35 to 7.45. Intracellular pH is also tightly regulated around 7.2. The pH of extracellular fluids can vary over a wide range and can be reflected in the pH of saliva and urine. There is a high level of acidity within and around tumors due to the altered metabolism of cancer cells. Neutralizing this acidity is helpful in controlling the expansion of tumors into normal healthy tissues. One can utilize baking soda and potassium bicarbonate for this purpose. Diet also influences extracellular pH. An alkaline diet which is composed of mostly fruits and vegetables will help shift the PH of extracellular fluid to be more alkaline. A reasonable goal is to push morning urine pH up to 8.0.

Overcoming the Emotional and Psychological Burden of Cancer

Fear is certainly warranted when diagnosed with a potentially lethal condition.

Psychological stress may promote faster tumor growth.

Eliminating stress is very important in slowing down cancer progression. It has been discovered that adrenaline can promote tumor growth. Originally, it was thought that cortisol played a role but chronically elevated adrenaline appears to be the stress hormone responsible for stimulating faster tumor growth. Given this reality, one must engage in meditation and activities that help regulate stress. Yoga serves cancer patients very well and can be approached as a purely physical practice if there is a conflict with one's religious beliefs. Yoga is a very powerful tool for healing and finding balance at many levels.

Overall attitude makes a difference too. One must feel confident that they are on the best path towards healing. Positive thinking directly affects our physiology and at the cellular level.

Part 6: Controlling Metastasis

Cancer is generally not harmful or life threatening unless it becomes metastatic (stage IV). For example, in the case of breast cancer, a malignant breast lump or mass can release cells into the blood stream or lymphatic system. The released cells may remain dormant indefinitely or the cells may develop into tumor masses in the bones, liver, brain or lungs. Treating cancer locally only with surgery or other means carries a very high risk for metastatic growth. It is believed that the primary tumor sends out certain signals that keep metastatic sites dormant. This implies that surgically removing or destroying the primary tumor eliminates inhibitory growth signals to the distant metastatic microscopic tumors or even tiny tumors in lymph nodes. Too many times one is declared “cancer free” only to be diagnosed with metastatic stage 4 cancer 2-3 years later.

Cancer spreads through a process called metastasis. Cancer cells can escape from a tumor via the lymphatic system or through the blood stream and form a new tumor in a distant organ or in lymph nodes.

Surgery, radiation, needle biopsies, hyperthermia, cryoablation and chemotherapy can promote metastasis.

Recent evidence suggests that chemotherapy causes metastasis. This suggestion is plausible because chemotherapy agents create inflammation and tissue damage that might invite cancer cells to a new home.

A recently published paper suggests that surgery may promote metastasis. Surgery is known to elicit a very high level of inflammation locally and systemically.

Survival Statistics

Once a cancer becomes metastatic, survival drops dramatically. There is no cure and there are no effective treatments for metastatic cancer. Surgery and radiation are of very little value except for palliative care. There are many natural ways to prevent and control metastasis.

Cancer survival benchmarks are very confusing and misleading. The standard benchmark is 5-year survival. Various forms of cancer have 5 year survival percentages from as low as 5% to as high as 99%. 10 year survival percentages drop much further. These benchmarks apply to non-metastatic cancers. The reality is that once a tumor is large enough to be detected, the likelihood of micro metastatic tumors is very high.

Baking Soda, Potassium Bicarbonate

The tumor environment is highly acidic due to the cancer cell's abnormal metabolism. Neutralizing this acidity has potential benefit. This is a very new area of research but one can take measures now to help neutralize the acidity through diet and incorporation of baking soda and/or potassium bicarbonate. The pH of the blood and intracellular fluid are tightly regulated but the extracellular fluid compartment pH varies widely and can be shifted by diet and buffers.

Inflammation

Inflammation is highly likely to play a role in driving metastasis. Avoidance of any medical treatment or procedure that provokes inflammation should be avoided. Controlling inflammation through diet, nutraceuticals and certain pharmaceuticals is essential in controlling metastasis.

Part 7: Eliminating Cancer

Cancer is very challenging to eliminate without causing harm to normal cells. Cancer cells are programmed to survive and adapt well to all sorts of adverse conditions. Over time, cancer cells can become resistant to treatment with chemotherapy and targeted drugs. Once cancer cells become resistant, one is sent home with no hope for any further treatments to extend survival. At this stage, the cancer patient's quality of life has suffered tremendously.

There are no internal systems for self-healing from cancer.

