It has been challenging to look at the evidence for a simple medical procedure called BioPhotonic Therapy or Ultraviolet Blood Irradiation (UBI). It is astounding…almost tabloid stuff. The scope of diseases….the % of people helped…phenomenal.

Will you look over the data that I have assimilated and perhaps see what I have seen? After days of study and discussion it would seem that Ultraviolet Light Blood Therapy (UBI) is a unused cure for a host of diseases and illnesses. It does not seem to fit in the same category as undocumented, Alternative medicine.

Easy, Simple, Painless (a needle poke is all) … like going to get blood drawn and sitting in a recliner for 1 hr.
Over 140 Published medical studies confirming its positive effect.
Success rates from 50% to 100% are documented for over 50 different ailments
Inexpensive – about $ 200 per treatment

I have need to venture outside of our current drug-prescribing culture and consider…

There is little to lose and a lot to gain
There are virtually no side affects – 70 yrs of use in over 1 million patients

A medical friend of mine - a missionary in Africa - saw first hand its results and then has tried it here with the same remarkable results. I have talked with people first hand who have been cured of sickness after our medical, drug-trying system failed them.

For your perusal, I have assimilated some of the studies, a list of diseases and a couple of web sites and a few testimonials. I challenge you to Look, Study and Act for yourself, your health and the care of those you love. Please get back to me with your thoughts

The Report

The first two pages are simple:
1) American Cancer Society
2) New Release of the FDA reviewing UBI data (MSU and John Hopkins U are working on this)
3) Illnesses and health problems that are treated by UBI
4) Testimonials and two websites that present the ideas fairly and concisely.

Drilling deeper there is:
5) A short history and how it works from Dr Edwards MD web site
6) The UV Factor from an association that distributes information on medical light uses.

For those who want the studies with associated References to back up what is said there is:
7) Dr Carl Schleicher – Application of UBI…
8) Medical Journal report " UBI Therapy – The Cure That Time Forgot" by Robert Jay Rowen, MD – Omni Medical Center

UBI Light Therapy from the American Cancer Society web page

Quote from below:

" Ultraviolet blood irradiation treatment is approved by the US Food and Drug Administration for treating T-cell lymphoma involving the skin. Clinical trials look promising for the treatment of immune system diseases such as multiple sclerosis, rheumatoid arthritis, lupus, rejection of transplanted organs, and graft-versus-host disease…)."

Excerpts from their site http://www.cancer.org/docroot/ETO/content/ETO_5_3X_Light_Therapy.asp

Other common name(s): ultraviolet light therapy, UV, ultraviolet blood irradiation,

Scientific/medical name(s): phototherapy, ultraviolet phototherapy, photopheresis, extracorporeal photochemotherapy, photodynamic therapy

DESCRIPTION Light therapy involves the use of visible light or non-visible ultraviolet light to treat a variety of conditions.

OVERVIEWA special form of UV blood irradiation, called photopheresis or extracorporeal photochemotherapy, also inhibits T-cell lymphoma and may be helpful for other conditions..

UV blood irradiation. Proponents of UV blood irradiation claim that UV light exposure kills germs such as viruses, bacteria, and fungi inside the body, and that it neutralizes toxins in the blood. Some claim that when even a very small amount of UV-treated blood re-enters the circulatory system of the patient it stimulates the immune system and increases attacks against invaders, including cancer cells.

What is the history behind it? Interest in the relationship between light and health dates back centuries. All forms of light therapy now in use started during the 20th century. The first reports of ultraviolet blood irradiation date back to the 1930s.

What is the evidence? *Ultraviolet blood irradiation* treatment is approved by the US Food and Drug Administration for treating T-cell lymphoma involving the skin. Clinical trials look promising for the treatment of immune system diseases such as multiple sclerosis, rheumatoid arthritis, lupus, rejection of transplanted organs, and graft-versus-host disease (a complication related to bone marrow or stem cell transplants). Available scientific evidence does not support claims for alternative uses of UV blood irradiation.

Herrmann JJ, Roenigk HH Jr, Honigsmann H. Ultraviolet radiation for treatment of cutaneous T-cell lymphoma. *Hematol Oncol Clin North Am.* 1995;9:1077-1088.

Ilhan O, Arat M, Arslan O, Ayyildiz E, Sanli H, Beksac M, Ozcan M, Gurman G, Akan H. Extracorporeal photoimmunotherapy for the treatment of steroid refractory progressive chronic graft-versus-host disease. *Transfus Apheresis Sci.* 2004 Jun;30(3):185-7.

Knobler R, Girardi M. Extracorporeal photochemoimmunotherapy in cutaneous T cell lymphomas. *Annals of the New York Academy of Sciences*. 2001. 941:123-38.

Marques MB. Tuncer HH. Photopheresis in solid organ transplant rejection. *Journal of Clinical Apheresis 2006*. 21(1):72-7.

Woltz P. Castro K. Park BJ. Care for patients undergoing extracorporeal photopheresis to treat chronic graft-versus-host disease: review of the evidence. *Clinical Journal of Oncology Nursing* 2006 Dec. 10(6):795-802.

FDA Agrees to review Data for UBI (UV light Blood Irradiation)

http://newsgroups.derkeiler.com/Archive/Misc/misc.health.alternative/2007-08/msg00586.html

Date: Mon, 27 Aug 2007

The last two decades have seen an escalation of immune-related illnesses such as fibromyalgia (FM), chronic fatigue syndrome (CFS), allergic conditions and HIV/AIDS. This has led to a revival of interest among medical practitioners worldwide regarding the ability of ultraviolet blood irradiation (UBI) in the treatment of such disorders.

This procedures involves extracting 100 ml of the `patient's blood, irradiating it with ultraviolet light, and then returning it to the patient's body in a sterile, closed-loop system.

As a simple, non-toxic, Food and Drug Administration (FDA)-approved procedure, UBI is a potent immune system stimulant, and was used extensively worldwide between 1930 and 1965 for the successful treatment of a wide range of advanced viral and bacterial illnesses. Not only did it demonstrate potent antiviral and antibacterial effects, but it also had the huge advantage of producing no serious documented side-effects after being administered to more than 30,000 patients over a period of 70 years.1

The dramatic advances in antibiotics, vaccines and corticosteroids in the 1950s unfortunately put a halt to the growing interest in UBI at the time. Even though it was illogical to set aside a therapy that could treat viral diseases that were impervious to antibiotics, such as chronic hepatitis and viral pneumonia, interest in UBI only began to resurface in the '80s and '90s when the limitations of antibiotics and steroids in treating chronic auto-immune illnesses became obvious.

UBI presents an interesting and relatively low-cost alternative for patients willing to try this therapeutic modality, with international feedback on the response of auto-immune conditions to UBI showing great promise. Steps have been taken to arrange protocols at a few major university medical research centres in the United States. The focus will be on the treatment of HIV, hepatitis, malaria and those viruses immune to current antibiotics.2

UBI has proved to be highly effective in treating bacterial infections, including septicaemias, pneumonia, wound infections, peritonitis and typhoid. Its efficacy has also been noted in treating profound toxaemias, where it has often served as a life-saving measure.3

How UBI works

The US Foundation for Blood Irradiation (FFBI) manual emphasizes that UBI is a non-specific therapy, as its exact mode of operation is unknown. There are repeated suggestions in many archaic articles, modern lay publications and physicians' websites, however, of UBI acting as a powerful immune stimulant.4

Laboratory studies have demonstrated that UV light deactivates viruses and bacteria. Clinically, the
general hypothesis is that UBI penetrates and destroys viral and bacterial walls (but not white and red blood cells), with the residual debris stimulating an antibody-antigen reaction, facilitating destruction of intact viruses and bacteria by macrophage (a large

scavenger cell) white blood cells.

Physiologically, UBI has been shown to:
* increase blood oxygen levels5
* deactivate bacteria, viruses and fungal growth6
* cause a detoxification effect, deactivating both snake venoms and bacterial toxins7
* enhance phagocytosis (engulfing of foreign matter/debris/microbes/tumour cells) by activated macrophage cells
* cause vasodilatation and decrease oedema8
* activate steroids and cortisone-like molecules (sterols) including vitamin D
* control nausea and vomiting.9

The blood that is exposed to the ultraviolet light continues to emit secondary radiation and some scientists believe that this may be the way that ultraviolet blood irradiation has cumulative effects. Each treatment also builds on and enhances the effects of previous treatments.

Gynecologist, Dr Sterna Franzsen, has a special interest in treating allergic conditions and CFS, and reports that her patients with eczema or CFS improved noticeably, either totally or in part, after receiving UBI treatment. 'With severe eczemas, which do not respond to dietary intervention, UBI is the only viable alternative to cortisone', she says. 'Thus, UBI is a breakthrough therapy for many of these patients. It is certainly not infallible and there is no guarantee that UBI will work for all patients, especially those with auto-immune illnesses. But having said that, I don't know of any medical treatment that works 100% of the time.'

Port Elizabeth-based medical practitioner, Dr Charles Wildervanck, has also noted significant improvements in patients treated with UBI therapy for severe eczemas as well as rheumatoid arthritis, psoriasis and cancer.

In the case of CFS, international and local case studies demonstrate a clinical improvement in 60 - 80% of the patients treated. The response of FM patients to UBI is more encouraging with both local and international case studies showing a partial or total remission of symptoms in up to 100% of sufferers exposed to UBI therapy.

However, until definitive clinical trials are published confirming the efficacy of UBI in treating specific auto-immune illnesses such as CFS and FM, sufferers who undertake UBI treatment need to understand that they are doing so on the basis of case study results, and clinical trials conducted on other viral and bacterial infectious disorders.

