

Ozone: A Wide-Spectrum Healer
by Gary Null, Ph.D.

"I know a number of cases of individuals with T-cell counts that have been very low, but because of regular ozone therapy they have not gotten any opportunistic infections. In fact, it's almost as though the ozone is taking the place of their immune system. Unfortunately, you often do not see rises in their T-cell counts, but you can see a stabilization and a management as a chronic manageable illness. It's my belief that the use of ozone in association with other complementary therapies can convert AIDS from a uniformly terminal illness to something that is chronically manageable, which is better than what anyone else can offer at this point." - -Dr. John Pittman (1)

Many feel it to be the most promising, safe, and generally efficacious treatment for major degenerative diseases, from AIDS and chronic fatigue to cancer and arthritis. It's ozone - - medical ozone. Medical ozone differs from atmospheric ozone in that it is pure and concentrated. This is an important distinction because atmospheric ozone, produced from ultraviolet radiation, is combined with different nitrous oxide and sulfur dioxide products and is harmful. It's not used in medical practice.

Ozone (O₃) is produced by the reaction of oxygen atoms (O) with molecular oxygen (O₂)- This allotrope (different form) of oxygen possesses unique properties that, while they have yet to be completely defined and understood, have been benefiting clinical practice for years, albeit mostly in Europe. Most of the states in this country have yet to legalize use of the healing powers of this nontoxic molecule.

Of course lack of official acknowledgment within certain political boundaries in no way negates the properties of any natural substance, and that includes ozone. As a molecule containing an excess of energy, ozone manifests bactericidal, virucidal, and fungicidal action, which may make it a treatment of choice under certain conditions and an adjunct to treatment in others. (2) Some of its characteristics and applications are described by Dr. Stanley Beyerle, a naturopathic physician who trained with some of the pioneers of ozone research and treatment:

"Systematically, it oxidizes organic compounds. Topically, it can be used to treat burns. Ozone has hemostatic effects that stop bleeding. It accelerates wound healing, induces enzyme production, and activates immune system response. It is also believed that ozone may have the ability to peroxidize lipids [break up fats]."(3)

As early as World War I, ozone's bactericidal properties were used to treat infected wounds, mustard gas burns, and fistulas, although these treatments were limited by technological difficulties. Current ozone therapy uses a mixture of ozone and pure oxygen,(4) and with today's medical ozone generators, the ability now exists to deliver pure ozone-oxygen mixtures in precise dosages. The Europe-based Medical Society for Ozone and the National Center for Scientific Research in Cuba currently use the treatment for a wide variety of conditions, including wound problems, gastrointestinal disorders, cancer, and AIDS. Doctors report particular success with the different types of hepatitis, as well as candida, allergies and bladder infections. Other disorders treated with ozone therapy: herpes, arthritis, respiratory conditions, multiple sclerosis, sexually transmitted diseases, and parasitic conditions.

And this is just a partial list. What's more, while ozone can be used to treat a wide spectrum of conditions, it can also be used prophylactically to combat harmful viruses, bacteria, and free radicals before degeneration and disease occur. Additionally, already healthy people can use ozone to rejuvenate cells so that they can stay younger longer. As science reporter Nathaniel Altman observes, it is unusual indeed to have a product that treats such a tremendous range of conditions. Altman recounts ozone's multiple benefits:

"First of all, it stimulates the production of white blood cells and increases the production of interferon, interleuken-2, and tumor necrosis factor, which the body uses to fight infections and cancer. It is anti-neoplastic, which means that it inhibits the growth of tumors. One study performed at Baylor University in Texas, in 1962, determined that ozone can help to kill tumors and enhance the effect of different types of anti-tumor drugs. Ozone kills bacteria and viruses. In addition, it increases the amount of oxygen in the blood and helps deliver oxygen to all of the cells in the body. It also helps degrade petrochemicals. This includes different

toxins that one might have in the body due to the environment or food eaten. It helps dissolve and eliminate them from the body, and hence, lightens the body's toxic load. It also increases red blood cell membrane distendability, making it more flexible. This is one way it is used in the treatment of heart disease. The administration of ozone changes the blood formation and helps the blood flow more effectively. In Cuba, for example, there is an ozone generator in every major hospital emergency room. It helps heart patients and stroke victims recover much quicker. It also increases the effectiveness of the antioxidant enzyme system, which scavenges excess free radicals in the body. These are just some of the things that it does." (5)

