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Cancer Treatment Approach at St. George Hospital

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Cancer Treatment Approach at St. George Hospital

We focus upon treating patients individually, and addressing the particular characteristics of their cancers, as well as their ability to detoxify.

This includes stimulating the immune system to help it recognize cancer. We use three non toxic treatment modalities to destruct cancer within the body, so that it can be recognized by the immune system. This is in the first line hyperthermia (heat treatment), electro cancer therapy (ECT) and photodynamic therapy (PDT). With these three treatment modalities we not only have the possibility to reduce the cancer mass gently within the body, but we also change the immunogenicity of the cancer by inducing heat shock proteins, for instance HSP 70, so that the tumor can be recognized and then destructed by the immune system. The phagocytes help to dissolve the dead tumor material and present the immune system the tumor antigens, so that it can start to work and specifically in the future can be recognized by a restored and in particular stimulated immune system. These three treatment modalities can be used, even in advanced cases where conventional medicine had reached its limits. Parallel to this we reduce the blood flow to tumors by inhibiting angiogenesis with different natural drugs.

These, as well as other aspects of our treatment approach are covered more in depth in the following sections.

Hyperthermia an effective treatment to fight cancer Electro-Chemotherapy (ECT) for cancer Phodynamic therapy (PDT)
IPT - Insulin Potentiation Therapy

Hyperthermia (Heat treatment): a very important modality in cancer therapy

Hyperthermia therapy is a very gentle but nevertheless very effective treatment, and is one of the basic elements of the integrated cancer therapy concept of St. George Hospital. During Hyperthermia therapy, tumorous tissue is heated using different techniques. As a result of this heating:

The cancer cells are damaged
The blood and oxygen supply is reduced, causing an increase of cancer cell killing
The body's own immunological defense mechanisms are activated

Hyperthermia is applied solely or, in combination with radiation, chemotherapy (possibly insulin potentiated) and non toxic biological cancer therapies. Hyperthermia is also used, very successfully, in the aftercare or secondary cancer prevention. Especially metastasis and tumors that are inoperable or resistant to conventional treatments can be influenced favorably by Hyperthermia. There are different forms of Hyperthermia used in the hospital.

Systematic Whole Body Hyperthermia (SWBH)

The Systematic Whole Body Hyperthermia is specifically for all patients with advanced tumors e.g. suffering from cancer of the lung, liver, bones and for patients with malignant lymphomas.

Figure 1. View with the whole body hyperthermia unit of the hospital. We have three units and electively the last five years carried out more than 5000 treatments

Local Regional Hyperthermia

Applied as Superficial Hyperthermia for different types of skin cancer and skin metastasis of other primary tumors.

Applied as Deep Hyperthermia for cancers which are deeply seated for instance in the mediastinum, praesacral area, liver and brain, etc.

Applied as Prostate Hyperthermia

Special form transuretheral hyperthermia (TURF)

Prostate hyperthermia is a special form of hyperthermia; it is applied under local anesthesia. With the help of a catheter, a heat probe is inserted into the urethra and placed in the prostate. The probe does not get hot; it acts on radio wave emitted current. This radio wave passes the normal tissue, easily, but gets caught in the hyperplastic tissue of BPH or the dense tissue of the prostate cancer and then here it is converted into heat. It is a self focusing system; only the diseased tissue gets hot, while the healthy tissue only gets warm and thus will not be damaged by the heat (that means no damage to the urethra, sphincters, etc.). In the diseased tissue we achieve a temperature between 48°-52°C (118.4°-125.6°F) causing benign and malignant tissue to melt. This procedure is controlled by thermal probe of the computer.

Malignant tissue is destroyed within the prostate and replaced by healthy tissue (scar tissue). Patients treated with this method experience a significant improvement in their urination. The prostate will be sterilized from cancer.