The future of UBI

According to the American Foundation For Blood Irradiation (FFBI), studies are in process to evaluate the use of UBI in the treatment of Alzheimer's disease, malaria and CFS.10

The FDA agreed recently to review data it will receive from Michigan State University on the effectiveness of UBI in treating AIDS. Johns Hopkins University and the National Cancer Institute are also researching the uses of UBI.11

References:
A copy of the references is available from the SAJNM office, Tel 021-880 1444

Ultraviolet Blood Irradiation Treatment Indications

TREATMENT TYPES AND NAMES

Ultraviolet Blood Irradiation (UVBI/UBI/BI)
Extracorporeal Photopheresis
Extracorporeal Photochemotherapy (ECP)
Photobiomodulation
Hematologic Oxidative Therapy
Photo-Oxidation
Photomedicine
Photo-Luminescence

CANCER

Lymphoma

VIRAL INFECTIONS

Hepatitis
Influenza
Common upper respiratory disease
Herpes simplex/zoster
Mononucleosis
Mumps
Measles Infections

BACTERIAL INFECTIONS

Pneumonia
Wound Infections
Septicemia (staphyloccocus, streptococcus, pneumococcus)
lymphatic infections (lymphangitis)
Peritonitis
Typhoid Fever
Recurrent skin infections (furunculosis, carbunulosis)

INFLAMMATORY CONDITIONS

Rheumatoid arthritis
Acute thrombophlebitis
Fibrositis
Bursitis
Nephritis
Iritis
Uveitis
Cholecystitis
Pancreatitis

CIRCULATION CONDITIONS

Varicose and diabetic ulcers
Peripheral vascular disease
Gangrene
Vascular headaches

OTHERS CONDITIONS

Non-healing wounds and fractures
Inactivation of snake venom
Blood poisoning
Infection
Relieves toxemia
Decreases edema (swelling)
Arthritis

OTHERS CONDITIONS (cont)

Asthma
Blood poisoning
E-Coli
Wound infections
Diphtheria
Tetanus
Inactivation of bacteria
Improves circulation
Pemphigus
Emphysema
Poliomyelitis
polio-encephalitis
myelitis
Candidiasis
Chronic fatigue
Allergies
Diabetic complications
Rheumatologic diseases
Acute colds
Fibromyalgia
Help with poor circulation
Brain dysfunction - stroke
Sinusitis
Bronchitis
Autoimmune diseases
Chemical sensitivity

Other Activities of UBI Treatments

Enhances weak immune systems
Increases the blood oxygen level
Increase phagocytosis (white blood cell activity)
Adjunctive cancer treatment
Balances the bodies alkalinity
Increases intracellular antioxidants
Neutralize free radicals
Balancing of calcium phosphorous
Lowers blood surface tension
Accelerates the lymphatic system
Helps circulatory activities
Stimulates antibody production
Immunizes the body against disease
Activates steroid hormones
Positive effect on the autonomic nervous system
Stimulates corticosteroid production
Reduce nausea/vomiting
Arterial disease - reduction in atherosclerotic plaque

Graduate of the Miami School of Medicine, Graduate of the Naval School of Aviation and Space Medicine and National Health Federation "Doctor of the Year 1985." He worked alongside scientists at the Pastuer Institute for 1 year in Russia and set up and operated an AIDS clinic in Uganda , Africa. Many terminal stage AIDS patients made full recoveries using his UBI protocol. He was also the past president of the Florida College of ER docs-many ER techniques in every hospital in America were invented by Douglass.

Dr. Douglas' quote concerning UBI: " If you knew of a procedure that could save thousands-maybe millions-would you cover it up? It is unthinkable that what could be the best solution ever to stopping the world's killer diseases is being ignored, scorned, and rejected. But that is exactly what is happening right now. The procedure is called "photoluminescence (UBI)". It is a thoroughly tested, proven therapy that uses the healing power of light to perform almost miraculous cures. This remarkable treatment works its incredible cures by stimulating the body's OWN immune responses. That is why it cures so many ailments-and why it has been especially effective against AIDS. Yet, 50 years ago it virtually disappeared from the halls of medicine."

Some Testimonies of UBI Success Stories

Rheumatoid arthritis & Asthma

Dr Henry Barrett reported on 110 cases of UBI in 1940 (Medical Clinics of America, May, 1940) Most patients received one treatment-some as many as eight. He noted several patients suffering from rheumatoid arthritis-these patients improved remarkably within a few hours. One case was of a patient suffering from serious bronchial asthma attacks for over four years. The patient was in the hospital, and despite medication , was having several asthma attacks per day. After one UBI treatment her doctor reported the next day that she had only one attack that day. After that she had 2-3 asthma episodes a week for 3 weeks. The attacks became fewer and fewer and became absent for months after a single treatment.

Barrett reported on his 110 cases:

1. No detrimental reactions from UBI.
2. Improvement is frequently immediate.
3. Increase in peripheral circulation (due to vasodilation).
4. Increase in oxygen combining power of the blood.
5. Inactivation of toxins in the blood.

Shingles

Dr Miley also reported on 6 patients with herpes zoster infection-"shingles". Infection was nullified to the point that the patients became asymptomatic with no relapses. In January , 1942, Dr. Miley made the following observations-(NY State Journal of Medicine, Jan.1, 1942) " The detoxification effect of ultraviolet is generally not known by the medical profession and certainly has not been emphasized enough. The inactictivation of snake venoms and bacterial toxins are examples of what may be accomplished by ultraviolet. The increased of blood irradiated with ultraviolet to absorb oxygen has been demonstrated. As a rule, rather low dosages of externally applied ultraviolet radiations stimulate the general resistance of animals and human beings to infection."

Poison Ivy

I had suffered from allergies-most notably poison ivy eruptions-for years with my landscaping business. The Poison ivy outbreaks were so bad not even caladryl lotion would work on the blisters-I had to use Chlorox. Since my first UBI treatment I have not had so much as a blister-much less an outbreak.

Malignant Melanoma

"D.P., a 30-year-old white male, was admitted to the hospital with a diagnosis of generalized malignant melanoma (a virulent form of skin cancer).

"Eleven years previous(ly), a malignant melanoma had been removed from his right upper arm. When admitted to the hospital by Dr. Olney, he had a tumor mass under the skin at the upper left chest just below the clavicle (collar bone). Excision and biopsy revealed that the malignant melanoma had returned. He quickly developed metastases (tumor spread) all over his body, and his abdomen became very large from tumor growth. He had difficulty in breathing, had a constant cough, and was obviously in serious condition. He was blue in the face, and cancer could be felt throughout his abdomen.

"The patient was given ultraviolet blood irradiation (UVBI) therapy immediately and approximately every three days for about one week and then weekly. Within three weeks, the large tumor mass in his right armpit had disappeared as well as a tumor on the right chest wall; the abdomen became definitely smaller, and the tumor masses much less palpable. At the end of six weeks of treatment, the patient had no difficulty in breathing; his right leg, which had been extremely swollen, was normal and free of pain; and the abdomen had returned to normal size with no fluid or tumor masses palpable."

Herpes

I know how you feel believe me....I was in pain for so many many years, I wasted a lot of tears on this virus crying all the time..herpes was in my daily thoughts..why me, I'm a good person...I kept repeating that to myself and crying alone....But I know now that I will be free of this virus, I will and so will you..

I don't get outbreaks as often and they are tiny ones now this one started and healed within 24 hours...!! Nothing I have ever tried worked like this. I am so happy..

Gangerene

Drs were considering amputation. The man's foot was near black from gangarene. We gave him 2 UBI treatments for 4 weeks and documentsed this with photos. The man's foot completely healed. It was truly a medical miracle

Rabies

A boy was brought to our medical clinic in Africa in the last stages of rabies. We had no medicines to help him and so decided to try the UBI machine that had been brought for out use. It was Wednesday. He was foaming at the mouth, glazed eyes, fevered…classic symptoms. The first treatment immediatley had calming effects and he was stable within hours. Two more treatements and two days later he walked out…totally cured.

Tubercerluosis

In Russia, PT is used in conjunction with drugs, and the results have been published in *Problemy Tuberkuleza,* the leading Russian medical journal. Two groups were treated for TB, the first group with PT and drugs, the second group with drugs only. After three months, the first group was one hundred percent disease free as opposed to fifty eight percent for the second group.

There are published reports on its use in bacterial diseases, including septicemias, pneumonias, peritonitis, wound infections; viral infections including acute and chronic hepatitis, atypical pneumonias, poliomyelitis, encephalitis, mumps, measles, mononucleosis, and herpes; circulatory conditions including thrombophlebitis, peripheral vascular arterial disease, and diabetic ulcer; overwhelming toxemias, non-healing wounds and delayed union of fractures, rheumatoid arthritis, and a number of others (Barger & Knott, 1950).

You can find your own sites and do your own research by using Google and then launching from there.

Type in…. ultraviolet light blood therapy, UBI, UVBI, photoluminescence, etc

Home page for the Medical Light Association
http://www.medicallightassociation.com/?q=node/84

The Medical Light Association (MLA) is dedicated to advancing awareness of the increasing use of Light Therapy in the areas of health and medicine. Recently established, MLA has created a unique alliance and discussion vehicle for communication among the many different types of medical light practitioners. By putting together the world's leading photonic researchers, from doctors and scientists to engineers and developers, this consortium facilitates communicating information on new ways to combat some of the most serious health threats facing humanity.

Dr A. Edwards – Multifaceted health approaches including UBI

http://biohealthcenter.com/uvbrx.html

Home Page for Dr Patrick Magovern – Some general overview ideas on UBI

http://www.drummartinclinic.ie/Ultraviolet_Blood_Irradiation.html

Sites to discover claims of fraud

http://www.skepdic.com/tialtmed.html site of skepticism for medical practices

http://www.ncahf.org/ National Council Against Health Fraud

UVBI - Ultra Violet Blood Irradiation

http://www.biohealthcenter.com/uvbrx.html

David A. Edwards, MD, HMD
McCarran Quail Park
615 Sierra Rose Drive, Suite 3; Reno • NV • 89511 Phone: 775.828.4055 • Fax: 775.828.4255

Short History of UBI

It is well known Ultra Violet (UV) Light will purify and deodorize air, sterilize water and destroy micro-organisms in waste products. Contaminated objects such as surgical instruments, bedding, room air and human skin is also cleansed rapidly of viruses and bacteria with the use of UV light. Research into the use and efficacy of UV light for treatment of disease was initiated in the 1870's and continued until the late 1940's.

One of the first researchers to experiment with UV light was Niels Ryberg Finsen, who won the Nobel Prize for "Physiology of Medicine" in 1903. Beginning in the 1920's and continuing through the 1930's, Seattle scientist Emmet Knott, D.Sc., sought to harness, in an extracorporeal way, the known bactericidal property of ultraviolet rays in order to treat infectious disease. Knott's patented device received FDA "grandfather" status as a device that was sold and distributed in interstate commerce prior to 1976. Knott's device removed blood from the body, anti-coagulated it, exposed it to a small, calibrated frequency and dose of UV light, and then pumped it back into the body.

Ultra Violet Blood Irradiation called "UVBI" for short, came to be used to treat bacterial, viral, and autoimmune diseases. Unfortunately, enthusiasm over "new" antibiotics and vaccines in the 1950s caused the UVBI device to be placed on the shelf, despite the fact that for certain indications (hepatitis, viral pneumonia, and streptococcal toxemia) UVBI treatment was demonstrably superior. Research into this effective therapy came to a virtual halt. From 1955 until the 1990s, only a few American physicians continued to work with UVBI. The technique was never again taught in medical schools or academic training centers.

Russia, Germany and UBI

In the 1970s interest in UVBI was revived in Russia. About the same time Dr. Edelson at Yale University developed a new form of UVBI termed "photopheresis", which entailed triggering chemotherapy with a small dose of UVBI. By the 1990s, Russian physicians were using low-intensity lasers beamed down a wave-guide directly into the blood called Laser Blood Irradiation (LBI) to achieve clinically equivalent effects.