How Ozone is Used

There are several ways to dispense ozone for therapeutic purposes. One is to introduce the ozone mixture into a fixed volume of the patient's blood ex vivo, that is, outside the body. This method is known as autohemotherapy (AHT), and is performed mainly in central Europe.⁶ AHT is claimed to have therapeutic value in circulatory disorders, viral diseases, and cancer. (7)

With AHT, 50 to 100 milliliters of blood are drawn from the patient, mixed with a dose of ozone/oxygen of a predetermined concentration, and then returned via the same intravenous catheter. Once it's returned to the patient, the ozonated blood is rapidly distributed to all tissues. While it is not known how long the ozone remains in solution, its therapeutic effects have been seen to include virucidal activity, oxygenation, and increased red cell fluidity. (2)

Some patients, upon receiving their own ozonated blood, report a faint background taste of ozone, which may be a sign of the ozone surviving in the solution for at least a few seconds. Of interest, notes Dr. Gerard Sunnen, are reports of AHT patients who experience feelings of well-being lasting for a few minutes to several hours after treatment. Sunnen does not know if these feelings constitute a placebo effect, a metabolic alteration, or a neuropsychiatric phenomenon.

Another commonly used form of administration is rectal insufflation. Essentially, a catheter is put into the

colon and gas from an ozone machine is allowed in at a determined concentration and flow rate. The ozone can also be self administered this way with a Teflon bag.⁸ One study, by Knoch, Roschke, and Klug, reveals how the method works. After oxygen-ozone mixtures are absorbed through the wall of the large intestine, they enter the bloodstream and result in a PaO₂ increase within the entire organism, raising PaO₂ almost 100 percent higher than oxygen alone would, and having no adverse effects.⁽⁹⁾

Dr. Beyerle, who is certified by the German Medical Ozone Society, studied the rectal insufflation method of delivering ozone therapy in Germany with one of the pioneers in the field, Dr. Rilling Beyerle explains that "the blood vessels in the colon, small intestine, and bladder are the mesenteric veins, which deposit into the portal vein and go straight to the liver. The simple introduction of the catheter into the colon, at a low flow rate to increase concentration, gets ozone into the systemic venous system. Dr. Rilling says that if nothing else is done but rectal insufflation, which does not really require a physician at all, you see dramatic results."⁽³⁾

Positive therapeutic effects on diseases of the rectum and colon have been noted with this method since 1936. Beyerle has seen people recover from irritable bowel syndrome, colitis, and Crohn's disease, almost immediately. "There may be some initial discomfort, some bloating and gas on occasion, but as far as irritations, we have yet to see any contraindications. If you've got colitis or irritable bowel syndrome, when ozone is administered properly, there are no negative side effects, only positive ones. It renews the mucous lining and gets to the bacterial infestation that has infiltrated the tissues of the colon."⁽³⁾

Ozone gas can also be directly injected into veins or muscles, a process known as intraarticular or intravenous application. This method, however, can be dangerous, and is not recommended. Drinking ozonated water is another method that has been used. Ozonated water is made by bubbling 16 to 20 mcg/ml ozone through a glass of chilled distilled water (33 to 40 F) for two minutes. The water is then drunk immediately.¹⁰ A further method consists of introducing ozone to the skin in a sauna bag after a hot shower and a brisk rubdown. (8)

Ozone Against Cancer

Low concentrations of ozone have been proven to increase alpha interferon. Interferon is an anti-cancer substance that laboratories all over the country are trying to reproduce, but with ozone, the body will make its own. Once interferon production is initiated, interleukin-2, another anti-cancer agent, is increased. This sets in motion a cascade of immunological events. Specifically, tumor necrosis factor, macrophages, and phagocytes increase, and immunoglobulin processes, such as IgA, IgE, and IgM, activate. Dr. Beyerle elaborates on how he uses ozone in treating cancer:

"When I treat cancer, I want the body's immune response to take care of it and activate the immunological properties, and this is what we see with cancer. We can work right into AIDS with this because what we're looking at is immunological stimulation."(3)

Beyerle treats prostate cancer with an ozone protocol that he reports has yielded phenomenal results. His treatment includes taking 5 cc of the patient's blood, mixing it with 5 cc of ozone at a low concentration, shaking it up, aerating it, making sure it is saturated, and then reinjecting it back into the prostate. He performs five treatments over the course of 20 days, and the program helps prostatic tumors to shrink dramatically.