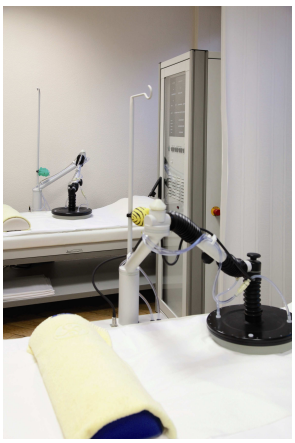

Figure 2. View into the local hyperthermia department. We use Oncotherm machine for instance the EHY-1020 and EHY-2000

Figure 3. Oncotherm machine EHY-1020. This machine is used transuretheral prostate hyperthermia

Figure 4. Oncotherm machine EHY-2000. This machine is used for local superficial prostate and deep local-regional hyperthermia

Electro Cancer Tretment (ECT)

Unlike Hyperthermia, this therapy does not use heat, but electrical current or disc is used. To create a standing electrical field either needles are inserted directly into the tumor or discs are placed on top of the tumor tissue. The electrical field changes the pH-value and the natural electrical charge of the tumor tissue. This disturbs the essential life-processes of the tumor cells and causes them to die. This therapy is used at St. George Hospital for the treatment of:

Breast cancer, especially accelerating forms as inflammatory types
Tumors of the ear, nose and throat, especially throat
Gynecological, urological carcinomas (prostate and bladder) and soft tissue tumors (sarcomas).
Skin cancer such as basal cell carcinoma, spinocellular carcinoma and melanoma.

With this technique we have long time experience (more than 20 years) and achieved excellent results.

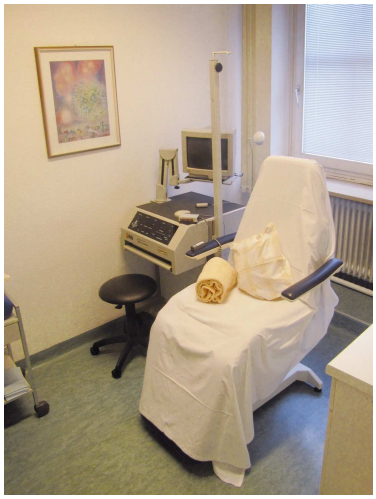

Figure 5. View into the room where ECT is carried out. Electro cancer treatment (ECT) is used especially for superficial cancer, chest wall relapse of breast cancer, skin cancer, etc. ECT works with direct current

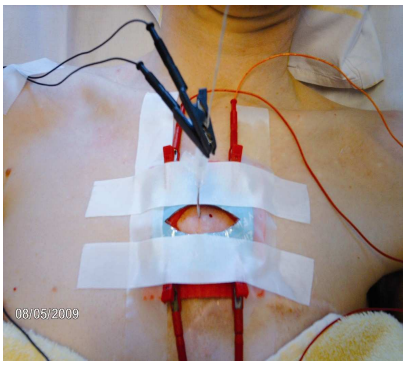

Figure 6. Example of the electrode application

Photodynamic therapy (PDT)

Using special light against cancer – a new treatment modality. Photodynamic Therapy (PDT) is a treatment where a special dye is positioned in or on tissue where it specifically accumulates in the tumor tissue. By using a special light, usually a laser, this area is made fluorescent, thus producing damage to the tumor cell that then results in cell death. These dyes are named Photosensibilisators because it needs a special light before the zytoxic reaction is produced. Herewith, it is possible to create, assuming that they accumulated mainly in the tumor tissue, a locally very effective tumor therapy. This curative approach is aimed at superficial cutaneous and mucosal tumors because they cannot exceed the depth of the light penetration. PDT is more and more used in palliative oncology because it allows for interstitial application of thin light applicators which effectively destroy the tumor in a minimally invasive manner with the least discomfort for the patient.

Currently, PDT is especially used in bronchial, esophageal and bladder cancer and with a vari- ety of skin tumors. Photofrin is authorized for use but it has a relatively slow pharmacogen- esis and a large accumulation in the skin so that the patient has to be protected from intensive light exposure for weeks. This prevents wider use, we do not use it at all.

With the new developed Photo sensitizers and advancements in radiation applicators (new lasers) and light sources the range of indications for PDT has been constantly expanding in the recent years.

In a clinical study, we use a novel dye – natrium salt from Chlorine-e - either topically or systemically.