American medical science has simply overlooked the many reports of clinical trials of UVBI and LBI in Russian and East German medical journals and books over the past two decades, most probably because the "focus" of research investment funds has been on expensive, patented nonrenewable drugs. The development of multi-drug resistance to antibiotics in recent years and the search for less toxic therapies led to a renewed interest in UVBI among clinicians and countries less wealthy than the U.S.

Scores of clinical trials using UVBI have been conducted in Russia, Ukraine, and the former East Germany. The therapeutic use of Light Therapy, technically called "Photoluminescence Therapy" or "Photo- Therapy" for short, has far reaching clinical implications in the treatment and/or prevention of infectious and immune dysregulation diseases. Photo-Therapy is an extremely simple and safe method of treatment. It has been scientifically determined that UV light delivered in a specific nanometer range has been most effective in destroying blood borne microbes.

How UBI Works

The procedure is performed by removing a small amount of blood (250cc's or about one half a pint) from a vein, passing it through a sterile crystalline chamber exposed to a specific frequency and strength of UV light and then returned to the body. The "Extra-Corporeal" (blood treated outside of the body)

Photo-Therapy causes a chemical reaction in which the cell wall is pierced killing the microbe, The blood and killed microbes (now immune activating "antigens") are then returned to the body, with resultant stimulation of the immune system. The body's now "excited", natural "soldiers" or 'killer" cells seek out and destroy the now easily identified disease causing "invaders."

The fundamental mechanism is based on two photosensitive amino acids, phenylalanine and tyrosine, present in all cells in varying degrees. Bacterial and viral cells contain at least five (5) times as much of these amino acids as healthy human red and white blood cells. Thus, bacterial and viral cells have a much higher degree of photoactive sensitivity. In addition, diseased cells are characteristically smaller in size, with thinner cell walls.

Through the process of photoluminescence the smaller bacterial and viral cells are targeted and absorb five (5) times as much photonic energy as their healthy counterparts. The healthy cells remain intact while the diseased cells are killed and become antigenic. While destroying the microbe in the treated sample of blood, an "autogenous (self-generated) vaccine" is thus produced. When this "vaccine" is coupled with the photonic energy given off by the treated blood the microbes in the patient's bloodstream are rapidly destroyed via "induced secondary immune reactivation."

After a UBI Treatment

During therapy a "flushing" of the face normally occurs immediately after treatment. This indicates an additional amount of oxygen has been introduced into the blood stream, A slight rise in temperature may also occur, which is the body's natural reaction when the immune system is stimulated. The stimulated immune system continues its activity for hours and sometimes days after the treatment has been induced. The amount of treatment needed is determined by variables such as the state of health of the patient's immune system, length of time the patient has been ill, and the severity of the disease being treated.

This technology has produced even more favorable results when used on an intermittent basis and with no known side effects. Preventative therapy for healthy individuals can be taken every two to three months for pro-active immune stimulation. An excessive amount of UV light is known to be harmful, but when prescribed in precise frequencies UVBI effectively and safely induces heightened immune function.

Dr. Edwards has found UBVI therapy to be a very effective method for chronic infection, chronic inflammation, and chronic immune dysregulation disorders.

THE UV FACTOR - Surprising uses of Ultraviolet Light

Maztt DeBow © 2005

http://www.medicallightassociation.com/?q=node/69

Medical Light Association

For eons, nature has used our sun's ultraviolet energy as a way to cleanse the earth. UV light has many practical uses, it seems as if many of its medical applications have been ignored, neglected or purposely pushed aside. With the new antibiotic resistant diseases on the rise could humanity's slow accept ance be the beginning of our demise. Because of this frightening rise of resistant organisms, plus the side effects of chemical pharmacological we need to utilize modalities that encourage the body's natural healing response.

It was discovered in 1956 that UV light treats jaundice, helping remove the pigment know as bilirubin that can be deadly to infants. UV light is also used in water purification, sewage treatment and air ventilation systems in hospitals and office buildings amongst many other uses. PUVA therapy is a treatment wherein the patient uses a chemical called psorlin and within a couple of hours the skin is exposed to UV light. It stops the diseased cell from dividing and can often result in dramatic cures for psoriasis, vitiligo and de-pigmentation problems. UV light is also now being used to clean hospital blood for transfusions. It is currently the only known system that cleans blood 100% of bacteria and viruses. The system also uses psorlin which was originally derived from figs. This compound is light sensitive and it binds with the molecules of the blood. Cerus of Concord, California, has a patent on this technology and recently received its European approval and currently an FDA approval is pending.

An impressive application of UV light is called UBI (Ultraviolet Blood Irradiation) or Photo-Luminescence. This process removes a small amount blood from the patient, exposes it to light then returns the blood back to the patient intravenously. This process is proven to be effective in the inactivation toxins, contaminates, destruction of viruses and the elimination of bacteria, while it activates white blood cells, helping blood viscosity, increasing blood oxygen transport and decreasing platelet aggregation. It is bizarre that as little we know about this treatment that was developed over 100 years ago by Niels Finsen in Denmark. In 1928, Emmit S. Knott developed equipment to perform the Photo-Luminescence process. Knott pioneered blood irradiation on dogs before treating humans. His first patient suffered from a bacterial blood infection (Sepsis). The results were astounding. The patient recovered rapidly after the treatment. Knott, working with Dr. Hankock, had great success publishing the results in 1934. In 1943 Dr. George Miley published his successful results regarding his treatments of viral pneumonia. The documentation stated that within 24 to 72 hours after a single UBI there was a complete disappearance of the toxic symptoms. The cough disappeared in 3 to 7 days. And hat the lungs had cleared within 1 to 4 days. Miley demonstrated that there was a decrease in blood oxygen in many disease states. He reported many cases of dying patients responding almost instantly to UBI treatment, some within hours. The UV light's biochemical reaction varies depending on vitamins and nutrients present in the blood. The light inactivates toxin and viruses, while it destroys and inhibits fungal, bacterial and parasitic growth. It also accelerates the lymphatic and

circulatory activities, normalizing metabolism and glandular actions, while stimulating the sympathetic system. After the blood is exposed to the ultraviolet light it continues to emit secondary emanations to the rest of the blood once back in the body, inactivating destructive pathogens deep within tissue

It has been found that the photodynamic effect can be increased by incorporating light activatingagents such as: Methoxypsoralen, photo sensitive amino acids, herbs, dyes and porphyrins derivatives. Dr. Richard Edelson of Yale University, developed a technique called extracorporeal photophoresis. In this technique the patient is given (8-MOP) 8-Methoxypsoralen a photo sensitizing agent two hours before the blood is withdrawn. The blood is withdrawn and separated into 2 cellular components. The white blood cell are irritated with UV-A and returned to the patient. This therapy is proven successful and has he received FDA approval for the treatment of Lymphoma. Not all clinicians agree with this separation process because there are many elements other that white blood cells that are photosensitive such as; porphyrins, antibodies, steroids, insulin, liposomes and some amino acids.

William Campbell Douglass, MD uses an instrument called a photolume to irradiate blood with ultraviolet light. At this point he has successfully treated infection, cancer, arthritis, asthma and blood poisoning. It has been found that toxins such as: diphtheria, tetanus and snake venom are very unstable and inactivated in the presence of UV light. Other ailments known to be successfully treated with UBI are vascular conditions, E-Coli, toxemia, non-healing wounds and wound infections, reduction in atherosclerotic plaque, candidiasis, chronic fatigue, blood poisoning, allergies, asthma, emphysema, diabetic complications, rheumatologic diseases, acute colds, flu, fibromyalgia, poor circulation, sinusitis, bronchitis, autoimmune diseases, arterial disease, macular degeneration and weak immune systems. Including preliminary reports that indicate that UBI may be useful in the treatment of HIV.

The German's have performed hundreds of thousands of these treatments and never reported incidents of toxicity other than a mild Herxheimer reaction that occurs within the first 24 hours. The reaction is due to the rapid death of large numbers of infectious organisms. The symptoms are characterized by chill and a rise in temperature similar to "flu-like" symptoms Though this treatment mechanism is not fully understood, it works. The harnessing of electricity was not well understood in its early inception, look at it now. Scientist will eventually figure out the exact mechanism that makes it work, inventible leading to more breakthroughs.

Application of Ultraviolet Blood Irradiation for Treatment of HIV and Other Blood borne Viruses by Dr. Carl Schleicher

Foundation for Blood Irradiation Note: Carl Schleicher died in 1999

Abstract

This paper describes an innovative method of inactivating blood-borne viruses using ultraviolet blood irradiation called UBI therapy. This process has shown impressive clinical results in treating hepatitis, HIV, and other currently untreatable viruses. The background, theory, and method of using UBI therapy is presented in this paper. This method offers a potential break-through in the treatment of viral diseases and bacteria, and is nontoxic, uses no drugs, and even has FDA certification, and thus is available now for use.

Ultraviolet blood irradiation first evolved in the early 1930s as a means to treat persons afflicted with the poliovirus which was causing considerable anguish and fear similar to the advent of the HIV in the 1980s and continuing. Then in the 1950s the Salk vaccine wiped out polio in the U.S. and, as a result of this fact and other reasons, this process fell in disuse until recent years. This process has now been resurrected by the Foundation for Blood Irradiation (FFBI) which had been originally founded in the 1940s by the developers of this process, most of whom are now deceased, who left this to the next generation of researchers to continue. Much credit for the early development of this technology goes to E.K. Knott of Seattle, Washington; Louis Ripley of Danbury, Connecticut; and Dr. T. Lewis of Pittsburgh, Pennsylvania.

How it works

Ultraviolet blood irradiation therapy (UBIT), or intravenous ultraviolet, raises the resistance of the host and is therefore able to control many disease processes. A fundamental effect of ultraviolet blood irradiation is to "energize" the biochemical and physiological defenses of the body by the introduction of ultraviolet energy into the bloodstream that may, in part, be effective by producing small amounts of ozone from the oxygen circulating in the blood. The efficacy of this method is attested to by the remarkable and consistent recovery of patients with a wide variety of diseases, apparently unrelated etiologically. In addition, it may be stated that UBI has never caused any adverse side effects nor has it ever worsened any disease in any patient, regardless of age group, race or sex and regardless of the number of blood irradiation treatments administered. Furthermore, there have not been any complications related to UBIT during long-term follow-up. An average of 3.28 treatments per patient were administered in this series. Laboratory studies were employed to confirm clinical improvement, which occurred on an average of 19.2 days after institution of blood irradiation therapy. Sixty percent of the patients were considered clinically recovered and able to return to their occupation in two weeks or less.