Beyerle states that most prostate cancer is contained within a capsule until it is biopsied, and he attributes the overuse of biopsies to the spread of cancer within the body. He prefers to check the prostate with ultrasound, as opposed to biopsies, which he asserts are "overused and one of the very worst procedures that can possibly be done I can prove beyond a doubt that is one of the causative agents of spreading cancer."(11) So he feels that a big advantage of ozone is that it successfully treats this cancer while it is still encapsulated.

Beyerle reports major improvement with other types of cancers too, using ozone, including tonsillar, throat, ovarian, colon, and breast cancer. "I have three breast cancer patients now who were supposed to be dead a year ago," he says.(11) Also, he is seeing improvement in breast cancer patients where there is metastasis to the bones, liver, and spinal column:

"We are seeing patients who were bedridden two years ago and sent home to die. They are becoming ambulatory. Their energy level is coming up. They are gaining weight. And we see these spontaneous fractures in the spine are gradually disappearing. Strength is returning to the musculature. There is no spinal pain." (3)

Beyerle's cancer protocol is not limited to ozone; like most practitioners who use this modality, he combines it with others, and he pays attention to lifestyle factors. So, for instance, he includes immune stimulating botanicals, such as the maitake mushroom. Beyerle also uses ozone to treat noncancerous conditions than can eventually become cancerous, such as fibroids and benign prostatic hypertrophy.

HIV and AIDS

Recent studies support the use of ozone therapy for people who are HIV-positive or have AIDS. In one, Dr. Michael Carpendale treated two male HIV-positive asymptomatic patients with colonic insufflations of an ozone/oxygen mixture intermittently for 180 weeks. Both patients increased their CD4 (T4) cell counts and one, after the 160th week, became polymerase chain reaction negative. According to the doctor, both patients have remained in the best of health, with no infections and no adverse symptoms or malaise. (12)

Dr. Carpendale's program consisted of ozone produced from a portable medical ozone generator¹³insulated through a Teflon catheter into the patient's colon. For two years, the patients treated themselves daily, and then weekly, with a booster dose (for a total of 73 treatments containing 2065- 2137 mg ozone). CD4 cell counts were monitored about every two months. Studies showed that low doses of ozone in serum stimulated cell growth and larger doses began to suppress it. Furthermore, ozone was shown to reduce HIV in serum and did not adversely affect healthy cells.

In another study, Carpendale and other researchers used colonic insufflations of medical ozone to treat five AIDS or AIDS-related-complex (ARC) patients with intractable diarrhea. Treatments were given daily for 21-28 days with doses of ozone ranging from 2.7 to 3.0mg. Three patients,

whose diarrhea was of unknown cause, experienced complete resolution, and one markedly improved. The fifth patient, whose diarrhea was due to cryptosporidium, experienced no change. No adverse systemic effects were noted during treatment. Carpendale and his colleagues feel that the results of the study reinforce the findings of previous research on colonic insufflation ozone therapy, i.e., that it is simple, safe, and effective. Further, they assert that the treatment should be used routinely to treat chronic intractable ARC/AIDS diarrhea.(14)

Other research, by H. Kief, reports that ozone is "highly effective against viruses and has an unusually high degree of tolerance when administered parenterally."15 The study notes an "astonishing improvement" in AIDS patients where the disease has not severely progressed, and partial remission in 30 percent of cases of complete manifestation of AIDS.