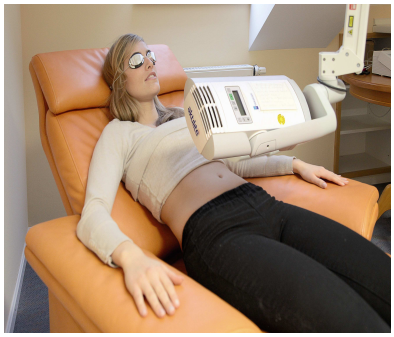

Figure 7. Shows the laser light applied to the tumor site. This technique is indicated for superficial cancer, for instance inflammatory breast cancer

Chlorine-e derivative– a novel, tropically and systemically administrable dye for PDT

This is a derivative of Chlorine-e, a dye that is derived from chlorophyll which has absorption between 660 and 670 nm. With systemic application, it reaches a maximum accumulation in the tumor mass in about three hours. In the healthy tissue we find only a minimal accumula- tion and therefore is the usual protection against intense light exposure not needed. After 24 hours, the dye is also eliminated from the tumor tissue, so that it has to be applied three hours before light exposure. This Chlorine-d derivative is also in a topical version available.

Skin tumors

Due to the easy accessibility of this organ, the dermatological use of PDT is already well advanced. Currently, actinic keratosis and superficial basal cell carcinomas are treated with PDT, especially when a good cosmetic effect needs to be achieved. As shown in the previous clinical results, the remission rates are comparable with surgical procedures.

M. Bowen only has a 12% recurrence rate when using a topical application of 5-ALA (5-aminolevulinic acid). However, the recurrence rate of squamous cell carcinoma is significantly higher, at 24%, with topical application of 5-ALA. Therefore, we conducted a study on actinic keratosis, basal cell carcinoma and squamous cell carcinoma with topically applied Chlorine-e derivative. This Chlorine-e derivative is a water-soluble substance of sodium salt in Chlorine- e6 in a low molecular polyvinylpyrrolidone solution.

Clinical results in skin tumors treated with topical Chlorine-e derivatives

In the study, 10 patients with histologically confirmed squamous or basal cell carcinoma and actinic keratosis were included. Three hours before laser light exposure, the center of the tumor and the surrounding area was rubbed with a Chlorine-e derivative ointment and covered with an occlusion dressing. After removal of the dressing, the tumor center was exposed to a laser light with a 665 nm wave length for 8 – 10 minutes. The intensity of the laser was J/cm^2.

Treatment Results

	Patient #	CR	PR	NC	PD
Actinic keratosis	7	7			
Basal cell carcinoma	5	4	1 (was operated)		
Squamous cell carcinoma	2	2			

The therapy was well tolerated by all patients, possibly because the irradiation induced pain was intercepted by pre treatment intra- or subcutaneous local anesthesia. In 93% was complete remission achieved. The cosmetic result was good. In phase 1, just after light irradiation, there was occurrence of edema and hyperemia in the light exposure zone.

This lasted about two to four days. Then, in phase 2 within 5-15 days necrosis of the tumor developed. In phase 3, between the 15th and 20th day, the necrosis was shedding and the healing process commenced.