The older UBIT units have been updated and are now available and FDA certified for use in the U.S. These units are being further evaluated for improvements; this is being carried out under a CRADA (Cooperative Research and Development Agreement) with the Lawrence Livermore National Laboratories of Berkeley, California. Steps are now being taken to arrange research protocols at several major university medical research centers on both the East and West coasts of the U.S. Focus will be on treatment of HIV, hepatitis, malaria, and those viruses immune to current antibiotics.

Russia

Researchers in Russia have used this process to treat HIV with impressive results. A copy of this report will be sent to those who request it for the cost of photocopying. This report provides specific details, clinical results, and improvements noted in the HIV-infected patients in terms of CD4 T cells, leucocytes, etc.

With respect to treating HIV-positive persons, our clinicians also administer the following natural products: ESSIAC, VENUREX (formerly Carnivora), and a Czechoslovak produced product called Imuregen. Each of these are being evaluated at NCI and NIAID per agreements we hold there.

UBI in the US

Ultraviolet blood irradiation therapy (UBIT) is currently FDA approved (and the treatment of choice) for cutaneous T-cell lymphoma (CTCL) (Taylor & Gasparro, 1992). Using a technique based on extensive historical experience with PUVA therapy in dermatology, Edelson and his group at Yale have developed a sophisticated UBIT method involving pretreatment with psolaren, extracorporeal eukopheresis, UV-A irradiation of the white blood cell fraction, and reinfusion (Edelson,1987). This process has been given the name "photopheresis."

Photopheresis is currently undergoing clinical trials at centers around the country for the treatment of systemic sclerosis, multiple sclerosis,rheumatoid arthritis, autoimmune insulin-dependent diabetes, systemic lupus erythematosis, myasthenia gravis, graft versus host disease, pemphigus vulgaris, and HIV associated disease (Edelson, 1991; Bisaccia et al. 1990).

The major drawbacks to photopheresis are that the technique is cumbersome and costly; a single treatment occupies patient and skilled technician for upwards of five hours. Historically, the Knott technique of UBIT (Knott, 1948) was applied extensively and with excellent results during the 1930s, 40s, and 50s for the treatment of a wide variety of conditions. There are published reports on its use in bacterial diseases, including septicemias, pneumonias, peritonitis, wound infections; viral infections including acute and chronic hepatitis, atypical pneumonias, poliomyelitis, encephalitis, mumps, measles, mononucleosis, and herpes; circulatory conditions including thrombophlebitis, peripheral vascular arterial disease, and diabetic ulcer; overwhelming toxemias, non-healing wounds and delayed union of fractures, rheumatoid arthritis, and a number of others (Barger & Knott, 1950).

Schwartz and his colleagues in Chicago concluded a critical examination of the Knott technique (Schwartz et al. 1952) by saying "a longer and more extensive program of study is warranted before in vivo blood irradiation of blood can be finally either accepted or rejected." However, before such further examination could be undertaken, several other factors intervened. Principal among these was the development of antibiotics whose early successes made it appear that soon all infectious diseases would be conquered by chemistry. In addition, however, after World War II, there had been great interest in the possibilities of employing UV light to sterilize blood and blood products for transfusion (Oliphant & Hollaender, 1946; Wolf et al. 1947; Blanchard et al. 1948). When this effort failed after premature approval in 1949 and subsequent commercialization, the whole field of ultraviolet blood irradiation was quickly forgotten (Murray et al. 1955).

UBIT virtually disappeared from the early 1980s when the Soviets began referring to the published work of Knott and his colleagues. In the current listings of world medical literature at the National Library of Medicine on UBIT (excluding photopheresis) there are over 100 articles, and all of these are in the Soviet literature. Like Knott, it appears that the Soviets have applied UBIT to a wide variety of conditions, but only over the past two decades (Arutiunov, 1988). We propose to reexamine the Knott technique with the advantage of vastly improved technical and medical tools. Viral illnesses, given their comparative resistance to chemotherapeutic control, have emerged over the past several decades as a major challenge for medicine. In addition, immune system dysfunctions are increasingly recognized as playing a major "host factor" role in many disease processes, including cancer. Given the range of potential applications of UBIT, a program of study is warranted.

Rationale

There are many effects of ultraviolet light on blood components that may be involved in clinical effectiveness. The interaction of various wave lengths of ultraviolet with living tissues is complex and constitutes an entire area of specialization for photobiologists (Coohill, 1991).

Applications of ultraviolet light are numerous in medical dermatology (Morison, 1991). In particular, regimens employing UV-A (known as PUVA when combined with the photosensitizing agents known as psoralens) and UV-B (Anderson, 1984; Van Weelden et al. 1990) have been widely used in the treatment of psoriasis and related skin eruptions. It was on the basis of this long experience with PUVA therapy in humans that Edelson developed photopheresis (Edelson, 1987).

In hematology, immunology, and blood banking, there is a long tradition of exploring the possibilities of ultraviolet to produce beneficial changes in blood components. UV has long been known to inactivate viruses while preserving

their ability to be used as antigens in the preparation of vaccines (Levinson, 1945). The mechanism proposed being that the viral genome is more UV-damage sensitive than viral surface antigens. Thus, the virus can be killed by damage to its nucleic acids while, at the same time, leaving antigenic surface components (proteins, glycoproteins, and/or fatty acids) relatively intact. In recent times, UV has been found to be a useful tool in the preventive treatment of platelet-concentrate infusion-induced alloimmunization reactions (Sherman et al. 1991; Pamphilon & Blundell, 1992), and for the prevention of graft-versus-host reactions in transplantation (Leitman, 1989; Kapoor et al. 1992). Here the principal mechanism is thought to be the sensitivity of lymphocytes (that typically contaminate platelet concentrates and carry the HLA antigens responsible for the reactions) to UV inactivation compared to the relative insensitivity of the platelets (which lack nuclear material).

Since the advent of the AIDS epidemic, the blood banking industry has been undergoing a revolution of increased sophistication. With the vastly increased demand for guaranteed safety of blood products, many methods of sterilization have been examined intensively (Horowitz, 1987; Fratantoni & Prodouz, 1990). Among these, ultraviolet inactivation of viruses contaminating blood and blood products has been studied (Fratantoni & Prodouz, 1990). It is clear that with either PUVA or UV-B, most viruses are quite UV-sensitive (Hanson, 1992). Current expert opinion, however, is that viral inactivation sufficient for the purposes of the blood banking industry (six or more logs of killing) is not feasible without intolerable levels of damage to formed elements in the blood (Fratantoni, 1992; Dodd, 1992). (Note: in 2001 the Helinx blood purification box was introduced, the device disables any DNA molecules contaminating donated blood.)

Meanwhile, there has been intensive examination of the mechanisms of action of photopheresis by Dr. Edelson, his colleagues, and others (Edelson, 1989). The original inspiration for photopheresis was the work of Dr. Cohen and his colleagues in Israel who demonstrated in animals that selective damage to lymphocytes could "immunize" animals to the development of autoimmune encephalomyelitis (Ben-Nun et al. 1981; Holoshitz et al. 1983). The use of psoralen with UV-A to treat blood outside the body was developed by Dr. Edelson as an improved method of delivering just such selective damage to human lymphocytes. Thus, lymphocyte damage remains the core mechanism invoked to explain the clinical effectiveness of photopheresis. Following reinfusion, the damaged cells appear to provoke a response from the immune system that is therapeutic &shyp; the exact details of which probably depending on the nature of the conditions being treated. Numerous other effects of "extracorporeal PUVA" have been observed. Among these are mutations, inhibition of DNA synthesis, changes in gene expression of various sorts, increased intracellular Ca+2, the elaboration of cytokines IL1, IL6, and TNF, effects on prostaglandins, and a variety of cell surface changes (Taylor & Gasparro, 1992; Andreu et al. 1992).

Reviewing the early work by Knott and his colleagues, one of the most striking findings was the rapidity with which cyanosis was cleared in hypoxic patients following reinfusion of irradiated blood (Knott, 1948). Miley and his colleagues at Hahnemann, looked at oxygenation in subjects following reinfusion and showed significant increases in average values at 10 and 30 minutes (and even 30 or more days) after reinfusion (Miley, 1939). There are no reports of measurements of oxygen potential of the blood prior to reinfusion pre and post irradiation, however, and we are left to presume that the dramatic observed increases in oxygenation were due to some unexplained effect of the irradiated blood following reinfusion. There was speculation at the time that this might be associated with the vasodilation that was observed clinically in approximately 75% of treated cases and which appeared to persist for days and sometimes months. Attempts to identify mechanisms for this effect would appear to be a fruitful avenue of research for Phase II. To that end, in Phase I, we will include in our TNF studies, blood gas determinations by contemporary methods pre and post irradiation.

Before the first attempted human trial in 1928, Knott had determined that red blood cells are very UV-hardy. A decade later, however, when Knott studied the increased opsonic index of irradiated polymorphonuclear cells (PNCs), he found that there was a narrow therapeutic window for this effect &shyp; "The time of exposure from the point of peak PNC stimulation to the point of overexposure and PNC destruction is a matter of only a few seconds." (Barger, 1944) On the basis of these findings, Knott defined the strict treatment parameters that he insisted upon subsequently in an attempt to stay within the therapeutic window he had found. Replication of these findings with UV dosimetric determinations would be another fruitful avenue of research for Phase II.

Knott Hemoirradiator Process

The Knott Hemoirradiator consists of a metal cabinet on rollers that houses the power supply and pump mechanism for the water-cooled Burdick UV lamp mounted on top of the machine. Blood is first collected by conventional venipuncture into a citrated bottle. It is then routed through a peristaltic pump mounted on the top of the instrument, through the irradiation chamber, and back to the patient. There is a simple panel on the front housing controls for the lamp voltage and the pump speed. This is illustrated in Figure I.

There are a number of features of the Knott instrument that distinguish it from the photopheresis equipment currently being used clinically for UBIT. Perhaps the most important difference is that the UV source in the Knott device is a high-intensity quartz-mercury lamp with considerable UV-B output (reported) as opposed to a relatively low-intensity fluorescent UV-A, visible, and some IR remain comparatively poorly studied.

A special feature of the Knott instrument is that the blood flow-rates reported for its use clinically were approximately 0.5 ml/sec. This means that treatment sessions with the Knott device of around 250 ml of blood were completed in under an hour compared with the up to 5 hours needed for modern photopheresis. Exposure times of the blood to the UV were thus substantially less than with photopheresis. Actual UV doses delivered remain to be determined.

A third distinguishing feature of the Knott device is that it was used clinically with whole blood. There was no processing of the blood prior to UV exposure to separate out various blood components for irradiation. The rationale for removing the bulk of the red blood cells prior to irradiation in photopheresis is to reduce the UV-shielding effects of the strongly UV-absorbing hemoglobin pigments. What effects will be observed with irradiation of whole blood remain to be studied.