In another study, V. Bocci determined that autohemotherapy arrests the progress of HIV in its early phase due to immunoregulatory TH1-type cytokines and CD7 t-lymphocytes. Bocci concluded that a mild and equilibrated stimulation of the immune system may prevent or delay the fatal transition toward the prevalent production of TH2-type cytokines.(16)

HIV reversal is no small matter. Nathaniel Altman, author of Oxygen Healing Therapies (Health Arts Press), explains: "When I was in Cuba I interviewed one of the chemists doing research on the subject. She said if a person infected with HIV receives ozone before it gets into the lymphatic and bone systems, HIV can be killed and stopped right on the spot." (5)

In Germany, Vetter studied the results of ozone therapy with 100 patients in different stages of AIDS. He concluded that "None of the patients developed any new opportunistic infections or deteriorated compared to their initial condition. Other infections occurred and were overcome, as in the HIV-negative population." 17 Vetter reported that HIV-positive patients need high concentrations of ozone, and that added vitamin C enables a patient to tolerate this without the risk of hemolysis (the breakdown of red blood cells). Success was also attributed to uninterrupted ozone administration, and slow re-infusion of ozonized blood.(17)

Various protocols have been developed for treating AIDS patients with ozone. An anonymous doctor (practicing in a state where ozone users are not safe from prosecution) recommends 12 treatments on 12 consecutive days.

"Virtually all the people I have treated -- and I have treated over 170 -- have reversed their condition within days, he reports. "People come in on a stretcher and within days their general condition dramatically improves." This doctor strongly believes that with AIDS, ozone is the most important modality of all because it removes infections and that, at least in western countries, AIDS is a conglomerate of 30 or more infectious diseases as a result of drug use or malnutrition.

HIV Treatment News gives anecdotal accounts that support the idea of success with ozone treatment in AIDS patients. In one story, Jim credits ozone applications in a sauna bag and rectal insufflation with improving the quality of his life and keeping infections at bay. The article states, "In three weeks, his swollen lymph nodes disappeared and blood tests...showed an increase in CD4s...."(18) A second report tells of Mike, who increased his CD4 count by using ozone rectal insufflations and drinking one glass of ozonated water daily. In six weeks his CD4 count increased from 26 to 56, and he reported, "This is the best I've felt in two years." Mike takes some supplements but no medications.(19)

In a third account, Marc tells how ozone helped increase his CD4 count significantly: "I credit the IV ozone with raising my T4 cells from 100 to 365 last fall. Then I stopped doing the IV ozone as I don't particularly like needles. About six months ago, I made an accidental discovery. I smelled the output of ozone passed through the humidifier and noticed it was very weak. I instinctively stopped using the humidifier and did the ozone gas direct. I gave myself an enema with warm water before doing the insufflation. I really feel this has been very effective. Recently, I also started doing the sauna bag ozone dry and I feel the combination in very powerful and very effective. I do both treatments each day. I just don't feel good any more--I feel great! I have never felt better." 20 Marc combines ozone therapy with two tablespoons of apple cider vinegar and water to help digestion and clean the GI tract, and occasional coffee enemas to help the liver dump toxins into the colon.

Concerning liver--and total blood--detoxification in conjunction with ozone treatment, Dr. John Pittman stresses the importance of these processes:

"In treating hepatitis, direct AHT has been demonstrated countless times as being effective. By doing this procedure, at least 15 to 21 days, we've been able to see hepatitis completely wiped out. We think, at least, in terms of treating AIDS, you've got to be much more aggressive because there you've got viral particles disbursed through the entire body, not just in the liver. You've also got to get this trash out of the body after you have destroyed all of the viral particles as well as stored toxins and other substances in the blood. "So a detoxification program that focuses on cleansing the blood and opening up all the avenues of elimination is really very important to include in any ozone treatment program. This is probably one of the biggest shortcomings among most physicians using ozone. They don't realize what a powerful tool it is and that it's going to leave a lot of trash in the blood that's been oxidized. I make the analogy that ozone is like a controlled forest fire. It goes in; it burns out the underbrush, and it leaves the trunk of the tree a little bit charred....But, if you come back a month or so later and you follow a very careful rebuilding program--your diet has been excellent, there are detoxification techniques that are being used--then everything grows back nice and green and it's better than it was. This is, in fact, what we are seeing with our patients." 1

For people with active infections and low T-cell counts, the HIV Treatment News author recommends the following protocol: rectal insufflation (dry ozone)--two to four times daily; sauna bag method (dry)-- once a day; when CMV or any infection is located from the mouth to the esophagus to stomach to small intestines, drink one cup of chilled ozonated distilled water on an empty stomach three times a day; and colloidal silver--1/2 teaspoon two to four times a day, which should eliminate 95 percent or more of all opportunistic infections associated with HIV progression, including pneumocystis carinii pneumonia.
(20)

For HIV-positive or immune-depressed conditions with no symptoms, the article suggests: rectal insufflation--once a day, five to seven days a week; and/or the sauna bag

method--20 minutes a day, seven days a week, and one glass of chilled ozonated water daily.

