

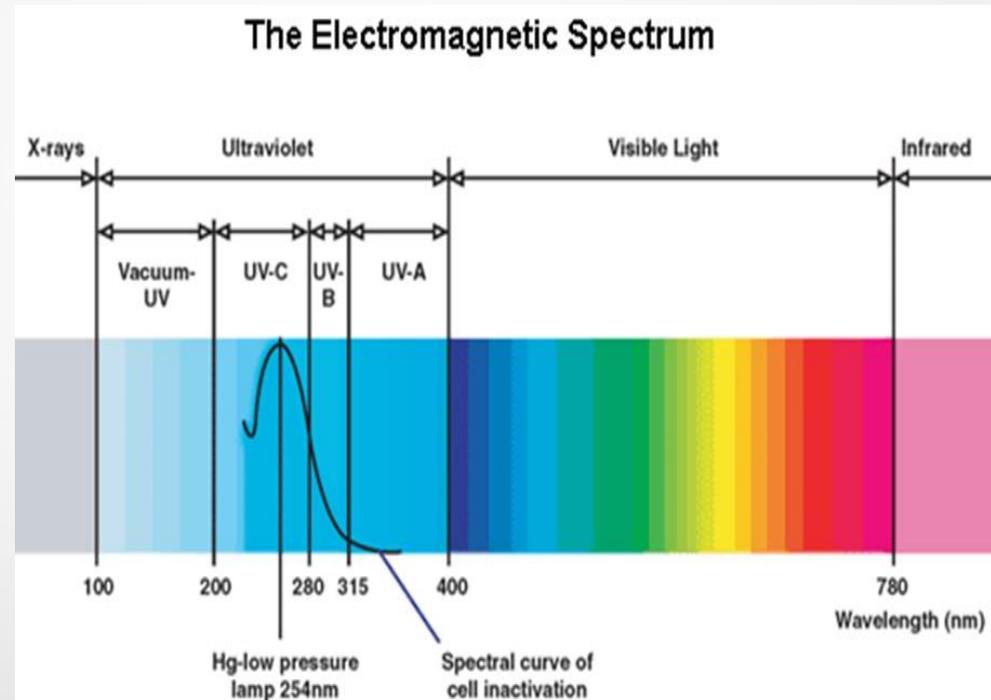


**ULTRAVIOLET BLOOD
IRRADIATION (UV-LIGHT)
THERAPEUTIC EFFECTS
AND MECHANISMS OF
ACTION**

Dr. Adriana Schwartz MD

UV- LIGHT BLOOD IRRADIATION

- Ultraviolet radiation Blood (UBI) consist in the irradiation of blood using a closed circuit, ex vivo exposure of less than 1/20 the bloodstream to ultraviolet light.
- The blood is irradiated with Bulbs UV-C (100-280 nm) and UV-A (400 nm 315) of 4 watt through a sterile glass cuvette.



UV- LIGHT BLOOD IRRADIATION

- ▶ The fast division or metabolic hyperactivity of microorganisms (bacteria, parasites and viruses) absorb ultraviolet energy and cause excessive damage to the DNA / RNA of these microorganisms
- ▶ White resting cells absorb less energy, but use this energy to upregulate its anti-microbial mechanisms of oxidative defense.
- ▶ The radiation produce attenuation of the activity of the microorganisms acting as a vaccine, and also produces a physiological immunomodulation.



HISTORY

3 main exponents of the field of photobiology:

- **Neil Finzen**, 1890. He demonstrated the biological properties of UV Light
- **Elmer Knott**, 1940. He discovered the extraordinary therapeutic effects of UV light to be applied directly to the blood.
- **John Ott**, 1980. He showed the amazing effects of different parts of the electromagnetic spectrum, especially the visible spectrum, on living things, both animal and vegetable.

HISTORY

Book: Into the Light
Author: William Campbell Douglas, MD
Second Opinion Publishing Inc. Atlanta Georgia 2003

Dr. Neils Ryberg Finsen

He became famous for his research on the physiological effects of light and the stimulating and bactericidal properties of actinic rays (blue, violet and ultraviolet).

He developed the electric arc lamp (light of Finsen) for the treatment of tuberculosis lupus and other similar skin conditions.

In 1903 he was awarded the Nobel Prize for Medicine "in recognition of his contribution in the treatment of diseases, especially lupus vulgaris, with concentrated light radiation, which opened a new avenue for medical science".



Neils Ryberg Finsen
B. In 1860. Denmark
Finsen Medical light Institute. Denmark
Nobel Prize in Medicine 1903

Neils Ryberg Finsen

- In 1880 reported a cure rate of 98% in 2,000 patients with skins diseases and mucous membranes disorders treated with UV light.
- Even today some foods are irradiated with ultraviolet light to kill bacteria.
- Finsen was also ahead of his time in his concept of the effect of sunlight on health.
- It is only very recently that seasonal affective disorder (SAD) has been recognized as a type of depression caused by lack of sunlight in winter.
- People diagnosed with SAD can be treated sitting under the lights to broaden its exposure to light in the short days.