A fourth feature is the irradiation chamber. This is a 5 cm diameter, 1 cm deep chamber with a number of baffles in it so as to create turbulence in the blood flowing through it and expose it on one side to the UV light. By comparison, the currently employed, patented Therakos photopheresis "cassette" is a flat plastic container approximately 12 X 20 cm square in which the leukocyte enriched blood in this turbulent state is largely unknown. We can speculate, however, that given the ultraviolet opacity of whole blood, cells will be exposed to potentially effective doses of UV for at most 10% of their time transiting through the irradiation cell. The effects of this brief and intermittent exposure are unclear.

The Foundation for Blood Irradiation is now conducting training sessions on ultraviolet blood irradiation therapy and can make these devices available to those who may have an interest in using them. In summation, this process represents a low cost, nontoxic, pain free way to treat a variety of viral and bacterial diseases. The key advantage is the low cost in doing so which could result in considerable savings to the health industry. Future plans are in the works to apply this process to other currently untreatable conditions, including Alzheimer's, sickle cell anemia, and E. coli bacteria. Those who may have an interest in working with the Foundation for Blood Irradiation in these areas are requested to contact us.

Clinical Results of Ultraviolet Blood Irradiation in Treating

HIV-Positive Persons These results were obtained by using the PCR Diagnostic test (Polymerase Change Reaction) which accurately determines change in viral activity. These tests were done in April-June 1995 at a private clinic using our ultraviolet blood device provided by the Foundation for Blood Irradiation of Silver Spring, Maryland.

Patient	Dates of Treatment	PCR Viral Activity
J.K.	5/8/95	654
	5/18/95	340
D.G.	4/6/95	8900
	4/27/95	1395

Note: Each treatment of UBI reduced PCR by 50%-75%. This is considered a very significant reduction.

Bibliography

Anderson, T., Waldinger, T., Voorhees, J., (1984). "UV-B Phototherapy,"

Arch Dermatol, Vol. 120: pp 1502-1507. Andreu, G., Perrot, J., Pirenne, F., Boccaccio, C., (1992). "The Effects of Ultraviolet B Light on Antigen-Presenting Cells: Implications for Transfusion-Induced Sensitization," Seminars in Hematology, Vol. 29, No 2: pp 122-131.

Arutiunov, A., Karasev, A., Kovalev, O., Pisarevskii, A., Skobennikov, A., (1988). "Experience with the Clinical use of a Device for the UV-Irradiation of Circulating Blood," Med Tekh, Jan-Feb; (1)48 50. Unique Indentifier: BACK86 88201640.

Barger, G, (1944). "Historical Sketch of Ultraviolet Irradiation Therapy by the Knott Technic," Physical Therapy Section at Georgetown University Hospital, (Source Unknown).

Barger, G., Knott, E. K., (1950). "Blood: Ultraviolet Irradiation (Knott technic)," Medical Physics, Vol. 11: pp 132-136.

Beer, J., (1992). Personal Communication. Radiation Biology Branch, FDA, Rockville, MD.

Bisaccia, E., Berger, C., Klainer, A., (1990). "Extracorporeal Photopheresis in the Treatment of AIDS-Related Complex: A Pilot Study," Annals of Internal Medicine, Vol. 113: pp 270-275.

Blanchard, M., Stokes., J., Harnpil, B., Wade, G., Spizizen, J., (1948). "Methods of Protection Against Homologous Serum Hepatitis," JAMA, Vol. 138, No 5: pp 341-343.

Coohill. T., (1991). "Action Spectra Again?" Photochemistry and Photobiology, Vol. 54, No 5: pp 859-870.

Corash, L., Hanson, C., (1992). Guest Editorial: Photoinactivation of Viruses and Cells for Medical Applications. Blood Cells, Vol. 18: pp 3-5.

Dodd, R., (1992). Personal Communication, American Red Cross-Holland Lab, Rockville, MD.

Edelson, R., Berger C., Gasparro, F., Jegasothy, B., Heald, P., Wintroub, B., Vonderheid, E., Knobler, R., Wolff, K., Plewig, G., McKiernan, G., Christiansen, 1., Oster, M., Honigsmann, H., Wilford, H., Kokoschka, E., Rehle, T., Perez, M. Stingl, G., Laroche, L. (1987) "Treatment of Cutaneous T-Cell Lymphoma by Extracorporeal Photochemotherapy," New England Journal of Medicine, Vol. 316: pp 297-303.

Edelson, R., (1989). "Photopheresis: A New Therapeutic Concept," Yale Journal of Biology and Medicine, Vol. 62: pp565-577.

Edelson, R., (1991). "Photopheresis: a Clinically Relevant Immunobiologic Response Modifier," Annals New York Academy of Sciences, Dec 30: pp 636.

Fratantoni, J., Prodouz, K., (1990). "Viral Inactivation of Blood Products," Transfusion Vol. 30, No 6: pp 480-481.

Fratantoni, J., (1992). Personal Communication, CBER, FDA, Bethesda, MD.

Hanson, C., (1992). "Photochemical Inactivation of Viruses with Psoralens: An Overview," Blood Cells, Vol. 18: pp 7-25.

Horowitz, B., (1987). "Inactivation of Viruses in Blood Derivatives," Transfusion-Transmitted Viral Diseases, American Association of Blood Banks, Arlington, VA.

Kapoor, N., Pelligrini, A., Copelan, E., Cunningham, I., Avalos, B., Klien, J., Tutschka, P., (1992). "Psoralen Plus Ultraviolet A (PUVA) in the Treatment of Chronic Graft Versus Host Disease: Preliminary Experience in Standard Treatment Resistant Patients," Seminars in Hematology, Vol. 29, No 2: pp 108-112.

Kiessling, K., Saefwenberg, J., (1971). "Inability of UV-Irradiated Lymphocytes to Stimulate Allogeneic Cells in Mixed Lymphocyte Culture," Int. Arch. Allegy, Vol. 41: pp 670-678.

Knott, E. K., (1948). "Development of Ultraviolet Blood Irradiation," American Journal of Surgery, Vol. LXXVI, No 2: pp165-171.

Leitman, S., (1989). "Use of Blood Cell Irradiation in the Prevention of Posttransfusion Graft-vs-Host Disease," Transfus Sci, Vol. 10: pp 219-232.

Levinson, S., Milzer, A., Shaughnessy, H., Neal, J., Oppenheimer, F., (1945). "A New Method for the Production of Potent Inactivated Vaccines with Ultraviolet Irradiation," J. Immunol, Vol. 50: pp 317-329.

Miley, G., (1939). "Combined Oxygen Values of Venous Blood," American Journal of the Medical Sciences, June.

Morison, W., (1991). "Phototherapy and Photochemotherapy of Skin Disease", 2nd Ed., Praeger Special Studies, Raven Press, NY.

Van Weelden, H., Faille, H., Young, E., Leun, J., (1990). Comparison of Narrow-band UV-B Phototherapy and PUVA Photochemotherapy in the Treatment of Psoriasis," Acta Derm Venereol (Stockh), Vol. 70: pp 212-215.

Murray, R., Oliphant, J., Tripp, J., Hampil, B., Ratner, F., Diefenbach, W., Geller, W., (1955). "Effect of Ultraviolet Radiation on the Infectivity of Icterogenic Plasma," JAMA, Vol. 157, No 1: pp 8-14.

Oliphant, J., Hollaender, A., (1946). "Experimental Inactivation of Etiologic Agent in Serum By Ultraviolet Irradiation," Public Health Reports, Vol. 61, No 17: pp 598-602.

Pamphilon, D., Blundell, E., (1992). "Ultraviolet-B Irradiation of Platelet Concentrates: A Strategy to Reduce Transfusion Recipient Allosensitization," Seminars in Hematology, Vol. 29, No 2: pp 113-121.

Prodouz, K., Fratantoni, J., Boone, E., BoMer, R., (1987). "Use of Laser-UV for Inactivation of Virus in Blood Products," Blood, Vol. 70, No 2: pp 589-592.

Ranki, A., Puska, P., Mattinen; A., Lagerstedt, A., Krohn, K., (1991). "Effect of PUVA on Immunologic and Virologic Findings in HIV-Infected Patients," Journal of the American Academy of Dermatology, Vol. 24, No 3: pp 404-410.

Schwartz, S., Kaplan, S., Stengle, J., Stevenson, F., Vincenti, M., (1952). "Ultraviolet Irradiation of Blood In Man," JAMA,Vol. 149: pp 1180-1183.

Sherman, L., Menitove, Kagen, L., Davisson W., Lin, A., Aster, R., Buchholz, D., (1991). "Ultraviolet-B Irradiation of Platelets: A Preliminary Trial of Efficacy," Transfusion, Vol. 32, No 5: pp 402-407.

Taylor, A., Gasparro, F. P. (1992). "Extracorporeal Photochemotherapy for Cutaneous T-Cell Lymphoma and Other Diseases," Seminars in Hematology, Vol. 29: pp 132-141.

Valerie, K., Delers, A., Bruck, C., Thiriart, C., Rosenberg, H., Debouck, C., Rosenberg, M., (1988). "Activation of Human Immunodeficiency Virus Type 1, by DNA Damage in Human Cells," Nature, Vol. 333: pp 78-81.

Vowels, B., Cassin, M., Boufal, M., Walsh, L., Rook, A., (1992). "Extracorporeal Photochemotherapy Induces the Production of Tumor Necrosis Factor-a by Monocytes: Implications for the Treatment of Cutaneous T-Cell Lymphoma and Systemic Sclerosis," The Journal of Investigative Dermatology, Vol. 98, No 5: pp 686-692.

Wolf A., Mason, J., Fitzpatrick, W., Schwartz, S., Levinson, S., (1947). "Ultraviolet Irradiation of Human Plasma to Control Homologous Serum Jaundice," JAMA, Vol. 135, No 8: pp 476-477.

Zmudzka, B., Beer, J., (1990). "Activation of Human Immunodeficiency Virus by Ultraviolet Radiation," Photochemistry and Photobiology, Vol. 52, No 6: pp 1153-1162.

Zmudzka, B., (1992). "Activation of HIV by UVB Radiation and PUVA Treatment In Vitro: An Evaluation of the Safety of Medical Procedures and Cosmetic Applications," Photochemistry and Photobiology, Vol. 55 Supplement, pp 895-905.

Int J. Biosocial Med Research *Vol. 14(2) 115-32, 1996*

Please note this is a scanned version of the original and may not be formatted in the exact version of the original article. The correspondence information has also been updated

Int J Biosocial Med Research, Vol. 14(2), 115-132, 1996. 1044-811 X/96/8/7 151$1.50.

