Cancer Causes and Mechanisms: Hypothesis

by John Spottiswoode BA BSc

Introduction

Proposition: Cancer is caused by environmental carcinogens, such as radiation and chemicals, plus an imbalance of the sympathetic and parasympathetic nervous systems.

It is clear that some people who are exposed to carcinogens (such as cigarette smoke) get cancer, yet others do not. Why? Clearly there must be something different about the internal metabolism of people that enables us to either fight cancer off or succumb to it. The main thing that regulates our internal metabolism is the sympathetic and parasympathetic nervous systems, which together make up the Autonomic Nervous System (ANS). The ANS has been investigated and has been found, by several different people, to be imbalanced in cancer patients, both after people get cancer and, importantly, BEFORE they do.

How Can Cancer Get a Grip?

The Autonomic Nervous System is the involuntary part of our nervous systems, controlling many functions of our bodies automatically and fundamentally. There are two parts to the ANS: the sympathetic and the parasympathetic nervous systems. The sympathetic nervous system stimulates the ‘fight or flight’ response, the parasympathetic dampens things down, and they are in constant dynamic balance in the body. Although, as can be seen in the name, the Autonomic Nervous System is not consciously controlled, there are several things we do that affect the balance, including stress, diet and exercise. This balance (or imbalance) then fundamentally affects the internal chemistry of the body, particularly at the cellular level where cancer develops. The ANS ultimately controls much of our physiology, including immune function, cardiovascular activity and endocrine function, and is involved with many diseases.

The Sympathetic Nervous System

If the sympathetic nervous system consistently dominates then we are continuously in a ‘reactive’ mode, energies being directed to face an external event that never gets resolved, with unreleased tension widespread throughout the body. We become set in the same way, without the release of ‘fight’ or exercise. The skin becomes relatively pale and cold, the heart rate increases, the pupils tend to dilate, and muscles become continuously tense, resulting in poor digestion amongst other things. Adrenalin and noradrenalin are secreted in excess and the metabolic rate is increased. It is also well-known that the immune system is weakened by a continuously stressed system. If at the same time there is a toxin that is damaging the system (e.g. in the lungs from smoking) then the energies are focused there to achieve rapid repair. If there is continuous repair going on from repeated carcinogen damage and the chemical balance is on the Sympathetic side, particularly with a lot of cortisol, then cancerous ‘mistakes’ may not be destroyed, especially if the cancer mimics the antigens of the person’s blood group.

For instance, as Dr Peter D’Adamo has demonstrated, some cancers mimic blood type A so people with this blood type do not recognize the cancer as ‘non-self’ and their immune system does not attack it early enough or vigorously enough. Different blood types tend to be more susceptible to different cancers. This helps to explain the widely recognized genetic component of susceptibility to cancer.

The hypothesis states that the imbalance to the Sympathetic side leads to solid types of cancers, the precise incidence being determined by the location of toxic damage, potential nutritional problems and genetic susceptibility.

The Parasympathetic System

However, if the parasympathetic nervous system consistently dominates then the chemical situation at cellular level is different and tissue repair seems to be more effective, partly due to the absence of some sympa-thetic chemicals. With the parasympathetic situation the skin is relatively warm and rosy, the heartbeat slow and strong, the muscles relaxed and digestive activity over-stimulated. Fatigue or lethargy can result, with potential
the sympathetic nervous system. Selenium and many antioxidant vitamins are likely to have a direct chemical effect on the body's ability to fight the cancers, whilst sugars directly feed the solid tumours. Herbs can also have an influence, partly through their effect on the ANS, as can some drugs.

This all means that the actual incidence and recovery rates for various different types of cancer become complicated, but the wider picture of the dominant effect of the carcinogenic toxin load combined with the Autonomic Nervous System imbalance remains.

**The Evidence**

There is a relatively small volume of cancer research that is specific to the role of the ANS in the development of cancer. There are several significant findings, such as the point that stress is a better predictor of cancer than smoking, but most of these type of points are supportive of the idea of the ANS being a major influence, without necessarily even making the link to the ANS itself.

There are several reports from doctors noting that it always seems to be the case that those with cancer have an ANS imbalance. For instance "Solid tumors that have originated from epithelium include the liver, breast, lung, pancreas, colon, ovaries, prostate and uterus seem to occur only in individuals with an overly active sympathetic nervous system (and therefore a weak parasympathetic nervous system)." From Dr Kaslow in California. And again "On the other hand, blood or immune based malignancies such as leukemias, lymphomas, and myelomas do best on a high animal protein, high fat diet because these seem to occur in individuals with an overly active parasympathetic nervous system (and therefore a weak sympathetic nervous system)."