History

- In the early 1940s when there were no antibiotics and sulfa drugs available, surgeons were in need of a reliable tool that really worked to control post-operative infections.
- Emmett K. Knott (1928), was the first to irradiate the blood of a human being with UV light in a patient given up by post-abortion by hemolytic streptococcus septicemia, who responded remarkably to irradiation and recovered in just 2 days.
- By June 1942, Hangcock and Knott in 6520 treated patients demonstrated the great effectiveness of treatment in severe infections with the complete absence of side effects. In 1945, Levinson demonstrated the ability of UV light to inactivate viruses for use as antigens in preparing vaccines.

J. of Surg. Vol.6, No.1, 1943

1998 , K. Dillon. Scientia Press.

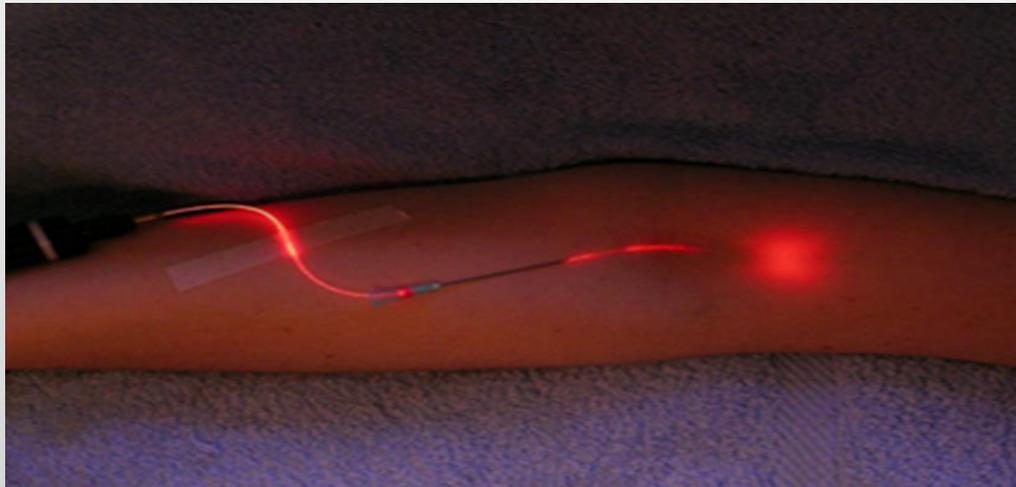
Healing Photons. The Science
and Art of Blood Irradiation Therapy

History

- In the 40s some surgeons began using pre- and postoperative UVBI regularly and with dozens of doctors published their articles in the American Journal of Surgery and other prestigious journals.
- They founded the American Society of Blood Irradiation.
- The progress in the development of antibiotics, vaccines and corticosteroids in the 1950s reduced the interest in the use of ISUV.
- Until 1976 the original machine of "hemo-irradiation Knoth" was sold in the US with FDA approval.
- Lester E. Knott Edblom developed the first Hemo-irradiator with vacuum system and reusable glass test cuvette.
- The first patent was granted to them in the US on September 11, 1928

Restarting the growing interest in ISUV

- By 1970 the interest is revived by its application in Russia and East Germany.
- In 1981 the Soviets Dr E.N. Meshalkin and V.S. Sergievskiev introduced low intensity laser (630 nm) to directly irradiate the blood circulating through an optical fiber inserted into a vein (LBI) for the treatment of diseases C.V.



Restarting the growing interest in ISUV

- Since 2000 till today, due to the disproportionate increase in multi-resistant bacterial strains, side effects, high costs and the epidemic of HIV, HPV, hepatitis, etc .
- it is generating increasing interest of physicians and researchers in innovative approaches and inexpensive as UVBI to combat infectious and autoimmune diseases.
- H. Kost et al. (1986) irradiated blood with a band of incoherent blue light for the treatment of ischemic heart disease and hypertension obtaining a decrease in LDL and total cholesterol.

Mechanism of action

- The mechanisms of action are very similar to those that triggers systemic ozone in the body.
- Increases the number of lymphocytes.
- Promotes a release of specific proteins from the cell surface of the blood leucocytes, including molecules of the MHC Class II HLA-DR, resulting in a reduction in the number of cells which express these surface proteins;
- Upregulation in the expression of certain cell surface markers, for example, CD-11b, a component of the ligand for the cell adhesion molecule ICAM-1;
- A decrease in the amount of heat shock protein HSP-60 contained in leukocytes, particularly lymphocytes, and an increase in HSP-60 in the plasma;
- A decrease HSP-72 within lymphocytes;
- A decrease in the proliferation of mononuclear cells treated after mitogenic stimulation.