Ultraviolet Blood Irradiation Therapy (Photo-Oxidation) The Cure That Time Forgot

Robert Jay Rowen, MD
Omni Medical Center

Abstract

In the 1940s, a multitude of articles appeared in the American literature detailing a novel treatment for infection. This treatment had a cure rate of 98 to 100% in early and moderately advanced infections, and approximately 50% in terminally moribund patients. Healing was not limited to just bacterial infections, but also viral (acute polio), wounds, asthma, and arthritis. Recent German literature has demonstrated profound improvements in a number of biochemical and hematologic markers. There has never been reported any toxicity, side effects or injury except for occasional Herxheimer type reactions.

As infections are failing to improve with the use of chemical treatment, this safe and effective treatment should be revisited. (Int J Biosocial Med Res., 1996; 14(2): 115-132)

Key Words: Ultraviolet blood irradiation (photo-oxidation), infection, asthma, oxygenation, oxidation, vascular disease, toxin, immune system, chronic fatigue, infectious disease, bacterial anti-infective, detoxification, viral anti-infective, thrombophlebitis, botulism, toxemia of pregnancy, polio, i!eus, immune modulation, cytokine induction, Raynaud's disease, migraine, circulatory and vascular disease

History

Ultraviolet (UV) light has been known for decades to have a sterilizing effect and has been used in many different industries for such a purpose. Almost all bacteria may be killed or attenuated by ultraviolet rays, but there is considerable variation in the rapidity of

Correspondence address:
95 Montgomery Dr Ste 220
Santa Rosa, CA 95404

their destruction. Those which live in the body are most easily affected, while those in nature adapt to the action of sunlight and become relatively resistant to irradiation.[1] LTV-sensitive bacteria have not been shown to become resistant and toxins have been found to be very unstable in the presence of UV irradiation (Diphtheria, tetanus, and snake venom are inactivated by ultraviolet rays).[2]

At the turn of the century, Niels Finson was awarded the Nobel Prize for his work on UV rays and various skin conditions which showed a success rate of 98% in thousands of cases, mostly lupus vulgaris.[3] Walter Ude reported a series of 100 cases of Erysipelas in the 1920s, claiming a nearly 100% cure rate with UV skin irradiation.[4] Emmett Knott pioneered the irradiation of autologous blood on dogs before treating a moribund woman with postabortion sepsis in 1933, who was thought to be untreatable. With his treatment of blood irradiation, she promptly recovered, resulting in more research and further development of the "Knott" technique.[5] The technique involved removing approximately 1.5cc/pound, citrating it for anticoagulation, and passing it through a radiation chamber. Exposure time per given unit amount (1cc) was approximately 10 seconds, peak wavelength of 253.7nM (ultraviolet C) provided by a mercury quartz burner and immediately re-perfused.[6]

By the early 1940s, UV blood irradiation was being used in several American hospitals. Into the late 1940s, numerous reports were made about the high efficacy for infection and complete safety of UV blood irradiation. With the emergence of antibiotic therapy, the reports suddenly ceased.

In the ensuing years, German literature demonstrated the effectiveness of UV irradiation in vascular conditions. Additionally, more thorough observations of significant improvement in many physiologic processes and parameters have been reported.

American Findings

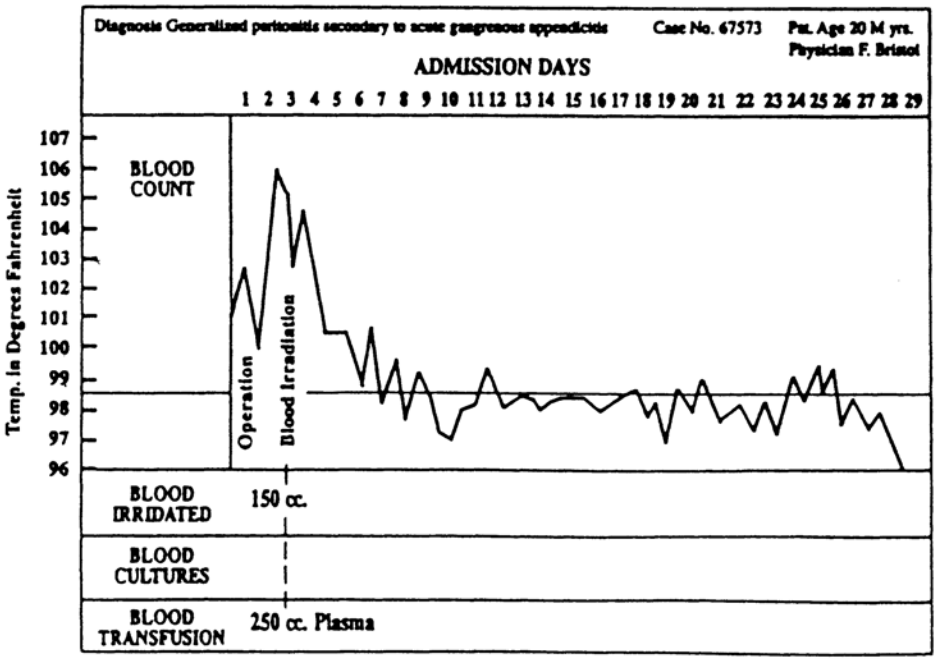
The most prolific American researcher was George Miley, a clinical professor at Hahnemann Hospital and College of Medicine, who practiced the Knott technique at their blood irradiation clinic. In 1942, he reported on 103 consecutive cases of acute pyogenic infections at Hahnemann Hospital in Philadelphia. Such conditions included puerperal sepsis, sinusitis, pyelitis, wound infections, peritonitis (ten cases), and numerous other sites. Results of recovery were 100% for early infections, 46 out of 47 for moderately advanced, and 17 out of 36 of those who were moribund.[7] Staphylococcus had a high death rate, but those patients were also using sulfa drugs, which may have

inhibited the effectiveness of the UV irradiation treatments. In fact, when Miley reviewed his data, he found that all the Staph failures had been on

sulfa. A second series of nine patients (six Staph aureus, three Staph albus) had a 100% recovery rate with one or two treatments when sulfa was not used.[8] (Table 1).

Rebbeck and Miley documented the fever curve of septicemia in patients who received UV therapy, demonstrating detoxification and recovery within a few days.[9](See Fig. 1). In 1947, Miley reaffirmed his initial findings reporting on 445 cases of acute pyogenic infection, including 151 consecutive cases. Again, results showed a 100% recovery in early cases (56), 98% recovery in moderately advanced (323), and 45% in apparently moribund patients (66) (see Table 2).[10] Detoxification usually began within 24 to 48 hours, and was complete in 46 to 72 hours. Some patients required only one or two irradiation treatments, while a few needed one or two more.

Figure 1.
Ultraviolet Blood Irradiation in Peritonitis



Male of 20, who after operation was comatose, in shock, and apparently moribund, with a fulminating toxemia due to generalized peritonitis secondary to a ruptured appendix. Within 24 hours of ultraviolet blood-irradiation therapy detoxification was pronounced and the downhill course of the patient reversed. An eventful convalescence ensued.

TABLE I

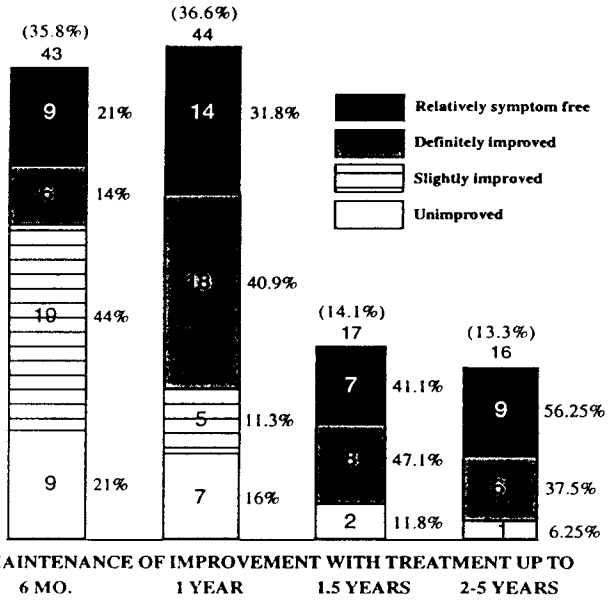
No.	Hospital Number	Type of Staphylo-coccemia	Primary Infection	Type of Sulfa drugs Used	No. Blood Irradiations	No. of Days of Hospitalization		Result
						Total	Post-Irradiation	
1	81994	Aureus	Marked erysipeloid inflammatory process of right ear	ST (before appearance of staphylococcemia	1	20	12	R*
2	84630	Aureus	Incomplete septic abortion	None	1	16	11	R
3	88168	Aureus	Incomplete septic abortion	None	2	19	16	R
4	88167	Aureus	Incomplete septic abortion	None	1	10	9	R
5	82484	Aureus	Incomplete septic abortion	None	1	20	7	R
6	83141	Albus	Acute ulcerative rhinitis, acute suppurative otitis media, acute mastoiditis, incomplete septic abortion	None	2	39	17	R
7	38082	Albus	Incomplete septic abortion, putrid endo-metritis, parametritis, pelvic peritonitis	None	2	12	7	R
8	86768	Aureus	Post-measles upper respiratory infection	None	2	19	16	R
9	50698	Albus	Postcesarean pelvic thrombophlebitis	None	1	33	11	R

*R - Recovered

In 1943, Rebbeck[11], reported on eight cases of E.coli sepsis treated with UV phototherapy - six lived. Barrett reported in his cases of septic toxemia, that pain associated with infection was typically relieved with ten to 15 minutes of hemo-irradiation.[12] Toxemia of pregnancy responded in all 100 patients with no serious complications, even after the onset of convulsions.[13]

Spectacular detailed reports of hopeless cases responding to UV phototherapy regularly appeared in the American literature. Barrett reported on a patient who had cerebellar artery thrombosis, pneumonia, pulmonary emboli - left femoral leg, deep-venous thrombosis, left-sided paralysis, and paralysis of the left vocal cord. This dying patient responded dramatically, almost instantly, and had a full recovery over a period of several months.

Table 3.



Time of maintenance and improvement in 120 patients with apparently intractable bronchial asthma who received ultraviolet blood irradiation therapy for six months to five years

Miley reported on 13 patients with thrombophlebitis, including some infections. Nine received only one treatment, while two had two treatments and healing was noted within hours to two days. Most were discharged from the hospital in an average of 12 days.[14]

In June, 1943, Miley reported on asthma response in a series of 80 "intractable" patients. Twenty-four patients were not followed up, which left only 56 patients to document. Of these, 29 were moderately to greatly improved, 16 were slightly improved, and 11 had no improvement after a period of six to ten months. The 45 who had improved remained so for six to ten months, after an initial series of up to ten irradiations.[15] In 1946, Miley,[16] reported on a larger series of 160 consecutive patients with "apparently intractable asthma"; 40 cases could not be followed, leaving 120. The results (Table 3) were better than his initial findings, with 32.5% apparently cured, 31.6% definitely improved, 22.5% slightly improved, and 13.4% unchanged. The authors commented that two to five treatments a year were often required for maintenance. Cyanosis of many years' duration, disappeared within one year of therapy, and a marked increase in general resistance was observed; no deleterious effects were noted.