As another example "...we find solid tumors, such as tumors of the breast, lung, pancreas, colon, uterus, ovaries, liver, etc., occur only in patients who have an overly strong sympathetic nervous system and a correspondingly weak, ineffective parasympathetic nervous system. We believe that blood-based cancers, such as leukemia, lymphoma and multiple myeloma, only occur in patients that have an overly developed parasympathetic nervous system, and a correspondingly weak sympathetic nervous system." From Dr Gonzales.

The causal link between an imbalance in the ANS and cancer is, however, not made, although implied. The alternative is that it could be the cancer itself which is causing the imbalance. The mechanism for how this would work is not clear, but it would mean that the cancer in a remote part of the body is controlling the sources of the neuron impulses in the hypothalamus, reticular formation and medulla oblongata, all in the brain, presumably by chemical messages in the blood. However, initially the few cancer cells are highly unlikely to be strong enough to affect the balance. It is much more likely that in the early and pre-cancerous state the ANS is the cause of the changes in the reactions at the cellular level, as the mechanism for this is already understood and consistent with what is observed. Nevertheless there are studies that show major ANS dysfunction is extremely common in advanced cancer so there may be a damaging mutual reinforcement process going on as the cancer grows and the ANS imbalance worsens.

Therefore, it is important to find out if the Autonomic Nervous System is imbalanced BEFORE cancer.

diarrhoea or stomach cramps. However, in this situation the hypothesis states that blood borne cancers are likely to develop, such a leukaemia, lymphoma and myeloma (bone marrow cancers). This happens where the system has ingested damaging toxins, such as from a continuous high level of alcohol intake or radiation damage.

...the hypothesis states that blood borne cancers are likely to develop, such a leukaemia, lymphoma and myeloma (bone marrow cancers). This happens where the system has ingested damaging toxins, such as from a continuous high level of alcohol intake or radiation damage. Exactly how these toxins overwhelm the more relaxed parasympathetic system needs further study (although a possible mechanism is described below). The low levels of adrenaline, noradrenaline or cortisol in the blood may be a factor, as may be the body's inability to destroy and then expel certain toxins or their dead debris rapidly enough.

**Other Factors**

In addition there are likely to be other influencing factors, particularly nutritional ones. It has been demonstrated that various vitamins, minerals and enzymes can have positive or negative effects on the development and progress of cancer. Part of this is likely to be due to their direct effects on the sympathetic and parasympathetic nervous systems, but some is likely to be down to their direct effects on cancers. Potassium and magnesium tilt the ANS balance in favour of the parasympathetic side, whilst calcium, zinc and phosphates tilt it in favour of the sympathetic nervous system. From Dr Kaslow in California. And again "On the other hand, blood or immune based malignancies such as leukemias, lymphomas, and myelomas do best on a high animal protein, high fat diet because these seem to occur in individuals with an overly active parasympathetic nervous system (and therefore a weak sympathetic nervous system)."

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develops. Interestingly there is a study that did precisely this. At the Third World Congress on Cancer in 1997 a paper was presented following a study of 500 people over four years. They were selected from 2,147 people of working age in Bulgaria. The study focused on those who were considered 'high risk' due to a consistently high sympathetic nervous system – 238 people, and those considered 'low risk' due to a consistently low sympathetic nervous system (therefore a high parasympathetic nervous system) – 242 people. Of these, 16 developed cancer from the high sympathetic nervous system group and only one from the high parasympathetic group. Although what the cancer types were is not described, this does show an extremely high correlation to cancer developing in those with a high sympathetic nervous system.

About 6.7% of the high sympathetic nervous system people developed cancer over four years in this study, an enormously high rate for a normal working age population. Although extrapolation of data is not always valid, in this case it seems a fair way to get an estimate for a longer period. As a rough guide, with 47 working years (18 to 65), then the extrapolated rate is that 79% of this population group would be likely to get cancer whilst of working age. This rate excludes old age, when the cancer rate is usually significantly higher, which could well bring the life-time rate up well into the 90% range, coming thought-provokingly close to 100% if they do not change their Autonomic Nervous System imbalance.