Mechanism of action

- UV Radiation forms pyrimidine dimers and breaks the DNA of microorganisms. Somatic cells are metabolically active and therefore have the ability to withstand the photon radiation emitted by the blood cells.
- It seems that once satisfied the requirements of LUV, a stimulating effect on the whole body economy occurs, producing an energizing effect on the immune system and perhaps on other body systems.

Therapeutical effects

- Stimulation of humoral and cellular immunity.
- Stimulation of fibrinolysis.
- Decrease of blood viscosity.
- Improvement of microcirculation.
- Stimulation of the production of corticosteroids.
- Increase of the PaO₂ and decrease of PvO₂.
- Increase of the arteriovenous O₂ difference -venosa.
- Increases the account of peroxides.
- Reducing oxidative state of the blood.
- Increase in the number of erythrocytes, leukocytes and platelets. Decrease of glucose tolerance and increasing the tolerance of sugar.
- Elevation of blood calcium.
- Peripheral vasodilatation and increased ability of the blood to carry oxygen. Inactivation of free radicals.
- Destruction and inhibition of bacterial growth.
- Increased affinity of oxygen by the blood, transport and use. Activation of steroid hormones.

Therapeutical effects

- Increasing the capacity buffer-acid and pH.
- Reduction in pyruvate content in the blood.
- Reduction in the content of lactate in blood.
- Improvement in glucose tolerance.
- Lowering cholesterol, transaminases and creatinine.
- Vasodilation.
- Leukocyte activation.
- Reduction of platelet aggregation.
- Elevated post-stenotic blood pressure.
- Increase of phagocytic capacity.
- Increase of bactericidal capacity of blood.
- Immune system modulation.
- Elevated post-stenotic blood pressure.
- Increase of circulating volume.

Detoxifying effects of the UV-Light

- Hyperbilirubinemia jaundice of the newborn is extremely toxic to neurons.
- 40 years ago it was discovered that the toxicity could be neutralized by irradiation of blue light on the baby's body, making it soluble in water, it can easily be excreted by the liver, preventing brain damage.



Clinics, physiological and theoretical considerations

Dr. Wayne London, a researcher at Dartmouth Medical School, and author of publications, "Health Benefits of Full-Spectrum light" and "Light and the Immune System", agrees with Dr. Ott about the connection between light spectrum and full health and concludes:

- Full Spectrum Light benefits Rheumatoid Arthritis and Multiple Sclerosis. Phototherapy using UV light, is effective for treatment of psoriasis.
- 2 types of cancer: breast and bowel cancer have been associated with a deficiency of light, or a light blocking full spectrum (vitamin D deficiency).
- Patients with candidiasis or other fungal infections respond to supplementation of full spectrum light.

Patients who respond therapeutically in an extraordinary way may be suffering from deprivation to UV light due to:

- a) A shock absorption mechanism.
- b) An inadequate supply, or
- c) A combination of both

Clinics, physiological and theoretical considerations

It is possible soon we may diagnosing diseases by monitoring light emissions from cells.

For example, smokers, emit twice as much light than non-smokers. In one day, after quitting, these emissions down to the level of nonsmokers.

The urine of smokers emit more light than non-smokers.

Humio Inaba, Researcher at the University of Tohoku, relates:

"This photon emission is clearly associated with a wide range of vital activities and biological processes."

He found that the blood of patients with cancer, diabetes and jaundice emits more light than the blood of healthy people but, paradoxically, although these diseased cells emit light radiation, have a deficiency of LUV

CANCER

Lymphoma

VIRAL INFECTIONS

HIV

Hepatitis

Influenza

Herpes simplex/zoster

Mononucleosis

Mumps

Measles Infections

Viral Pneumonia

Polio

BACTERIAL INFECTIONS

Pneumonia

Wound Infections

Septicemia (staphylococcus,
streptococcus,
pneumococcus)

lymphatic infections
(lymphangitis)

Peritonitis

Severe Acne

Recurrent skin infections
(furunculosis, carbunculosis)

E-coli

Necrotizing infections

INFLAMMATORY CONDITIONS

Arthritis

Fibrositis

Bursitis

Nephritis

Iritis

Uveitis

Cholecystitis

Pancreatitis

CIRCULATION CONDITIONS

Varicose Veins

Peripheral vascular disease

Gangrene

Vascular headaches

Deep Vein Thrombosis

Claudication

Diabetic Ulcers

Thrombophlebitis

AUTOIMMUNE DISEASES

Fibromyalgia

Lupus

Rheumatoid Arthritis

Psoriasis

Psoriatic Arthritis

Raynauds Disease

Sclera derma

Multiple Sclerosis

OTHERS CONDITIONS

Non-healing wounds and
fractures

Inactivation of snake venom

Fungal/Yeast Infection

Decreases edema (swelling)