Unfortunately, our body does not possess any means to self-heal from cancer. Our immune system will not do the job and there is no other physiological system for destroying malignant cells. Many believe that if we give the body everything it needs nutritionally, it will self-heal from cancer. This just doesn't happen while one eats all the right foods, takes all the right supplements, detoxes, performs coffee enemas, prays and maintains a positive attitude. Treating cancer requires many tools from the outside to help destroy and eliminate malignant cells.

Fortunately, there are alternative approaches to treat cancer without toxic chemotherapy, surgery and radiation.

These approaches involve changes to the diet and lifestyle, application of natural agents and stress reduction. The conventional approach is far too narrow and highly toxic. A broad and comprehensive alternative approach will surely offer a much improved quality of life and an opportunity for much longer term survival.

The field of alternative cancer therapy is very challenging to navigate because of so many different conflicting and divergent ideas. Just the variety of dietary approaches alone can leave one very confused. Then, there are all the different agents like vitamin B17, mushroom extracts, supplements, CBD/THC (cannabis), vitamin C, GcMAF, various therapies; hyperbaric oxygen, bio mats, infrared sauna, Rife machines, acupuncture and the list is endless.

Understanding the key differences between normal cells and cancer cells is essential for developing effective nontoxic treatment strategies. At a metabolic level, cancer cells require a much greater amount of nutrients for rapid growth and division. Amino acid requirements for cancer cells is much greater than for normal cells. One particular amino acid, methionine, is essential for tumor growth. This is an opportunity to utilize a direct dietary factor in controlling tumor growth. There is an abundance of scientific research on methionine restriction as a method for the control of tumor growth. There are other amino acids that are just as critical as methionine for tumor growth. Leucine has been shown to be one of these amino acids.

How do we safely restrict the intake of amino acids to slow down tumor growth? The answer is to first eliminate all animal products and adopt a strict plant-based diet. Then one must follow a diet that is balanced in a manner that greatly reduces the intake of methionine and other amino acids. This can be accomplished by following a high fruit and vegetable diet with very little intake of beans, nuts, seeds and grains. This type of diet is simple to implement but should be followed for intervals of 1-3 weeks with a 1 week interval of a less restrictive plant-based diet. It is highly recommended that one has proper supervision in implementing a methionine restricted diet for safety and optimal effectiveness. NORI offers support in implementing a methionine restricted diet.

Diet

Choosing an optimal dietary path is very important during cancer treatment even though most oncologists tell their patients to eat anything they want. Patients will often be told to drink wine which illustrates the level of ignorance among medical doctors.

Diet alone will not treat cancer but can be used as a very powerful tool in slowing down tumor growth and weakening cancer cells. It is possible that for very slow progressing early stage cancers diet alone may be sufficient.

Optimal Cancer Diet

A Cycled Methionine Restricted Diet as developed by NORI is one approach that appears to have value as a foundation in alternative or conventional therapy.

Dietary Goals

This is a list of attributes of an optimal cancer treatment diet. These are fundamental physiological states that help to weaken cancer cells, suppress their growth and control metastasis. A properly balanced 100% plant-based low-fat diet will achieve all of these goals.

1. Anti-inflammatory
2. Anti-angiogenic
3. Alkaline (extracellular fluid compartment pH)
4. Low mTOR stimulation
5. Glucose and insulin stabilization
6. Nutrient restrictive

7. Proteolytic Enzyme Rich

8. Wide array of Phyto-Chemicals

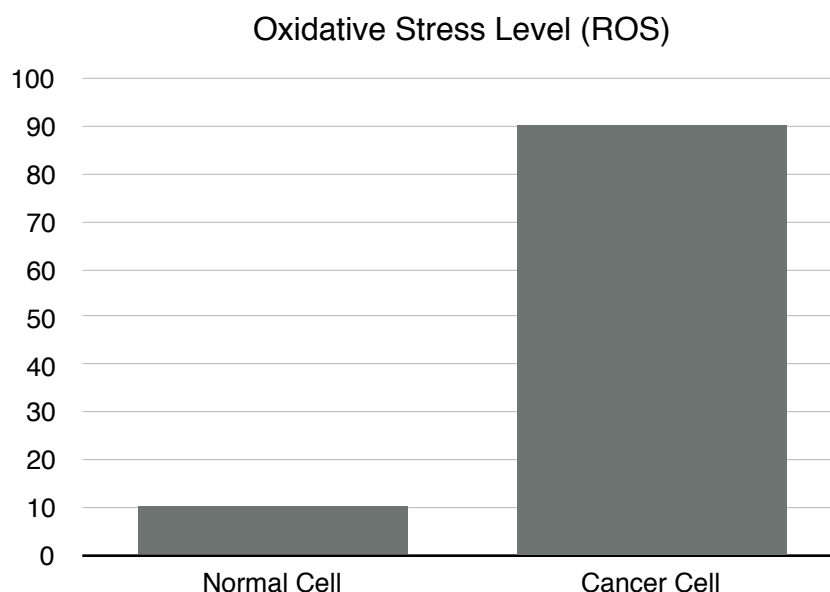
Diet is just one tool among many others that can have a powerful impact on cancer management. Never assume that diet alone will be effective. One must incorporate a wide array of other treatment modalities.