Miley and Christensen reported on polio treated with blood irradiation[17] (Table 4). Fifty-eight cases were followed, including seven with Bulbar polio (40% death rate expected). Only one death

Table 4.

Results in 74 Cases of Virus or Virus-Like Infections

	No. of cases	Recovered	Died
Early			
Primary atypical or "virus" pneumonia	2	2	
Poliomyelitis			
Bulbo spinal type	0	0	
Spinal type	36	36	
Moderately advanced			
Primary atypical or "virus" pneumonia	11	11	
Poliomyelitis (non- toxic)			
Bulbo spinal type	4	4	
Spinal type	11	11	
Mumps	1	1	
Apparently moribund			
Primary atypical or "virus" pneumonia	2	2	
Poliomyelitis			
Bulbo spinal type	7	6	1

The poliomyelitis patients were consecutively treated in an epidemic in which the mortality of the untreated cute bulbar cases exceeded 40 percent, as opposed to that of 9 percent in the cases above.

occurred in the Bulbar group and none in the others. Rapid recovery was reported after the first treatment (24 to 48 hours). One to three treatments were all that was necessary in the majority of cases.

Effectiveness in other viral conditions was further documented by Olney.[18] His report documented 43 patients with acute viral hepatitis treated with the Knott technique. Thirty-one patients had acute infectious hepatitis; 12 had acute serum hepatitis (hepatitis B). An average of 3.28 treatments per patient were administered; the average period of illness after the treatment, was 19.2 days; two recurrences were observed among the 43 patients during a follow-up period averaging 3.56 years, one in each type of hepatitis. The one suspected recurrence in the "serum" variety was in a heroin addict and reinfection was suspected. No deaths occurred among the 43 patients during the follow-up period. Marked improvement and rapid subsidence of symptoms was noted in all patients treated and within three days or less, in 27 patients. 11 showed marked improvement in 4 to 7 days, and five patients showed improvement in 8 to 14 days.

Rebbeck reported a remarkable effect on the autonomic nervous system, documenting how postsurgical paralytic ileus could be relieved very quickly with UV blood irradiation.[19] He attributed this effect to toning the autonomic nervous system. Autonomic effects also can be appreciated in the reports on asthma.

The authors were so impressed with the results that they included numerous case reports of hopeless and long-suffering infectious conditions resolving with UV blood irradiation. Rebbeck reported on its prophylactic preoperative use in infectious conditions, concluding that the technique provided significant protection with a marked decrease in morbidity and mortality.[20]

The authors consistently reported beneficial peripheral vasodilation. A significant rise in combined venous oxygen was also repeatedly mentioned.[21] The remarkable lack of any toxicity was consistently noted by all authors. In addition to polio, Miley reported that viruses, in general, responded in similar fashion to pyogenic infections.[22]

Botulism, a uniformly fatal condition, was treated by Miley.[23] The patient was in a coma and could not swallow or see. Within 48 to 72 hours of one irradiation treatment, the patient was able to swallow, see, and was mentally clear. She was discharged in excellent condition in a total of 13 days.

LTV blood irradiation resulted in the prompt healing of chronic very long-term, non-healing wounds. [24]

Miley went on to discuss an "ultraviolet ray metabolism," based on the profound physiologic effects he noted, along with discoveries that hemoglobin absorbs all wavelengths of ultraviolet rays, and Gurwitsch's[25] demonstration of "mitogenic rays, tiny emanations given

off by body tissues in different wavelengths, all in the ultraviolet spectrum and varying in wavelength according to the organ emitting the rays..."

A summary of physiologic changes documented through the 1940s included the following.[26] An inactivation of toxins and viruses, destruction and inhibition of growth of bacteria, increase in oxygen-combining power of the blood, activation of steroids, increased cell permeability, absorption of ultraviolet rays by blood and emanation of secondary irradiations (absorbed UV photons re-emitted over time by the re-perfused blood), activation of sterols into vitamin D, increase in red blood cells, and normalization of white cell count.

Cancer

In 1967, Robert Olney privately printed, short, undated pamphlet, sent to me by a friend, and entitled *Blocked Oxidation,* in which he presented 5 cases of cancer, which were cured by a combination of techniques, including ultraviolet blood irradiation. He theorized, based on the work of previous researchers, that cancer was a result of blocked oxidation within the cells. Utilizing detoxification techniques, dietary changes, nutritional supplements, the Koch catalyst, and ultraviolet blood irradiation, he reported the reversal of generalized malignant melanoma, a breast cancer penetrating the chest wall and lung, highly metastatic colon cancer, thyroid cancer, and uterine cancer.

Modern research on ultraviolet treatment for cancer is continuing. Edelson reported on a variation of the technique called extracorporeal photophoresis.[27] In this particular technique, a photosensitizing agent, 8-methoxypsoralen (8-MOP), is given to patients two hours before blood is withdrawn and separated into cellular components. White blood cells were irradiated with UV-A and returned to the patient. This therapy has proven highly successful and actually has received FDA approval for its use in cutaneous T-cell lymphoma (CTCL). Gasparro explains the observed and presumed biochemical events underlying the response in this condition. Such response includes the induction of cytokines and interferons.[28]

German Findings

Recent German research reports significant improvement in vascular conditions when using ultraviolet blood irradiation, including peripheral arterial disease and Raynaud's disease. One study

demonstrated a 124% increase in painless walking for patients with Stage Ilb occlusive disease (Fontaine), as compared to 48% improvement with pentoxifylline.[29] UV blood irradiation was found to improve claudication distances by 90% after a series of ten treatments.[30] The authors also reported an 8% drop in plasma viscosity with the treated group, compared to no change with Pentoxifylline.

Significant changes and improvements in physiologic, biochemical, and blood rheological properties have been observed. A summary of these effects, based on the works of Frick[31] appear in Table 5.[32] This article expanded on indications to all circulatory diseases, including post-apoplexy, diabetes, venous ulcers, and migraines.

Frick reported an increase in prostacyclin and a reduction in arteriosclerotic plaque. The biochemical effects are generated by the activation of molecular oxygen to singlet oxygen by UV energy. This active species initiates a cascade of molecular reactions, resulting in the observed effects. Ultimately, this controlled oxidation process leads to a rise in the principle antioxidant enzyme systems of the body - catalase, superoxide dismutase, and glutathione peroxidase. Contraindications included porphyria, photosensitivity, coagulopathy (hemophilia), hyperthyroidism, and fever of unknown origin, but not pregnancy.

The device utilized in these reports is the Oxysan EN 400 manufactured by the Eumatron Company.

Discussion

In the 1800s, arguments raged between Pasteur and his rival, Bechamp, over the true cause of infectious disease. Pasteur claimed the cause was the organism alone, while Bechamp claimed the disease rose from organisms already within the body, which had pleomorphic capability (the ability to change). It is rumored that Pasteur, on his deathbed, admitted that Bechamp was correct. Forgotten in the debate was Bernard who argued it was the terrain or fertility of the body, which permitted disease or allowed bacterial infection to take root. Perhaps UV blood irradiation can be explained best in the general effect of the treatment on the physiology and terrain of the body. For example, it is known that the phagocytic respiratory burst, in response to infection, consumes up to 100 times the oxygen that white cells require in the resting state. The improvement in oxidation, rise in red blood cells, and increase in red cell 2,3 DGP[33] may provide a significant boost to the body.

Table 5.

Findings of German Research

BIOPHYSICAL AND CHEMICAL EFFECTS

- Improvement of the electrophoretic movability of the red blood cells
- Elevation of the electrical charge on the red blood cell
- Lowering of the surface tension of the blood
- Origin of free radicals
- Elevation of the chemical illuminescence of blood

HEMATOLOGIC CHANGES

- Increase in erythrocytes
- Increase in hemoglobin
- Increase in white blood cells
- Increase in basophilic granulocytes
- Increase in lymphocytes
- Lowering of thrombocytes;

HEMOSTATIC CHANGES

- Lowering of fibrin
- Normalization of fibrinolysis
- Trend towards normalization of fibrin-split products
- Lowering of platelet aggregation

BLOOD PARAMETER CHANGES

- Lowering of full-blood viscosity
- Lowering of plasma viscosity
- Reduction of elevated red blood cell aggregation tendencies

METABOLIC CHANGES - IMPROVEMENT IN OXYGEN UTILIZATION

- Increase in arterial P02
- Increase in venous P02
- Increase in arterial venous oxygen difference (increased oxygen release)
- Increase in peroxide count
- Fall in oxidation state of blood (increase in reduction state)
- Increase in acid-buffering capacity and rise in blood pH
- Reduction in blood pyruvate content
- Reduction in blood lactate content
- Improvement in glucose tolerance
- Reduction in cholesterol count, transaminases, and creatinine levels

HEMODYNAMIC CHANGES

- Elevation of poststenotic arterial pressure
- Increase in volume of circulation

IMPROVEMENT IN IMMUNE DEFENSES

- Increase in phagocytosis capability
- Increase in bacteriocidal capacity of blood
- Modulation of the immune status (Table 5)

Infection produces inflammation, edema, and a significant lowering of oxygen tension and diffusion in the affected tissues, which is critical to immune cell functions. Benefits of higher oxygen tension can be seen in the

accepted use of hyperbaric oxygen therapy for osteomyelitis, where healthy circulation is already slow. Deductive reasoning would suggest that any rise in oxygen tension would help the body's immune defenses. Such can be seen in anecdotal reports of hyperbaric oxygen therapy alone resolving necrotizing fascitis.

German research (Table 5) documents a rise in oxygen consumption and oxidation within the body stimulation of mitochondrial oxidation results in greater ATP production.

In effect, UV blood irradiation therapy may be providing an inactivation of bacteria, a more resistant terrain, improved circulation, alkalinization, etc. While perhaps not as dramatic a treatment as hyperbaric oxygen therapy, it may provide a similar and longer-lasting effect through the secondary emanations of the absorbed ultraviolet rays. Such emissions, which last for many weeks, may account for the observed cumulative effectiveness of the therapy. UV photons, absorbed by hemoglobin, are gradually released over time, continuing the stimulation to the body's physiology.

For eons, nature has utilized the sun's ultraviolet energy as a cleansing agent for the earth. The lack of resistance of bacteria to ultraviolet treatment is not surprising, since if bacteria could develop resistance, they have had approximately 3 billion years to do so.