Both methods are believed to speed up increases in T4 counts and other immune functions. People with CD4 counts below 50 are especially encouraged to follow the entire protocol, which can be done in sequence (rectal insufflation, sauna bag, ozonated water) and completed in a half hour. The best times are early morning or late afternoon, but these treatments should not be done within three hours of eating a heavy meal. (20)

To support the belief that ozone therapy is safe and essentially free of adverse effects, a data review was carried out involving more than 340,000 patients treated with ozone. Adverse reactions were reported for fewer than six thousandths of one percent of them. 21 In another study, the Society of German Pathologists and the German Society for Forensic Medicine reported 336 adverse reactions for an estimated 5.5 million treatments involving all forms of ozone therapy. It should be noted that the IV method of administration had the most adverse effects, and if only autohemotherapy is considered, adverse reactions are reduced to virtually zero. Those patients reporting side effects are talking about mild myalgia at the site of injection and occasional fever.

Countering Free-Radical Ravages--and Aging

An important benefit of ozone is that it increases the effectiveness of the antioxidant enzyme system, which scavenges excess free radicals in the body. Free radicals are molecules with unpaired electrons on their outer ring. Their structure enables them to latch onto other molecules and damage cells, tissues, and organs. Once this occurs, they weaken physical vitality and can damage body systems, including the neurological, cardiovascular and immune systems. The idea of biochemical invaders impairing immunity and overall health is difficult to grasp, since they are part of the system and not directly visible. By contrast, the impact of outside invaders, such as bacteria and viruses, is easier to understand, as their damage is more visible. It cannot compare, however, to the destruction caused by free radicals. Nothing kills more certainly. Unlike bacteria, viruses, and parasites, which can coexist with the body, free radicals are not friendly coexisters. These have one tendency--to cause havoc in the

system. Free radical damage results in a variety of symptoms and degenerative conditions. According to Dr. Lamar Rosquist, free radicals contribute to over 60 diseases or health-related symptoms, 22 ranging from aging of the skin to chronic fatigue to damage to cell membranes, leading to cell destruction, to damage to DNA, which can cause precancerous conditions.

New theories link the progression of HIV symptomatology to free radicals. HIV Treatment News reports that "HIV, by its unique molecular structure, may produce large amounts of free radicals through a chain reaction process Free radicals may have a major role to play in gastrointestinal problems in AIDS, including colon inflammation, malabsorption syndrome and wasting syndrome." (22)

Antioxidants protect cell membranes from free radicals. These oxygen modulators are believed to destroy free radicals by feeding them electrons which change their chemical structure into more stable compounds, like H₂O₂ (hydrogen peroxide), that actually enhance the oxidation process by creating more cellular energy. (22) Dr. Beyerle explains how cellular energy is increased with ozone:

"Once in the blood, ozone reacts with fatty acids and the cell membranes of erythrocytes. Ozone's reaction at the membrane starts glycolysis, the breakdown of fats. This increases ATP, which is the energy system in the body. This, in turn, carries and releases oxygen molecules. More oxygen in the system enables the organism to do a variety of things, since the body thrives on oxygen. "Most microbes are anaerobic; they thrive without oxygen, and cannot live in the presence of added oxygen in the bloodstream. The ozone and the fatty acid cell membrane then do a reaction that occurs at that membrane which creates peroxide. A lot of destructive processes that go on are due to an accumulation of peroxide. That's why antioxidants are so important, in not only ozone treatment but in day-to-day living, because of all the environmental pollution that occurs. When that happens, it creates an increase in peroxides that go unchecked. What happens is that when these peroxides accumulate within the cell, there's an increased production of a specific biochemical called 23DPG diphosphoglycerate, which enables oxygen to be released from the hemoglobin molecule. "Now all of a sudden we're freeing up more oxygen from the hemoglobin molecule. Hemoglobin carries oxygen. Now, we've got all

this oxygen released going throughout our vascular system and it has antimicrobial, antiviral activity. This is the latest German research." (11)

Antioxidant vitamins, such as vitamin C, vitamin E, and beta carotene, also act as free radical scavengers. They help remove free radicals from the body after trapping them in what is called the highly reactive singlet oxygen, and they prevent new free radicals from being formed. In essence, they absorb the molecule's altered energy state and return it to a normal state without hamming the system.