Cirrhosis

Tetanus

Chronic fatigue

Allergies

Neuritis/Neuropathy

Chemical sensitivity

Botulism

Malaria

Typhoid

Seizures

RESPIRATORY DISEASES

COPD

Asthma

Emphysema

Sinusitis

Bronchitis

Tuberculosis

CONTRAINDICATIONS

- Porphyria. Photosensitivity / photodermatitis.
- Coagulopathy (Haemophilia).
- Hyperthyroidism.
- Fever of unknown origin.
- Hypoglycemia: small risk of hypoglycemic shock, especially in diabetic patients which can be avoided by just before eating carbohydrates or after the application of the ISUV.
- Refractory left ventricular failure.
- Acute Myocardial Infarction before 3 weeks of evolution.
- Acute cerebral insufficiency and acute disorders of cerebral circulation. Gastrointestinal bleeding.
- Photodermatitis.
- Hypoglycemia.

PRECAUTIONS

- **Photosensitisation drug reactions:** Sulfa and iodine-based drugs can be given before but should not be given 4 days after the last treatment.
- Psychotropic drugs, analgesics, anxiolytics, antidepressants and hypoglycemic agents should be used with caution since the ISUV can enhance its effects.
- Miley reported that approximately 50% of patients with bronchial asthma, chronic sinusitis, and chronic rheumatic diseases (including acute rheumatic disease) occurs an aggravation of pre-existing symptoms for 4 -5 days after the first ISUV.

Herxheimer reaction: It can be seen in acute bacterial infections hours after ISUV because of massive bacterial death. It is characterized by fever, chills, and temporary increase in widespread toxic symptoms similar to flu-like symptoms with headache, muscle aches, fatigue and malaise that can last several days. This reaction decreases in intensity as the treatment progresses. Some patients with irritable bowel reported a temporary increase in loose stools.

Knott technic

Volume of blood used:

The maximum recommended volume is 1.5 mL/Lb. (3 mL/Kg), not exceeding 300 mL

Bulbs irradiate blood with UV-C (100-280nm) and UV-A (315-400 nm) 4 watt in a closed sterile glass container.

Reinfuse irradiated blood immediately throughout the same vein.

The average time sample irradiation is 10 sec.

Repeat the procedure: according to the case and no more than 1 session per day.

Number of sessions: Continue until infectious toxins have been neutralized and invading germs have died and the immune system regain control and finish with the total destruction of invading organisms.





Studies

- **Treatment of acute septicemia** Vestn Khir Im I I Grek. 1983 Apr;130(4):109-12. 115 patients with acute sepsis UBI therapy **reduced lethality almost 3 times.**
- **Peripheral arterial occlusive disease.** [Article in German] 1989 Apr 1;44(7):201-7. 21 patients suffering from obstructive peripheral arterial disease stage II - UB With UBI **walking distance improve 3 fold, Zero for the rest** Oxygen utilization was improvedapparent blood viscosity was diminished.
- Transfusion. 2008 Feb;48(2):304-13. Epub 2007 Nov 19. **Potential and limitation of UVC irradiation for the inactivation of pathogens in platelet concentrates.** Terpstra FG, van 't Wout AB, Schuitemaker H, van Engelenburg FA, Dekkers DW, Verhaar R, de Korte D, Verhoeven AJ. Sanquin Research and Landsteiner Laboratory of the Academic Medical Center of the University of Amsterdam, Amsterdam, The Netherlands.
f.terpstra@sanquin.nl

Studies

- **UBI in the complex treatment of peritonitis** Vestn Khir Im I I Grek. 1989 Apr;142(4):84-7. 199 patients with different forms of peritonitis It reduced lethality two times.
- **Treating pneumonia in patients with craniocerebral trauma.** Zh Vopr Neurokhir Im N N Burdenko. 1990 May-Jun;(3):11-4. 50 cases of craniocerebral injury complicated by pneumonia, the authors prove the efficacy. The mortality and the period of in-hospital treatment of this group of patients reduced.

Mr. L. R.M.