The cancer split between sympathetic and parasympathetic is also consistent with the split that is to be expected between the solid cancers (high sympathetic side) and blood based cancers (high parasympathetic) as solid cancers are more common. The paper states "These results suggest that the long-term lasting sympathetically oriented drift in autonomic balance (pointing to overstress) is a risk factor for developing cancer. According to our experience such a state, which we named Dysadaptemia is a rather common phenomenon".

Whilst it would have been even more interesting if the cancer rate had also been compared to the rest of the 2,147 who were not studied, the scientific evidence is clear. There is strong scientific support for the premise that there is a connection between the initial development of cancer and an imbalance of the Autonomic Nervous System before cancer develops, as well as there being clear, and worsening, imbalances after people have developed cancer.

**Complementary and Alternative Approaches**

For decades we have had reports and claims of excellent success rates using complementary and alternative treatments for cancer. These are not approved by the medical establishment and are often geared around psychological, dietary (including enzymes, vitamins and minerals) or herbal approaches.

Some famous methods include the Gerson method, which seems to have its best success with solid types of cancers. The Gerson method would indeed boost the parasympathetic nervous system with its strong vegetarian and largely juicing diet with coffee enemas. Even Dr Max Gerson’s original ideas about the cause being too much sodium and not enough potassium at the cellular level are consistent with re-balancing the ANS. Potassium is known to boost the parasympathetic nervous system.

Using coffee enemas is also likely to be a major help due to the removal of the other part of the cancer equation, the carcinogenic toxins. This can become particularly important after tumours develop, because without an effective and efficient toxin expulsion process the dying back of tumours can overload the liver and kidneys with large amounts of toxins, causing serious and potentially life-threatening damage to these organs. It is not enough to knock back or kill the tumours; the toxins must be removed quickly and effectively as well.

Other nutritional approaches, including the use of herbs and specific nutrients, may also help defeat solid tumours for the same basic reason. It even helps a lot to ‘believe’ in the approach for the solid tumour situation, because that again has a direct affect on the Autonomic Nervous System balance, making people less stressed and more determined.

Then there are the various dietary approaches around, including this from Dr Gonzales:"

"...patients with solid epithelial tumors, such as tumors of the lung, pancreas, colon, prostate, uterus, etc. do best on a largely plant-based diet. Such patients have a metabolism that functions most efficiently with a specific combination of nutrients that are found in fruits, vegetables, nuts, whole grains and seeds."

The Bristol Cancer Help Centre focuses on psychological factors, with some strong nutritional advice. Stress, including repressed stress, is a major influence that boosts the sympathetic side. To restore ANS balance people do indeed need to reduce and expel stress from their systems. This can be very hard to do, so success is by no means guaranteed. However, even most conventional doctors accept that psychology plays a part (with comments such as: the feisty ones do best against cancer).
Then there are the various reports around the psychopathology of cancer patients (i.e. their mental approaches), linking this directly to the Autonomic Nervous System influence on mental states, for instance “The psychopathology of the breast cancer-prone behaviour pattern”.

Almost without exception, these approaches seem to be designed, sometimes without being aware of it, to alter the ANS balance. Usually it is to reduce the sympathetic nervous system in favour of the parasympathetic, because most cancers are of the solid type. However, by no means all recognize the difference between the solid types of cancer and the blood types of cancer (leukaemia, lymphoma and myeloma).

Further Evidence

Another angle to take when looking for evidence is to look at what happens when the ANS is known to be in imbalance and see whether there is a link between those people with these imbalances and the incidence of cancers. This can become complex because of the influence of other parts of the human metabolism. For instance, hormone changes may be linked to the ANS or may be due to a failure of the endocrine system. Therefore, we need to look at the central part of the ANS, the hypothalamus.

The hypothalamus is central to the ANS and it has been demonstrated in animals that when it is damaged the most obvious immediate effect is that it either leads to uncontrolled over-eating or to drastic under-eating, starving themselves to death. This is linked to damage to either the parasympathetic or sympathetic signals. There are parallels in humans. Over-eating is somewhat complex to deal with because so many of us overeat (no doubt sometimes due to a too strong sympathetic nervous system), but we also eat the wrong things, such as junk foods and too much sugar.

Therefore, people are obese for several reasons, not just or necessarily because of a hypothalamus which is over-active on the sympathetic nervous system side. Nevertheless, it is well-known that overweight people are more likely to get solid cancers, which ties in absolutely with our hypothesis.