The Key Vulnerability of Cancer Cells - Oxidative Stress

Due to the extensive metabolic abnormalities in cancer cells, there is a very high level of intracellular oxidative stress. This means that cancer cells are struggling to regulate oxidation through their various antioxidant systems.

The most important difference between normal cells and cancer cells is the level of oxidative stress.

Antioxidants support cancer cell survival and antioxidant supplements are counterproductive within any form of a cancer treatment program.



Selective Chemotherapeutic Agents

The following is a partial list of compounds utilized within the NORI protocol. These compounds have been selected from a very large number of ant-cancer agents known to trigger apoptosis in cancer cells without harming normal cells.

These compounds when administered together, act synergistically meaning that the combined effect is much more powerful than the single agents alone. A cocktail of nutraceuticals, all hitting a common target and acting through a common mechanism is the most effective approach for killing cancer cells. All of the listed compounds target the mitochondria which is the gateway to apoptosis.

All of the listed agents can be administered orally and achieve a therapeutic concentration in the blood stream. This is not an exhaustive list but just an example of what has extensive scientific evidence and even human clinical studies. There are potentially tens of thousands of natural compounds suitable for cancer therapy. Zeroing in on the least toxic, most bioavailable, long half-life and effective at the lowest concentration is the key.

Sodium Selenite- an inorganic form of selenium, completely nontoxic if administered within a therapeutic dosage range.

Vitamin K3- a synthetic form of vitamin K3, specifically menadione sodium bisulfite

Shikonin- A 1,4-naphthoquinone derived from *lithospermum erythrorizon*

Aloe-Emodin- Aloe Vera extract

Berberine- Berberine HCL extracted from many plant sources.

Genipin- a constituent of the gardenia fruit, TCM herb, Zhi Zi

DHA- omega-3 fatty acid, docosahexaenoic acid

SAMe- S-adenosylmethionine

Grape Seed and Pine Bark Extracts

Green Tea Extract

Eurycoma Longifolia (Tongat Ali)

Nutritional Supplements

Supplements, as defined by vitamins, minerals, antioxidants, amino acids, superfoods and herbs, have limited and sometimes counterproductive effects on tumor growth.

The goal in alternative cancer treatment should be the starvation of cancer cells of essential nutrients, not flooding the system with nutrients.

One must be very judicious in taking supplements when dealing with cancer. Some supplements can promote faster tumor growth and some may protect cancer cells from treatment.

Antioxidants support cancer cell survival and metastasis.

We are lead to believe that antioxidants are the answer to almost all health issues. Scientific evidence suggests that antioxidant supplements can support cancer cell survival by reducing oxidative stress, Examples are vitamin C, NAC and glutathione.

Certain B vitamins accelerate tumor growth.

Cancer cells require greater amounts of certain nutrients than normal cells to support their rapid growth and cell division. Vitamin B12 is an example of a supplement that should not be taken by one with active cancer. Vitamins B1 and B9 may also promote faster tumor growth. Cancer cells are rapidly growing and dividing and need many different nutrients that normal cells do not require.

Oxygen, Ozone and Hydrogen Peroxide

A common misconception floating about is that cancer cells do not survive within an oxygen rich environment. This idea is untrue.

Ozone and hydrogen peroxide are toxic to cancer cells. Ozone and hydrogen peroxide can be administered in a variety of ways. Direct intravenous injection of ozone is probably the most effective option. One can incorporate orally administered food-grade hydrogen peroxide if IV treatment is too costly or unavailable.