Obliteran arteriosclerosis

Age: 67 years old, male

Complaint: severe circulatory disorders of the lower limbs:

- Continuous severe pain at rest and crampy exacerbated by night
- Severe electric twinges shocks.
- Inability to walk.
- He want to avoid amputation

Background:

- Heavy smoking (3 packs a day) from 11 years old until a month before of consultation.
- Alcoholism.
- Marijuana addiction since his youth.
- Endarterectomy without results



May 24th 2004



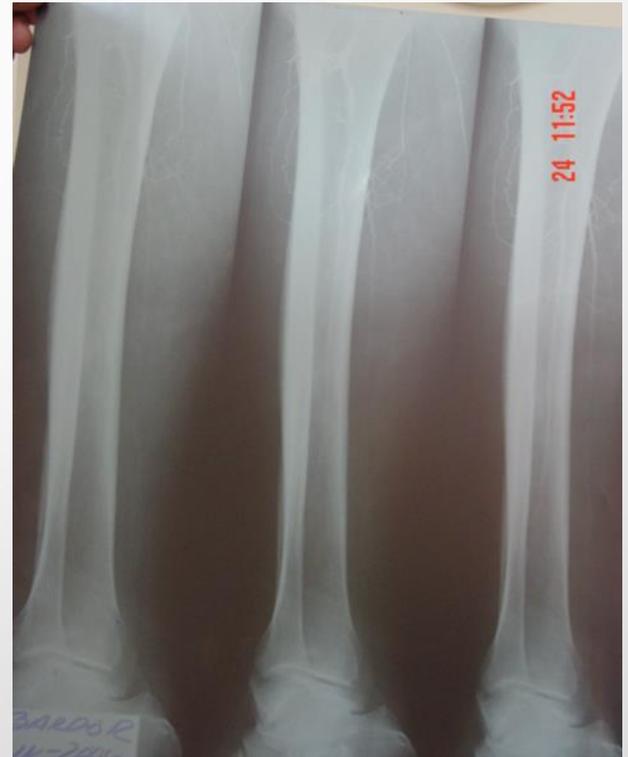
Mr. L. R.M.
Obliteran arteriosclerosis

Physical Exploration:

- Coloring trophic changes.
- Vascular lesions outer edge of the left heel.
- Gangrenous necrosis area in the 4 knuckle of his right foot.
- Coldness of extremities.
- Infected, fetid and tunneled (hutches) 1/3 proximal anteromedial right leg wound. Absence of pedal pulse and posterior tibial



Arteriography



Conventional treatment

- Clopidogrel 1 Tab/day
- Dolac PRN (ketorolaco trometamina)
- Pentoxifilina 2/day
- Ciprofloxacino 250 mg. 2/day

Protocol

Working plan

UVBI+O₃, Twice a week:

1st week 20 µg/mL,

2nd week 25 µg/mL,

3th week 30 µg/mL,

4th week 35 µg/mL,

5th and 6th week 40 µg/mL,

Rectal insufflation: Vol. 100 - 150 cc

1st week 20 µg/mL,

2nd week: 25 µg/mL,

3th week 30 µg/mL,

4th week on 40 µg/mL.

Intralesional injection of ozone: 20 µg/mL

Local cure: twice a day with ozonized oil at 600 - 800 IP and ozone bagging.

Clinical results

- The infected and tunneled right leg wound in a process of granulation.
- 95% reduction of pain.
- After the 2nd. week could walk with crutches, and unsupported a month later.
- The heel injuries closed and is expelling the necrotic area of the 4th finger in a form of crusts.
- Claudication at 150 meters.
- Tingling of a wide feet area.



August 25th 2004

- Infected leg wound and necrotic area of the 2nd knuckle of the right foot, completely healed.
- Hypoaesthetic areas in outer midfoot.
- 400 m claudication.
- Very good mood.
- Goes to the consultation unaccompanied.
- Unilaterally decides to stop the treatment for economic reasons



November 3th 2004

Remains a large area of
hypoesthesia in right leg
and foot

**We schedule 10 more sessions
(1/week) UVBI+O₃**



November 4th 2014



December 12th 2004



Clinical evolution

May 24th 2004



December 12th 2004

January 12th 2005

- He can walk 3000 mt every day, stopping at 1,500 mt a time to rest and massage his legs, continuing the trek to 3,000 mt
- The hypoesthesia foot area practically disappeared.
- Very optimistic.
- He got a job as a watchman of a company.
- Case close



History of Cancer Immunotherapy

Ralph M. Steinman, M.D.

- 2011 Nobel Prize
- Nobel prize awarded for discovery of the Dendritic Cell and its role in adaptive immunity.



History of Cancer Immunotherapy

- 1890 – William B. Coley
- injected patients with killed bacteria of two different strains; “Coley’s Toxin” met with considerable success.
- A retrospective study in 1999 suggests that it was equally as effective as conventional modern therapy.



World Cancer Centers Therapeutic Strategy

Vaccine of dendritic cells

The treatment developed by Dr. Cezayirli utilizes Dendritic cells taken from the patient which are reacted with tissue from the patient's tumor to form a vaccine.

A small amount of vaccine is injected to create an immune response that causes the patient's immune system to destroy the tumor.