Only two discrepancies in accounts of this therapy could be found between the older American and modern German literature. Venous oxygen tension was reported by Miley to be increased, even up to one month after treatment. Frick, on the other hand, reported a rise in Pa02, and a fall in PV02, suggesting greater oxygen delivery and absorption in the tissues. A rise in 2,3 DGP can account for the latter. Miley recommended the treatment for fevers of unknown origin,[34] yet Seng's article suggested that as a contraindication. Perhaps the German author feels the infections should be clearly diagnosed first, while Miley was so impressed with his results and the safety of the treatment, he thought it was proper to treat any presumed infection with the technique.

For years, there have been anecdotes and reports of another oxidative therapy (ozone) helping a variety of chronic conditions including, but not limited to, rheumatoid diseases, arterial and circulatory disorders, osteoporosis pain, viruses, and immune deficiencies. Some recent findings shed light on how this particular oxidative therapy might help such a wide variety of conditions.

Bocci has determined that exposure of blood to ozone at concentrations used by practitioners for years induces cytokines and interferons.[35,36] In fact, he went on to call ozone "an almost ideal cytokine inducer." He concluded that such immune system modulation could explain the benefits of ozone reported for decades on a very wide variety of conditions.

Mattman has detailed hundreds of reports linking cell wall deficient bacteria to a wide span of disease states.[37] Autoimmune disease may not be autoimmune at all, but rather an immune attack a hidden infection with native tissue being damaged by a prolonged or dysfunctional immune response to these "stealth pathogens."

The broad spectrum of biologic effects of these nonspecific oxidative therapies may explain the broad range of benefits. It is quite possible that all

of the oxidative therapies may operate through similar mechanisms postulated by Bocci for ozone (namely the generation of reactive oxygen species, which in turn induce some very exceptional biochemical events).

Ultraviolet has clearly been shown to be a superior anti-infective. It is possible that the secondary emanations previously described could inactivate pathogens deep in tissues. However, of possible greater import is its effect on the other various physiologic factors affecting the terrain. The improvement in oxygen delivery and consumption, rise in circulation, blood elements, stimulation of mitochondrial oxidation and shift towards alkalinity, while all nonspecific in themselves, may help hasten the cellular response in very many disease states.

Personal experience with UV blood irradiation therapy has been limited strictly to an outpatient practice. However, I have observed significant and dramatic effects on pharyngitis, cellulitis, otitis media, wounds, viral infections, and gastroenteritis, and chronic fatigue. In several years of use, I have had only one patient who suffered from apparent chronic fatigue and failed to respond to a series of UV treatments; the patient had a significant psychological factor. Several patients with multiple chemical sensitivities have also experienced significant improvement. Chronic and intractable pain has been reported by an anesthesiologist pain specialist to be surprisingly responsive.[38]

Modern medicine has focused on drugs to suppress symptoms or inhibit certain physiology (NSAID drugs as prostaglandin inhibitors, hypertensive drugs as enzymatic blockers) to treat disease. As a result, we have seen the frightening rise of resistant organism and the side-effects of chemical pharmacology. Perhaps medicine should consider the concept of nonspecific modalities that encourage the body's healing response and immune system. What could be a safer or more effective agent against infection than the bacteriocidal capabilities of our own phagocytes and a properly functioning immune system?

At least 20 American physicians are currently utilizing photooxidation and have advised me of dramatic cures of intractable infections, including osteomyelitis. Communications from these physicians are verifying my findings in the use of this modality with chronic fatigue. A German videotape related that several hundred physicians are currently employing the technique in Germany with hundreds of thousands of treatments having been performed through the years and never any reported incidents of toxicity (other than a mild Herxheimer reaction).

"Ultraviolet irradiation of blood has been approved by the FDA for the treatment of cutaneous T-cell lymphoma. Thus, the method is legal within the context of FDA's definition of legality. It is also legal, from the standpoint of long (over 50 years) and continuous use by physicians in the United States as a commercially viable product before the present FDA was even in existence. "[39]

The technique is taught at workshops and seminars sponsored by the International Association of Oxidative Medicine (telephone: 405634-1310). The American Board of Oxidative Medicine (a member of the American Board of Specialities of Alternative Medicine) certifies doctors in the various techniques of oxidative medicine, including UBIT.

Conclusion

This simple, inexpensive, and nonspecific technique was clearly shown years ago to be a totally safe and extremely effective method of treating and curing infections; promoting oxygenation; vasodilation; improving asthma; enhancing body physiology, circulation, and treating a variety of specific diseases. Its use in hospitals and offices could significantly reduce mortality, morbidity, and human suffering. Much more research needs to be done in determining all of the potential uses of ultraviolet blood irradiation therapy and also its correlation with other oxidative therapies.

References

1. Laurens, Henry, *The Physiologic Effects of Ultraviolet Irradiation,*JAMA, Vol. 11, No. 26, December 24,1938, p. 2390.
2. Ibid, p. 2391.
3. Douglas, W.C., *Into The Light,* Second Opinion Publishing, Inc., 1993, pp. 18-19.
4. Ibid, p. 28.
5. Knott, Emmett, *Development of Ultraviolet Blood Irradiation,* American journal of Surgery, August, 1948, pp. 165-171.
6. Miley, George, *Ultraviolet Blood Irradiation Therapy,* Archives of Physical Therapy, September, 1942, pp. 537-538.
7. Miley, George, *The Knott Technique of Ultraviolet Blood Irradiation in Acute Pyogenic Infections,* The New York State Journal of Medicine, January 1, 1942, pp. 38-46.
8. Miley, George, *Efficacy of Ultraviolet Blood Irradiation Therapy and Control of Staphylococcemias,* American journal of Surgery, Vol. 64, No. 3, pp. 313-322.
9. Rebbeck and Miley, *Review of Gastroenterology,* January-February, 1943., p. 11.
10. Miley and Christensen, *Ultraviolet Blood Irradiation Therapy: Further Studies in Acute Infections,* American journal of Surgery, Vol. 73, No. 4, April, 1947, pp. 486-493.
11. Rebbeck, E.W., *Ultraviolet Irradiation of Blood in the Treatment Of Escherichia coli Septicemia,* Archives of Physical Therapy, 24:158-167, 1943.
12. Barrett, Henry, *The Irradiation of Autotransfused Blood by Ultraviolet Spectral Energy: Results of Therapy in 110 Cases,* Medical Clinics of North America, May, 1940, pp. 723-732.
13. Douglas, W.C., *Into The Light,* Second Opinion Publishing, Inc., 1993, pp. 97-98.
14. Miley, George, *The Control of Acute Thrombophlebitis With Ultraviolet Blood Irradiation Therapy,* American journal of Surgery, June, 1943, pp. 354-360,
15. Miley, Seidel, and Christensen, *Preliminary Report of Results Observed in Eight Cases of Intractable Bronchial Asthma,* Archives of Physical Therapy, September, 1943, pp. 533-542.

16. Miley, Seidel, and Christensen, *Ultraviolet Blood Irradiation Therapy of Apparently Intractable Bronchial Asthma,* Archives of Physical Medicine, January, 1946, pp. 24-29.
17. Miley and Christensen, *Archives of Physical Therapy,* November, 1944, pp. 651-656.
18. Olney, R.C., *American Journal of Surgery, Vol.* 90, September 1955, pages 402 - 409.
19. Rebbeck, E.W., *Review of Gastroenterology,* January-Februarv, 1943.
20. Rebbeck, E.W., *Preoperative Hemo-Irradiations,* American journal of Surgery, August, 1943, pp. 259-265.
21. Miley, George, *The Ultraviolet Irradiation of Autotransfused Human Blood, Studies in Oxygen Absorption Values,* Proceedings of the Physiological Society of Philadelphia, Session of April 17, 1939.
21. Miley and Christensen, *Ultraviolet Blood Irradiation Therapy in Acute Virus and Virus-Like Infections,* The Review of Gastroenterology, Vol. 15, No. 4, April, 1948, pp. 271-276.
23. Miley, George, *Recovery From Botulism Coma Following Ultraviolet Blood Irradiation,* The Review of Gastroenterology, Vol. 13, No. 1, January-February, 1946. pp. 17-18.
24. Miley, George, *Ultraviolet Blood Irradiation Therapy (Knott Technique) in Non-Healing Wounds,* American journal of Surgery, Vol. 65, No. 3, September, 1944, pp. 368-372.
25. Gurwitsch, A.: In Rahn, Otto, *Invisible Radiations of Organisms, Protoplasma - Monographien, Berlin,* Vorntraeger, 1936, Vol. 9.
26. Douglas, W.C., *Into The Light,* Second Publishing, Inc., 1993, pp. 14-15.
27. Edelson, Richard, *Scientific American,* August 1988, pages 1-8.
28. Gasparro, F.P., Mechanistic Events Underlying the Response of CTCL Patients to Photophoresis. In: *Extracorporeal Photochemotherapy: Clinical Aspects in the Molecular Basis for Efficacy,* Austin, Texas, RG Landes Company, 1994; 101-20.
29. Pohlmann, et al, *Wirksamkeit Von Pentoxifyllin und der Hamatogenen Oxydationstherapie,* Natur-und GanzheitsMedizin, 1992; 5:80-4.
30. Paulitschke, Turowski, and Lerche, *Ergebnisse der Berliner HOT/UVB - Bergleichstudie bei Patienten mit peripheren arteriellen Durchblutungsstorungen, Z.* gesamte Inn. Med., No. 47, 1992, pp. 148-153.
31. Frick, G., *A Linke: Die Ultraviolet bestrahlung des Blutes,* ihre Entwicklung und derzeitiger Stand., Zschr.arztl., Forth. 80, 1986.
32. Seng, G., *Hernatogenic Oxydationstherapie,* Therapeuticon Six, June, 1988, pp. 370-373.
33. Krimmel, *Hematogena Oxidationstherapie - Eine Moglichkeit bei der konbinierten Tumortherapie,* Arztezeitschr. f. Maturheilverf., November, 1989, 30., Jarhg.
34. Miley, George, *The Present Status of Ultraviolet Blood Irradiation (Knott Technique),* Archives of Physical Therapy, Vol., 25., No. 6., June, 1944, p. 361.
35. Bocci, Vielio, *Studies on the Biological Effects of Ozone, 1. Induction of Interferon Gamma on Human Leukocytes,* Haernatologica, 1990, 75:510-5.

36. Bocci, Vielio, *Ozonization of Blood for the Therapy of Viral Diseases and Immunodeficiencies: A Hypothesis,* Medical Hypothesis, 1992, Vol., 39, pp. 30-34.
37. Douglas, William *C., Into the Light, p.* 257.
38. Mattman, Lida, *Cell Wall Deficient Forms - Stealth Pathogens, CRC* Press, 1993.
39. Weg, Stuart, *Private Conitnunication,* January, 1996.