In short, oxygen helps to protect cell membranes from free radical damage and thus prevents premature aging, cancer, heart disease, and many other degenerative conditions. Every second, oxygen fights on behalf of every cell in the body. Oxygen, ozone, and substantial quantities of various nutrients, including beta carotene, vitamins C, E, B6, zinc, selenium, glutathione, pyngogenol, and quercetin, help the body to better utilize oxygen. Combining the right amount of vitamins with a live foods diet, and adjunctive therapies as needed, prevents premature sickness and aging.

Some doctors envision ozone being used by the general population for its rejuvenating effects. One, a doctor from a state in which ozone use is not approved, says that, in fact: "This is the main application I would like to use it for in the future--to get people younger and have them live almost as long as they want to."

The doctor goes on to explain his enthusiasm for ozone as an anti-aging factor: "Ozone, first of all, has what I have called the homeopathic ozone effect. This reverses most latent overt aging factors and disease processes that happen in the body that you don't even know about. In a six-month period, after just one ozone application, virtually every single person tells me of dramatic improvements. "The second thing is the immune-modulating effect of ozone and the reduction of allergic factors. An allergy is an accumulation of fluid. It prevents you from absorbing nutrients and causes other symptoms. Any person who has significant allergies is in a constant state of nutritional deficiency. "Third, it reverses the cross-linking of the collagen and reduces the aging pigment ... By reversing those things, it will restore the elasticity in all tissues. "It removes the arterial plaque the same

way it removes plaque in the pipes of heating/air-conditioning systems. It also removes the fibrin in the veins by breaking it down to pieces that are recognized by the macrophages and then scavenged away. Indirectly, it works like a rotor-rooter by changing unnecessary fibrin deposits or arterial plaque to a point from which both the arteries and veins are cleaned out. Obviously, if you have more circulation to all parts of your body, all toxins can be removed and every cell of the body functions better. "... As far as immune modulation is concerned ... many researchers say that a person is as old as the immune system. If you can have a perfectly young immune system, the rest of the body will follow suit and you will be as young as your immune system again."

One Part of the Therapeutic Picture

Clinicians usually recommend ozone as part of a larger holistic protocol in the treatment of seriously ill patients. It's thus a supplemental therapy used in conjunction with other treatment modalities. Dr. John Pittman explains:

"I rarely give ozone treatments unless they are combined with some other supportive therapy. Admittedly, the shortcoming of doing this is that you don't always know which component is most beneficial. But I certainly know from experience which things generally help the most. Combining ozone with proper dietary therapies and addressing other cofactors, particularly in the GI tract, you can see tremendous changes in a person's constitution. Their blood work can turn around, and it definitely can improve the quality of life of an individual as well as the length of their life."

"We have a program... set up for patients who come from all around the country and stay from three to four weeks undergoing daily treatment, six days a week. It includes daily ozone therapy as well as IV infusions, such as vitamin C, three times a week, and also EDTA chelation. Chelation therapy is primarily for opening up capillaries and increasing the ability of the oxygen and ozone to permeate the tissues." (1)

It's Pittman's observation that the best benefits occur when ozone is taken on a daily basis: "The halflife of ozone is 45 minutes. After that time, it breaks down into

oxygen. In the meantime, what it's really doing is transferring its high-energy electron to other elements in the blood and producing various peroxide formations that are continuing this oxidative effect. The powerful oxidative effect appears to last 24 hours, making a daily treatment the most effective way of using ozone."

According to a doctor who, because of state regulations, must remain nameless, ozone treatment is a recommended first step for all patients. It reduces the toxic load due to infections, allergies, and other conditions, and it may even make further treatment unnecessary. "It's just a basic therapy that will enhance every treatment mode afterwards."