CBD/THC

Mounting evidence suggests that cannabis derivatives have value in treating cancer. One must not assume that cannabis alone is sufficient. It can be incorporated within a comprehensive program. There is evidence that CBD alone can trigger apoptosis in cancer cells. THC has limitations due to extreme psychoactive effects. It is not

necessary to combine CBD and THC to obtain anti-cancer effects. Cannabis is a good alternative to opiates for pain management

Off-Label Drugs

There is ongoing research showing that combinations of off-label drugs can have a positive impact on cancer survival. One such example is the diabetic drug, metformin. Off-label or repurposed FDA approved drugs have a lower toxicity profile and carry lower risks than conventional cancer drugs. For one thing, they are up to a hundred times less expensive. The utilization of repurposed drugs is a real and viable approach to cancer treatment but a full program including diet and lifestyle modifications should be implemented.

Low-Dose Naltrexone (LDN) is very safe and has much potential for slowing down tumor progression. The typical dose is 4.5 mg.

The antibiotic, Doxycycline is being promoted as an alternative cancer treatment. The problem with Doxycycline, like Tetracycline is that these antibiotic drugs cause damage to mitochondrial DNA. This is why they appear to show anti-cancer activity but carry a very risk of inducing secondary cancers.

One drug that looks promising is Membendazole which is an antihelminthic agent.

Metformin appears to have benefit in cancer therapy because it interferes with the metabolism of cancer cells. Berberine, which is a naturally occurring compound may work equally well or better than Metformin.

Other drugs such as proton pump inhibitors are potentially useful.

The Big Picture

There are factors that should be increased or maximized and factors that should be lowered or minimized for effective cancer treatment. These factors can be regulated through diet, nutraceuticals, lifestyle and in some cases, pharmaceutical agents.

The following should be lowered or minimized:

Inflammation, Antioxidant Capacity, IGF-1, Insulin, Hormonal Drivers, Emotional Stress, Amino Acid Intake, Fat

The following should be increased or maximized:

Oxidative Stress, Alkalinity, Proteolytic Enzymes, Relaxation, Complex Carbohydrates

Concluding Remarks

Tipping the balance between tumor growth and cancer cell die-off is the primary determining factor in successful cancer treatment and management. One other matter is treatment resistance. Cancer cells are quite clever and resourceful in ensuring their survival. Conventional chemotherapy eventually stops working where the cancer cells become multi-drug resistant. Utilizing a broader approach and cycling between different cytotoxic agents may lead to better outcome with less buildup of resistance.

Oxidative therapies are likely to be the best and most reliable approach to destroying cancer cells. This includes ozone therapy in its various forms, hydrogen peroxide orally or intravenously and high dose sodium selenite intravenously. Excellent results can be obtained by combining high dose sodium selenite with ozone therapy on the same day. It is always best to combine therapies with synergistic potential.

Diet is a powerful tool in cancer therapy but one must recognize its limits. Look at diet as a means to slow down tumor growth and a way to weaken cancer cells so that they are more susceptible to cytotoxic treatments. Never believe that diet alone is capable of treating cancer.

Dealing with cancer should not be carried out as a fight or battle as if there is an enemy. Cancer is our own cells that have been irreversibly damaged. Approach cancer gently and it will be more likely to respond favorably. Always make well informed choices on treatment options.

Part 8: Preventing Cancer or Cancer's Return

Most cancers are fully preventable through prudent diet and lifestyle choices, avoidance of certain medical procedures and pharmaceutical agents in addition to the two most obvious threats, cigarette smoking and drinking alcohol. The same and additional advice applies to the prevention of recurrence. An already established cancer requires extra measures to ensure that any microscopic tumors are not highly stimulated to grow.

Unfortunately, we don't have a means to detect if cancer is 100% cured or controlled. Tumors may be undetectable or blood markers may be perfectly normal but there is always the possibility of surviving cancer stem cells primed to progress to more tumor or blood abnormalities. Cancer stem cells are very challenging to fully destroy but we can create conditions that suppress their ability to divide rapidly.

Adopting a low-fat, whole food, plant-based diet is the most optimal nutritional safeguard for cancer prevention and reducing the risk of recurrence. A healthy plant-based diet should highly limit processed foods and be abundantly rich in fresh fruits and vegetables. Whole grains, beans, nuts and seeds can be a part of a healthy plant-based diet. One should choose organically grown foods when possible. Follow the Environmental Working Group guidelines on which produce items should always be organic and which items are safe if conventionally grown.