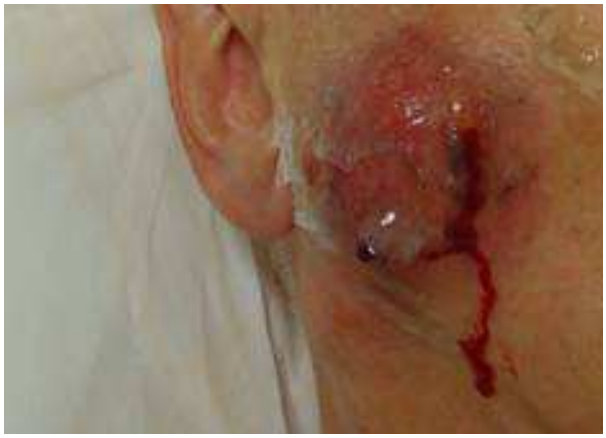

Figure 8. Squamous cell carcinoma remission before PDT

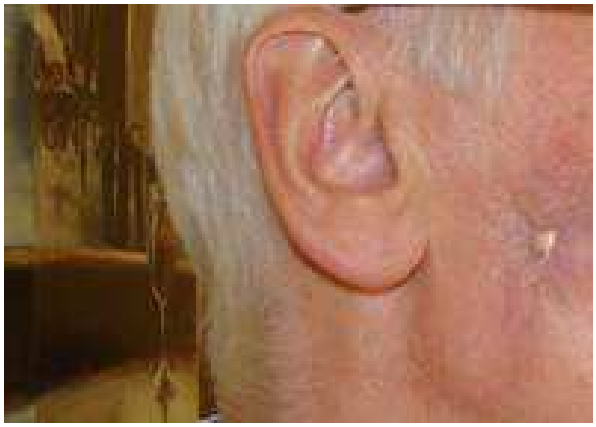

Figure 9. After PDT, complete (CR) with Chlorine-e

Results with localized placed Chlorine-e derivative

Diagnosis	Number of Tumors	Number of Patients	Complete Remission (CR)	Partial
Skin tumors	14	14	91 (%)	3 (%)

A patient, dermatologically treated for years for actinic keratosis, and recurrent basal and squamous cell carcinoma, now again had developed a recurrent squamous cell carcinoma, on the left temple. He was treated with a topical Chlorine-e derivative and, then, irradiated with 665 nm laser light using a total energy of J / cm ², after which he had a complete remission.

Applications of PDT in melanoma

Usually, the melanoma, due to their color intensity, are not accessible by PDT. However, with Chlorine-e derivative in the tumor tissue we were able to use PDT in a limited number of melanoma and achieved good results.

Insulin Potentiation Therapy

Insulin Potentiation Therapy (IPT) is a simple medical procedure that uses the hormone insulin, followed by chemotherapy and glucose to make chemotherapy drugs, in smaller doses, more effective with few to no side effects.

There are no double-blind, placebo controlled studies for IPT, but a lot of experience and positive case reports, world wide. We have almost 10 years of our own experience and so positive that we integrated it into our cancer treatment concept (ICTC). IPT was basically developed as a result of a better understanding of the cancer physiology and how the body works. It was shown that cancer patients can be treated with less toxicity than in conventional medicine.

The Mexican doctor Perez Garcia, MD, was the first who noticed that insulin, when combined with certain medications and nutrients was useful for treating various health problems. He found that, when combined with low dose chemotherapy, insulin was very effective for treating cancer patients.

In order to understand how IPT works, it is important to first explain the cancer cell physiology and compare it to that of normal cells. Cancer cells have six times more insulin receptors on the surface of their membranes than normal cells, and ten times as many IGF-1 factors, or Insulin growth Factor-1 receptors. Insulin stimulates growth and the cell uptake of glucose for energy production. It also transports amino acids and Vitamins into the cells. Cancer has a higher metabolism than normal cells and depends on sugar. It prefers mainly sugar and simple carbohydrates since it doesn't metabolize fats and proteins very well. Cancer cells are sugar robbers.

Because of PET scans, we know that cancer has a higher need for sugar than normal. They show areas of increased metabolic activity in the body. In a PET scan labeled sugar is injected, which then is selectively taken up by cancer because it has an elevated metabolism and a higher use for sugar, this, then, can be detected by the scanners. The labeled sugar molecules go to areas with increased metabolic activity (fig 10), meaning that sugar is picked up much faster by them. When the sugar blood level drops after a certain dose of insulin is given to a patient, adrenaline and epinephrine is released. The patient feels hot, sweaty and sometimes drowsy, this occurs mainly, when blood sugar is down to 50 mg/dl. We call this the „therapeutic moment“ or „therapeutic window“. The tumor needs more sugar for its energy production supported by the higher concentration of insulin receptors, so it picks up sugar a lot faster, when insulin is given IV during IPT.

Figure 10. Laboratory monitoring

When adrenaline and insulin occur together in a low blood sugar state, cancer cells and other inflamed cells become much more receptive to whatever substances are introduced to them by

IV, including chemotherapy. This means that we can give much lower doses of chemotherapy to the patient, and the therapeutic effects will be greatly enhanced, or potentiated by the insulin. The drugs are selectively absorbed by the cancer cells and the normal cells are mainly protected. Only one to two-tenth of the full chemotherapy dose is needed to obtain effective results, and it can be administered in a much shorter period of time than regular chemotherapy. In order for IPT to be effective, the patient's blood sugar levels must be dropped to 30- 40 mg/dL (the normal range is 65-99 mg/dL). Despite this, the procedure is pretty safe, if necessary, the blood sugar level can quickly be restored to normal by giving an infusion of glucose