Alternatively, the case of anorexia nervosa is much clearer, although still complicated by the undoubted psychological elements, meaning that the causes are not always totally physical. It has puzzled medical scientist for some time about why anorexics have less than half the incidence of breast cancer compared to others. It has also been thought that the hypothalamus is linked to cases of anorexia as a physical cause, yet the link between these two facts was missed. This completely ties in with an under-active sympathetic side of the hypothalamus linked to a low sympathetic nervous system (and consequently more dominant parasympathetic nervous system).

Therefore, anorexia and a low level of solid tumours is expected from this cancer hypothesis and is, in fact, proved true, at least for the cancer studied, for breast cancer.

This cancer hypothesis also predicts that anorexics will be more prone to the blood or lymph-borne types of cancer (leukaemia, lymphoma and myeloma). There are no known studies that have been done on this subject — but there is a good reason for that! It is because anorexia is one of the first signs of the blood based cancers. It is so prevalent, that it is a key part of the development of cancers such as leukaemia and a defining symptom! It has been staring us in the face all these years and yet no-one linked it to the root cause, an imbalanced ANS.

There are other diseases which are affected by an imbalanced ANS, in particular heart problems due to an over-stimulated heart. However, cancer incidence in these people has not been studied (that we are aware of), probably because people are much more concerned with the heart failing as the prime manifestation of the metabolic problem. Further investigations of the links between other diseases that may be ANS related and cancer is ongoing and some links have been found, such as between lung cancer and asthma. However, the reasons behind these diseases are often complex and the ANS may be just one (important) factor.

Therefore, it is clearest if the link to the most obvious relationship — anorexia/overeating and hypothalamus under/over-activity is used as the most obvious area least affected by other factors. Here the link between the different types of cancer and the state of the ANS is highly persuasive.

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The Mechanism for Solid Tumours

Normally when cells are damaged by carcinogens a repair mechanism is started, but if this damage is happening continuously or frequently then a second cellular damage event occurs when the repair is incomplete. This second damage event part way through the cellular repair cycle means that the nature of the cell can become cancerous, but poorly recognized by the body as 'non-self'. This has been found for radiation types of cancer damage, but also can be applicable to other carcinogens. However, whilst this (and other cancer initiation theories) can explain the alteration of cells to become cancerous, it does not explain why in some people these cancerous abnormalities are destroyed while in others they take a hold and proliferate out of control. Therefore, we need to add an explanation about what happens in the different body environments of different people with different ANS balances or imbalances.

The repeated cellular damage triggers a local inflammatory reaction, whereby the body tries to repair the damage and extra macrophages and other white cells are present. However, with ongoing damage to the same area from the carcinogens, with continued longer term inflammation, plus the effects of an imbalance towards the 'fight or flight' sympathetic nervous system which tends to create more inflammation, the gradually pacifying effects of lipoxins become more important. The lipoxins and other signalling molecules have a counter-balancing role to damp down the inflammation that has gone on too long.
and has become damaging to the organism in its own right. This anti-inflammation activity includes stopping the macrophages from devouring the damaged cells and so helping to stop the inflammation this process causes. These lipoxins are already more active than usual for people with an imbalance towards the sympathetic nervous system, and kick in more quickly and thoroughly than the sympathetic nervous system, and a

Therefore, the fewer macrophages start to miss the cancerous cells. The other white cells, such as T-Lymphocytes (our natural killer cells), also do not kill the aberrant cells because they are not very good at recognizing these early cancers as alien, especially when they mimic the body's own antigens. In view of this, some cancerous cells are not eaten by the macrophages (via phagocytosis) and are not destroyed by the natural killer cells, meaning that cancer starts to get a grip. The continued metabolic imbalance means that the lipoxins continue to have a role countering the inflammatory environment, keeping inflammation down in the cancerous area and still preventing the macrophages from being effective. Hence tumours grow as our natural defences are being thwarted by our own counterbalancing mechanisms. It is possible to stimulate extra macrophage production and this has been shown to lead to greater resistance to cancer. As the cancers get larger the environment immediately around them is changed by the cancer cells and the interplay becomes different. Tumour cells manufacture macrophage inhibitory factor (MIF) which has two major functions that actually help tumour growth. Macrophages near the tumours lose their mobility and are less effective at attacking the tumour cells. However, these macrophages still synthesize bioactive substances that act as plasminogen activators. These help the tumours with angiogenesis (creation of their own blood supply) and with metastasis (spreading of malignant tumours). By this stage, the cancer is in full growth mode and difficult to reverse, but allowing our immune system and macrophages to operate effectively with a re-balanced ANS is a necessary element of long-term recovery. Eventually the cancer takes over much of the glucose supply for the body and malnutrition begins. Fatigue and weight loss ( cachexia) become the main problem, resulting in many of the deaths in cancer patients.