A few supplements may be helpful in cancer prevention. Number one is selenium. It is possibly the most essential for maintaining critical antioxidant systems. Vitamin D is another supplement important for cancer prevention. If one can't obtain sufficient sunshine, then supplementation with either vitamin D2 or D3 is warranted. DHA may be another supplement of value in cancer prevention.

Regular exercise is essential for general health and prevention of cancer recurrence. Exercise helps stabilize blood glucose and insulin, improves blood flow and tissue oxygenation and reduces stress. It is possible that exercise can contribute to a higher level of oxidative stress which is the key process in killing cancer cells.

Glossary

Apoptosis - Natural programmed cell death

Mitochondria - Energy generating organelle, 200-2,000 per cell

DNA - Deoxyribonucleic acid, carries genetic codes

Mitochondrial DNA - The genetic blueprint for mitochondria

Nuclear DNA - The genetic blueprint of the cell

ROS - Reactive Oxygen Species, A measure of oxidative stress

Malignant - Cancerous

Metastatic- Cancer that has spread beyond the initial site to another organ

Metastasis - Spread of cancer to another organ

Dietary Protein - Protein sourced from food

Functional Protein - Protein molecules with specific physiological functions within cells

Amino Acid - Building blocks of protein

Methionine- A sulfur containing amino acid

Lymphatic System - A circulatory system for the removal of waste products

Lymph Node - A trap for infectious organisms

Insulin - A hormone that regulates blood glucose

IGF-1 - Insulin like growth factor, A powerful tumor growth promoter

Resources

The following is a list of useful resources for more information on cancer prevention, plant-based nutrition, health and natural medicine.

Nutritional Oncology Research Institute www.nutritionaloncology.net

NORI Nutraceuticals www.norinutraceuticals.com

Dr. Michael Greger www.nutritionfacts.org

Physicians Committee for Responsible Medicine www.pcrm.org

T. Colin Campbell Center for Nutrition Studies www.nutritionstudies.org

Environmental Working Group www.ewg.org

Chris Wark, Chris Beat Cancer www.chrisbeatcancer.com

Dr. Robert Morse www.drmorsesherbalhealthclub.com

Cancer Tutor www.cancertutor.com

Life Extension Foundation www.lifeextension.com

LDN Information www.ldnscience.org

The Sacred Plant www.thesacredplant.com

Cancer, The Integrative Perspective Film www.theintegrativeperspective.com

Plant Based News www.plantbasednews.org

FreelyFunded, Course on Crowdfunding www.freelyfunded.com

Vaccine Safety www.vaccinesrevealed.com

Care Oncology www.careoncology.com

Off-Label Drug Group www.facebook.com/groups/off.label.drugsforcancer/

Radical Remission www.radicalremission.com

Glenn Sabin www.glennsabin.com

Optimum Health Institute www.optimumhealth.org

Dr. John McDougall

Dr. Dean Ornish www.ornish.com

The Biology of Belief, Bruce Lipton www.bruce-lipton.com

Angiogenesis Foundation www.eattobeat.org

American Board of Naturopathic Oncology www.fabno.org

Beyond Conventional Cancer Therapies www.bcct.ngo

Cancer Schmancer, Fran Drescher www.cancerschmancer.com

What the Health www.whatthehealthfilm.com

GMO Education, Jeffery Smith www.responsibletechnology.org

References

An extensive list of references is available to professionals, scientists and researchers in the field upon request. Some references and articles are available on the NORI website. www.nutritionaloncology.net

For Cancer Patients

Disclaimer: This material is not intended as medical advice. No claims are made herein to diagnose, treat or cure any disease. All individuals are encouraged to seek professional medical care and not to self-treat any condition that is best managed through appropriate medical interventions.

NORI recommends that one should seek professional support and supervision for implementing a methionine restricted diet and appropriate nutraceuticals.

For Caregivers

It is very important to respect one's choice of treatment options. Fear is natural when one is faced with a life threatening condition but excessive fear or pressure from family can force one to choose treatment options that may not be in their best interest. Please be extra respectful of one's rights and ability to make well informed choices. Pressure from family and friends is not supportive and only adds to an already elevated stress level for the patient. What the patient needs most is emotional support in the form of kindness, non-judgement, love, compassion and hope.

For information on the NORI home-based nutritional support program, email to: info@nutritionaloncology.net or call 800-634-3804.

To learn more about NORI, visit www.noriprotocol.com

To order high quality and low-cost supplements or CBD products, visit www.norinutraceuticals.com