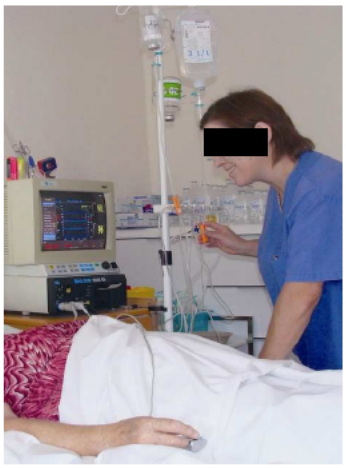

Figure 11. Intensive care of patients receiving IPT

Chemotherapy Sensitivity Testing

Two patients with the same type of cancer can be sensitive to a whole different array of chemotherapeutic agents, so instead of grouping all of our patients together and giving them all the same agents, we do chemotherapy sensitivity tests. These determine the specific chemotherapy agents that their tumor cells may best respond to. There are two labs we use for this purpose; one is in Hamburg (Metavectum), the other is in Bayreuth (Dr. Pachmann). The Metavectum Institute (Dr. B. Stefan) extracts circulating tumor cells from patients' blood samples and performs a genomic and proteomic analysis. According to the results we can then choose the agents that the cancer cells have the highest response to and preferably use these substances for treatment. The Metavectum lab also provides us with comprehensive information on the genetic makeup of the tested cancers, which helps us to determine, not only, the appropriate therapies for our patients, but we also get more precise information about the biology of the tumor, which is very important for the prognosis. Once we have this information, ideally, we will put together an individualized treatment regimen for the patient. It takes ten days for the results of Metavectum to come back. Another advantage of this test is that only a blood sample is required to do it, rather than tissue from the tumor itself. So, unlike some other types of chemotherapy sensitivity testing where cancer tissue is necessary, it's safe for us to use this test with isolating circulating tumor cells from peripherical blood, especially in those with metastatic disease.

Most doctors, world wide, will not even look at this type of testing, but we find it helpful. Sometimes we are using drugs that I, as an oncologist, wouldn't even think of using to treat these types of cancer. For example, we learned that many cancers have a high production of cyclooxigenase 2 (COX2) which is a mediator causing inflammation and it is also helping cancer to proliferate. By just prescribing a COX2 inhibitor we can interfere with the tumor activity. With this testing we also receive information on which complementary drugs or supplements could be helpful and we find that this works well.

So, we are not only able to figure out the best treatment for our patients through chemotherapy sensitivity testing and the IPT process, but years ago we also developed an integrative cancer therapy concept (ICTC) that also includes hyperthermia, ECT and PDT to make treatments more tolerable and effective for them.

Pretreatment Protocol

In addition to the cancer destructive efforts, which include hyperthermia in combination with IPT, we give our patients obligatory IVs, composed of several nutritional supplements. We administer these prior to chemotherapy, hyperthermia & IPT. These substances make the treatment modalities more effective by increasing the sensitivity of cancer tissue to our treatment. This combination prevents the cancer from repairing itself, after it has been damaged by hyperthermia and chemotherapy. With hyperthermia and IPT we can overcome the multi drug resistance (MDR) most cancers have, especially if they have been treated with several chemotherapy regimens before. Although, our complementary treatment is clearly intended to have its greatest effects at the cancer site, it has additional benefits of boosting the immune system and detoxification at the same time.

One of the substances that we use in the pre-cancer nutritional IV is high dosed Vitamin C. We give patients this vitamin in a high dose to use it as prooxidant (see high dosed Vitamin C in cancer). We also give amino acid both orally and intravenously before they start treatments, we include in the IV amino acids, bicarbonate, procaine but also bioactive substances. Furthermore, we give artemisinin, resveratrol, quercetin, curcumin and a green tea extract known as EGCG. Each one of these substances has a different effect upon the cancer and patients' symptoms. For instance, glutamine boosts neutrophil, macrophage and other immune cell counts and is a source of food for them. Glutamine has additional anti- cancer properties, and protects the GI tract against the side effects of chemotherapy.