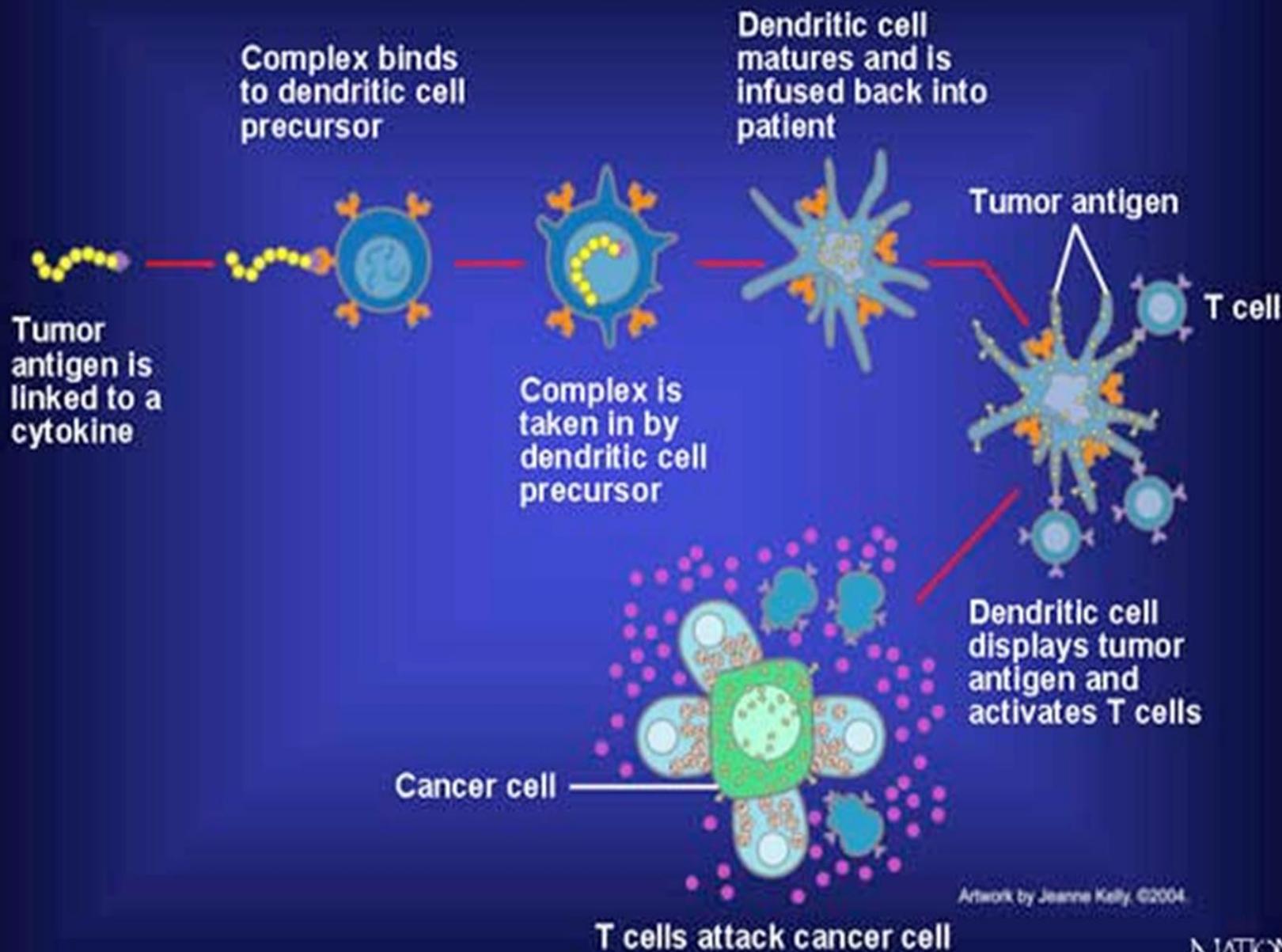
Cem Cezayirli, MD
Neurosurgons from
University of Tennessee.
Princeton Medical Center

Ozone-therapy program

Ozone therapy program was led and directed by Dra. Adriana Schwartz and her team from Clinica Fiorela Honduras.