The Mechanism for Blood or Lymph-based Cancers

With blood-based cancers there are carcinogens inside the body. The anti-inflammatory ANS environment means that the localized tumours have been dealt with effectively as the macrophages have not been stopped and they may have been very busy. However, if there is a high or continuous level of toxin damage (e.g. from alcohol or radiation) then the limited amount of macrophages or lymph cannot initially snuff out all the nascent cancer cells. The damping down effect of the parasympathetic nervous system means that the fact that the body is under attack is poorly recognized by the body so macrophage production is kept at too low a level and lymph nodes do not inflame. Therefore, the high levels of carcinogens in the blood stream are not all destroyed as the macrophages and lymph glands are not dealing with the damaged cancerous cells rapidly enough. The defences start to become overwhelmed and cancerous cells start to get through and infect sites in the blood or lymph.

If the lymph nodes are the weak point then initially the lymph nodes may not be inflaming and enlarging as they should when under stress, due to the parasympathetic system imbalance. However, they do eventually start to enlarge in a cancerous way when cancerous lymphoid tissue within them starts to proliferate.

The parasympathetic imbalance also means that the production of extra macrophages is being held back because the environment says that the body is not under strain, particularly if (again) the cancer is not readily recognized as 'non-self'. Natural killer cell activity is not raised either – it actually reduces with the acute leukaemia as productive potential of these is damaged. Failures to start to occur with rampant over-production of white blood cells (leukaemia) due to malignant transformation of blood 'stem cells', or failure of lymph glands (lymphomas), or failure of the bone marrow (myeloma). Cancer cells proliferate faster than the confused and balanced defence mechanism can deal with them and become dominant, eventually killing the patient. The body's defence mechanisms may never be mobilized in sufficient strength to beat these cancers (too little initially and then too late – as the body does not react until after malignant damage has become established and the body's defences cannot cope).

How to Minimize Cancer Risk

Finding the root cause of cancer is obviously essential if we are to defeat this modern plague. But it also has a lot to do with our lifestyle which helps to build the conditions where cancer thrives. It is not enough to reduce pollution generally and our individual toxic loads, but we also need to take care that we maintain our metabolic balances via the Autonomic Nervous System to fight off the cancers that will otherwise develop. This means:

- Minimizing our exposure to pollutants as much as possible, including using detoxification techniques for our bodies whenever we can. Having an efficient liver, kidney and digestive system are crucial to this, and things like colon irrigation and enemas also have a place. High carcinogen levels are important factors for each of the different group of cancers;
- Having a balance between stress and lethargy in lifestyle. If we are continuously stressed, whether at work or at home, especially if we repress it, then the danger signs must flash for us to do something about it. Alternatively if we are too lethargic then there is a danger of the blood-based cancers, but this is less likely than the over-stressed situation, particularly in modern life;
- Eating to suit our ANS balance – mainly vegetarian to counteract a
stressed sympathetic-biased nervous system, or animal proteins for parasympathetic-biased nervous systems. However, this is only an influence and other factors, such as stress of a poorly functioning digestive system, can outweigh eating habits regarding the effects on the ANS;

- Exercise to help relieve over-stressed systems, but can also benefit in stimulating the sedentary and lethargic lifestyles. So this can be important for each different group of cancers.

Conclusions
The predictive power indicated by this hypothesis (and the Bulgarian research results) implies that a reliable predictor of cancer may be available. Furthermore, this prediction could be changed to avoid cancer completely via a change of behaviour. Nevertheless, there are bound to be two uncertain areas at the boundaries of the imbalance level extremes. Cancer may become consistently beatable, especially if the vulnerability is found in advance of its development and the correct metabolic balance created when it does happen.

References

About the Author
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Further Information
Much research is needed, targeted at the imbalance of the Autonomic Nervous System, to prove or disprove the above (see www.foodcures.net/Research/Research_main.php for some information, in particular on ways to support this). Foodcures.net is aiming to raise funds to commission some definitive research based on the predictions above, and following up on the limited research done so far on this. If you are a medical practitioner, or in medical research, and are interested in doing research, please contact Foodcures.net via the feedback page at www.foodcures.net/Feedback.php
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