In oncology we very often struggle to overcome the MDR-1 (multi-drug resistance-1) gene in cancer. This gene stands for a pump in the cancer cell called the Pgp pump, which removes chemotherapy drugs from the cancer cells. Hyperthermia and IPT can inhibit this pump, but also nutrition can influence it.

Figure 12. Out patient infusion room. We have six chairs. The room is operated by 3 RNs and a physician

Conventional Chemotherapy versus IPT

When patients' cancers respond well to conventional therapy, as in cases of leukemia, lymphoma, or testicular cancer, we prefer the conventional approach in combination with local or systemic hyperthermia, to optimize treatment effect. We also support them with orthomolecular medicine, which helps them to go through their conventional treatments and reduces the side effects of those treatments. We can do IPT for these cancers too, but it is often not necessary.

IPT does work in most types of cancer, though we apply it only in such cases where patients wish it, because the insurances do not cover this therapy. Sometimes, insurance companies are very strict and tell their clients not to take IPT, because they would only pay for conventional chemotherapy and, of course, for all the side effects thereof. We regularly observe that patients respond well to IPT, especially when combined with hyperthermia with fewer side effects than if they had done the conventional full-dose chemotherapy. Some patients that stopped conventional care due to side effects had no problems with IPT and achieved the full positive treatment effect we had expected. We always observe that, compared to conventional treatments, patients using our integrative cancer therapy concept (ICTC) have less deterioration of their life quality. Our patients are, generally, very well educated and don't want conventional treatment alone. They prefer a combination like we provide in our integrative cancer therapy concept, i.e. nutrition, orthomolecular medicine, detoxification, hyperthermia, ECT, PDT and psychotherapy. Many of our patients already had conventional therapy, but either the side effects of their conventional treatments were intolerable or they didn't respond to the treatments. Then, they make their own decisions regarding treatment (rather than allowing someone else especially not the insurances to dictate what they should do or not). Usually, we don't have to discuss whether our integrative cancer therapy concept (which includes conventional and complementary therapies) or conventional medicine alone is best for them. They come here because they want to be here. People look for us; we don't look for them. They come to us because they don't want conventional treatment only, they want more.

We have no animosity towards mainstream medicine, but we prefer to do it more effective, better tolerated with better life quality and better prognosis. One day, our conception may become the mainstream type of treatment as more and more people become aware of its benefits.

Treating Hormone Imbalances

It's important for us to treat our patients' hormone imbalances, especially if they have hormonally driven cancers, such as breast, prostate, ovaries, and uterus. To determine hormonal status, we take tests that provide us with the actual hormone levels, and help us determine how to treat them. If women have hormonally driven cancers, it's important that we get their estradiol (and some of their other hormones) into a less proliferative state. Estradiol is one of three types of estrogen that the body produces which contributes to cancer growth. Estriol, or E-3, is a less proliferative hormone than estradiol E-2. E-2 is a great hormone for females to have as girls when they are becoming women, but women in their 50s and 60s need more estriol, not estradiol.

Unfortunately, we live in a society where we are exposed to chemicals and toxins, such as polystyrene, which are mimicking and creating more estradiol in our bodies. We call such substance xenoestrogens. As a result, men are becoming more feminine, gaining weight, developing insulin resistance, and getting bigger breasts. These chemicals stored in the fat tissue are estrogen-aggravating, which perpetuates the problem. Women face similar problems as a result of excess estrogen. Also, estrogens interfere with thyroid function, so the thyroid function becomes disturbed. Most women with breast cancer also have a thyroid dysfunction and need special support. Then the liver, for instance, has difficulty metabolizing all the estrogen resulting in

estrogen dominance in the body. This, then, worsens insulin resistance and creates a lot of unnecessary other problems like metabolizing estradiol to 16 OH-estradiol, which might be carcinogenic.
Excess estrogen not only has an effect upon cancer, but upon the immune and nervous systems, as well. We therefore treat imbalances in each one of these systems so that they work together better, as a whole.