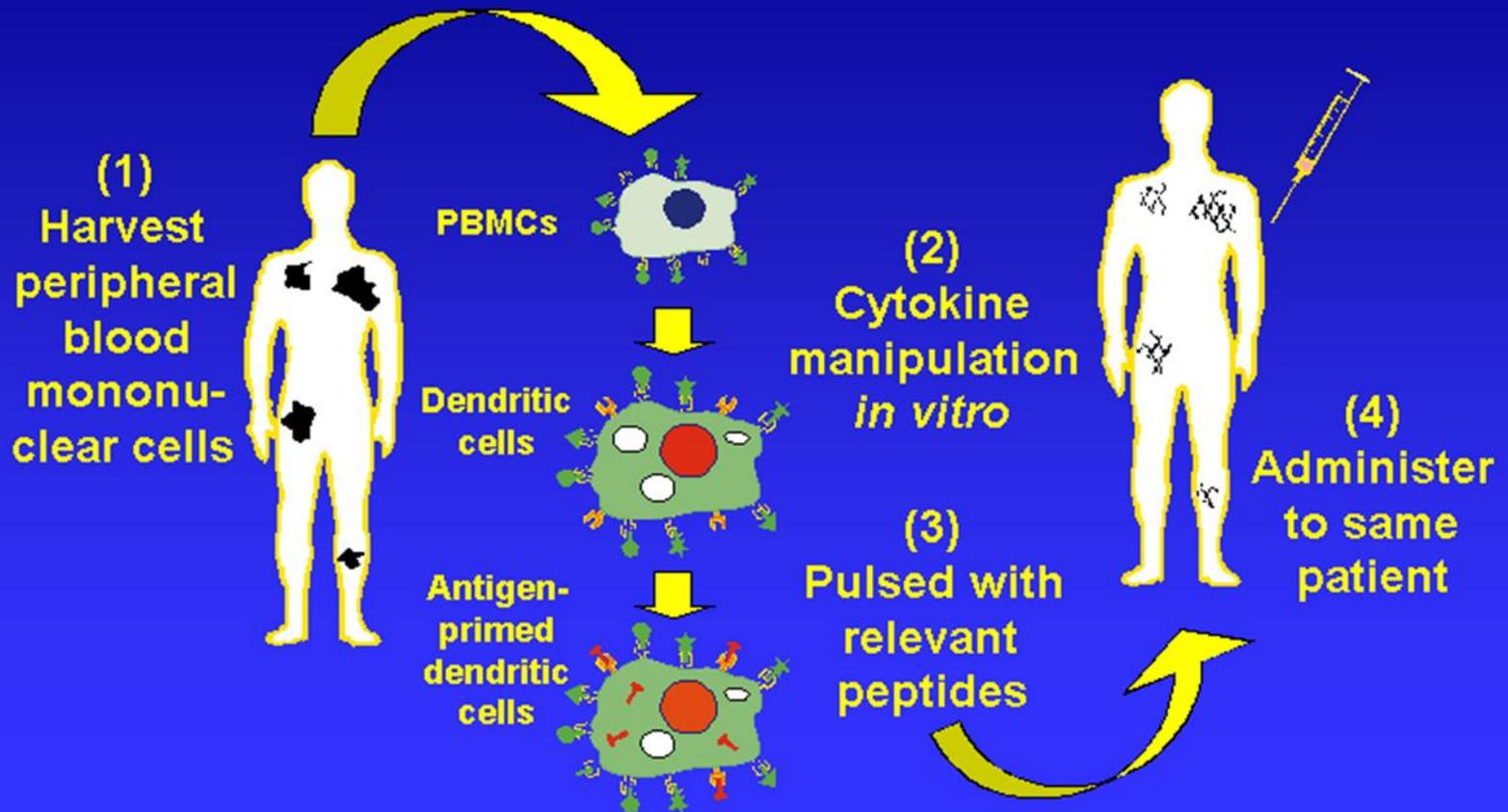


Dendritic Cells That Attack Cancer



Artwork by Jeanne Kelly, ©2004.

Dendritic Cell Vaccines



Glioblastoma

Highly malignant, fast growing brain tumor

The Prognosis

- The prognosis for patients with malignant glioma is poor.
- The current treatment of glioblastoma consists of surgical resection followed by radiation therapy and/or chemotherapy.
- This treatment results in a median survival of less than 1 year.

Hypoxic Tumors

- Aggressive and metastatic
- Correlate with a poor prognosis

Resistant to:

- Chemo-therapy
- Radiation therapy and
- Immuno-therapy

UV-LIGHT + O3

Potentiates immuno-therapy by:

- Increasing tissue oxygenation
- Anti-inflammatory effect
- Decrease blood viscosity
- Increase erythrocyte filterability
- Increase NO levels, a powerful vasodilator
- Anti-platelet aggregation
- Increased synthesis of endogenous antioxidant enzymes, especially GSH.
- Modulation of the redox system.

It was decided to use the combined system of UV Light + O3 + GSH + VitC + Se +Zinc

Sequency of the treatment

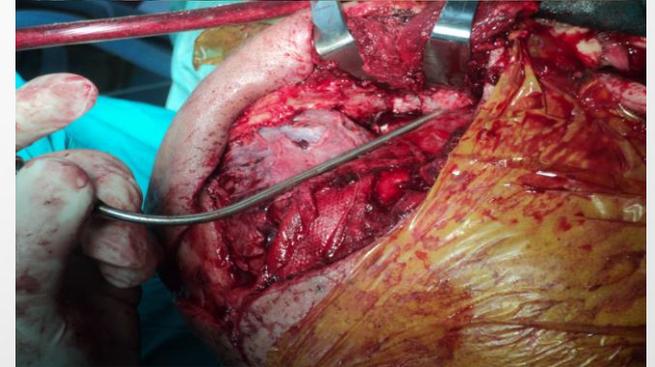
- Male patient 66 years old.
- Diagnosed recurrent glioblastoma multiforme.
- Right parieto-occipital location
- Tumor size was 70 mm x 35 mm x 35 mm
- Tumor biopsy
9/13/2011
- Immunotherapy vaccine administered
9/20/11, 9/30/11 and 10/14/11
- Ozone therapy administered
9/19/11 through 10/19/11
- Surgery to install shunt and de-bulk tumor
10/26/11