The body's hormonal system is based primarily on the thyroid, adrenal gland, and sex hormones. It's important to make sure that all of these hormones are functioning properly, because they affect not only cancer growth but also patients' overall health. We have many patients who have low thyroid and adrenal function, and their sex hormones are also low. So what they need is a hormonal balance. In this context we just replace the missing hormones and also try to balance it by giving liquid glandular formulas. We use these from "Cell Immune®" it contains proteins and peptides, as well as other growth factors and signaling molecules and mesenchyme tissue from the umbilical cord of sheep (the latter is a type of loose, connective embryonic tissue). We further use several other agents for adrenal and thyroid support, as well.

Treating Immune System Imbalances and Infections

We don't just do tests to determine the status of our patients' cancers and hormones; we also look for any other problems that might be impacting their health. Through additional testing, we often find that we need to detoxify them and clean up their immune systems. For instance, in the beginning of our treatment, we measure inflammatory mediators, such as CRP, Procalcitonin, a-TNF, Il-6, NFkB to determine what is causing the inflammation in their bodies and how severe it is. We check the status of their immune system to see, for example, what the T-cells and natural killer (NK) cells are doing. For this we utilize a special function test. With this information we can actively balance the immune system and make it work against the cancer. When patients have chronic infections that weaken their immune systems it impairs their ability to fight cancer.

The immune system is composed of a variety of different cells that all have specific duties, for instance the T-Helper cells are divided into three different subtypes Th-1, Th-2 and T-regs (so called regulating cells) and the ratios of these should be balanced. That is not always easy, but possible.

In addition, to support the immune system with xenogenic peptide, thymus factor, nutrients, etc. we look for other chronic diseases our patients may have in addition to the cancer, for instance Lyme disease and other infections. In case that it is necessary we will treat these also. Especially Lyme disease is very sensitive to heat treatment and will disappear mostly after one or two whole body hyperthermia treatments in combination with IPT (with antibiotics). By using whole body hyperthermia with IPT in cancer patients with infections, we are thus able to kill two birds with one stone.

Brain Chemistry

The brain, like the immune system, has its own balancing mechanisms, which can be categorized as excitatory inhibitory. The inhibitory mechanisms put the body to sleep, while the excitatory mechanisms keep it functioning during the day. It is not good to have too many excitatory mechanisms without inhibitory ones and vice versa because otherwise people get ill. Our patients often have not enough inhibitory- supporting neurotransmitters such as Serotonin, so their mood is down, nor do they have enough excitatory neurotransmitters, so they have no energy. With a

Neurostress test, we can obtain information on our patients' brain chemistry, and then determine which treatment is indicated to correct their neurotransmitter deficiencies. We can treat the body's Serotonin levels, with a combination of 5-hydroxy tryptophan (5-HPT), SAme, zinc, B6, and other vitamins; this helps the patients to maintain a positive mood and good quality of sleep. Serotonin also helps to activate the rest of the brain; it's the gateway to the entire functioning of the brain and its chemistry. Balancing the hormones and immune system also has a positive effect upon brain chemistry.

Figure 13. Laboratory for monitoring our patients

Other Tests and Treatments to Heal and Support

We also give high dose Vitamin C and K-3 IVs, and do detoxification therapy. Vitamin C appears to a cancer cell as a sugar molecule and is quickly taken up by the cancer. Once the Vitamin C connects with an iron molecule in the cell, peroxide is released, which injures the cells internally. Because cancer cells have low activity of catalase and superoxiddismutase they have a difficult time repairing from such damage. Vitamin K-3 augments the effects of Vitamin C and helps to inhibit cancer growth.

Finally, many of our patients have low Vitamin D levels, so we often prescribe 10,000-15,000 units of Vitamin D per day, along with choleretics and pancreas enzymes to help digest fat, if they have trouble digesting these fats (since Vitamin D is fat-soluble). Some patients have a poor antioxidant status, as a result of not being able to digest fats and proteins (and hence their nutrients), so we add enzymes to their regimens which aid in protein and fat digestion. We also give them antioxidant support in the form of supplements. We find it important to restore everything during the specific cancer treatment. This restoration, usually, cannot be accomplished in a short period of time. Thus, we inform and teach our patients that the treatments have to be followed by an extended period of time, perhaps many months.

Figure 14. Green Tea

In summary, we look at different parameters in our patients, and try to improve those. The healthier the patient as carrier of the cancer is, the more difficult is it for the cancer to grow. With our integrative cancer therapy concept we not only attack the cancer, but support the host.