TAC



Recurrent Surgery

October 26th 2011



Muestra una pseudocápsula que delimita el tumor

BIOPSY

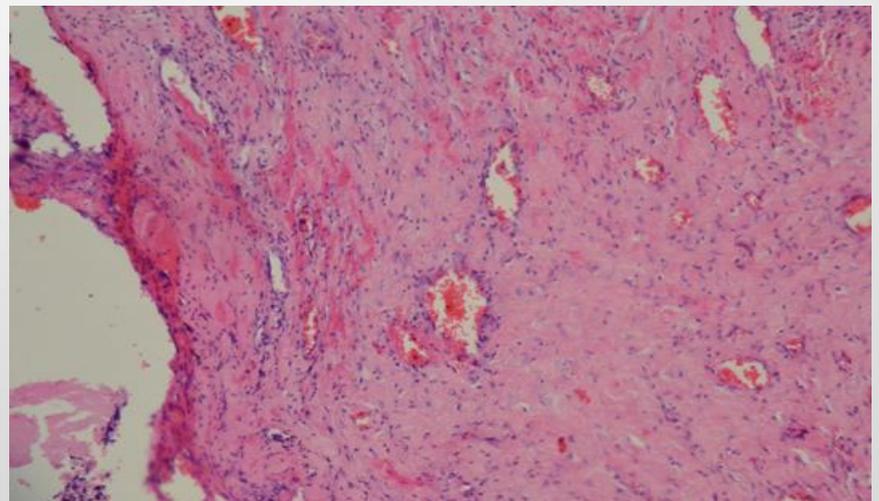
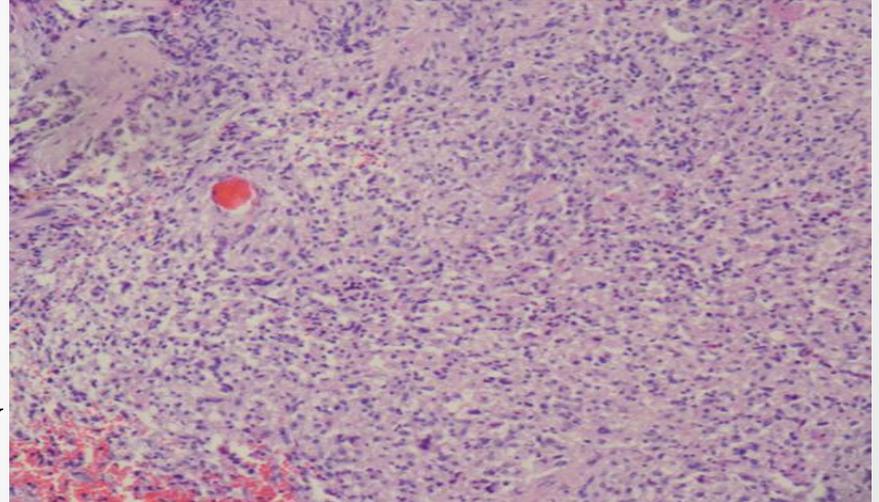
- First Biopsy September 13th 2011
Shows anaplastic cells with very dark nuclei plus mitotic activity a lower right hand.

Shows extensive necrosis from first biopsy.

Second Biopsy after Immunotherapy & Ozone Treatment
26 October 2011

Shows intense cellularity more compact with less necrosis.

**Tumor debulked 26 October 2011
Shows pseudocapsule delimiting the tumor**



CONCLUSIONS

- Tumor size decreased from 70mm to 60mm in 6 wks
- Tumor illustrated less aggressive characteristics
- Tumor became encapsulated
- Tumor became less vascularized

CONCLUSSIONS

- ISUV +Ozone therapy is a simple, inexpensive, non-specific, safe, non-toxic and extremely effective treatment for ischemia and infections, promoting oxygenation, vasodilation and circulation, allowing a variety of treating specific diseases and conditions.
- Its use in hospitals and clinics can significantly reduce mortality, morbidity and human suffering.
- The entrance to the body of energy from the ISUV, greatly changed the correlation of forces, benefiting the entire body.
- When raising host resistance, it increases its homeostatic capacity to control various pathological processes quickly and efficiently.

THANK YOU VERY MUCH