This physician does stress that ozone is not an end-all in itself, but rather one modality in a holistic program: "I always say, first you have to restore the nutrition. Then you have to restore the mind-set. After that, you can go into specific programs for specific conditions, which include ozone. I give ozone to virtually all of my patients as a basis of therapy because sometimes just one ozone treatment resolves their problem. Then they don't need anything else. Obviously, if they have a serious degenerative disease, like cancer or cardiovascular disease, chronic obstructive pulmonary disease, or infectious diseases of any kind, they need more intensive treatment. We like to give ozone in cancers and AIDS, for instance, for 12 days. For hepatitis, it's usually just for eight days. Most allergies respond to four-day treatments. For acute infections, including pneumonia, usually one single ozone application does the trick. Then if this person is in a relatively good nutritional state, this is all it takes and the body takes care of itself from there on out. It's very important to understand that with all degenerative diseases, a combination approach is necessary."

Obstacles to Ozone's Use

While ozone is without doubt a wide-spectrum healing modality, it's also, in this country, one that's widely ignored, and even suppressed. Nathaniel Altman surmises that "because these elements are very available and also nonpatented, the pharmaceutical industry has not been very happy with them." 5 The profit motive isn't there with ozone as it is with patentable drugs, so there hasn't been

the impetus for private companies to do expensive studies of this modality. The unfortunate result: medical ozone has been, in more ways than one, an invisible healer. The general public is simply unaware of it as an option. In fact, most states prohibit the use of ozone therapy, the rationale being that American researchers must first prove that the process will not harm people. That it has been used safely in Europe for decades doesn't seem to count.

In a situation frustrating to those familiar with ozone's potential, funding for research is continually denied by the National Institutes for Health, while exorbitant sums are earmarked for less effective, but more conventional, treatments. The situation doesn't seem to make sense. For instance, State University of New York virologist Bernard Poiesz has found that ozone could be used for "almost seemingly complete destruction" of HIV without affecting blood protein, and yet the NIH has refused funding, saying it was not a priority. Dr. Kwaku Ohene-Frempon, head of Children's Hospital Sickle Cell Center, says that "ozone kills bacteria" and "supplies a lot of oxygen to tissues that need to be repaired." Seventy-two thousand people in the U.S. suffer from sickle cell anemia and the NIH spends about \$70 million a year to try to alleviate the disease. However, they will not fund ozone research, even though Cuban doctors find that ozone cuts the length and severity of painful sickle-cell episodes in half. 24 Nor will research on ozone for diabetic conditions be funded, despite the fact that Germany has been healing diabetic wounds with ozone for quite some time. Dr. Beyerle expresses the sentiments of the frustrated practitioners. "Extensive studies have been done in other countries," he points out. "It amazes me to see the literature that is being published and utilized in Germany and Europe but has failed to appear in literature or clinics in this country."

Beyerle goes on to explore the reasons for this: "In my opinion, it's all politics. It starts at the beginning with our FDA, which is tremendously influenced by our drug companies. Drug companies give almost 80 to 90 percent of funding for medical schools. That's a fact. If drug companies have an influence on medical schools and medical research, then this information will never get there. Ozone's cheap. All you need is pure oxygen, an ozone generator, and the proper training. I just recently met with two professors from Frankfurt working using ozone with cancer for over 15 years, and having spectacular

results. Why isn't it here? We have a medical mafia. There's too much money being made in medicine for certain companies to allow something so inexpensive and so worthwhile to be introduced in our country that's not a money-maker." (11)

Ozone Overseas

Overseas, the picture is different. Medical ozone is used in Germany, Austria, Switzerland, Italy, Russia, and Cuba; and England and France, while they don't use ozone medically, do treat drinking water with it. (24)

Recently, the Twelfth World Congress of the International Ozone Association was held in Lille, France. It was well attended by researchers from around the world, some of whom are at a loss to understand America's seeming domination by an FDA out of step with the latest in research, and out of control.

The papers presented at the Lille meeting covered a whole gamut of areas in which medical ozone has proven of value. Heart disease was one; ozone treatment was shown to improve the status of patients with ischemic cardiopathy, fostering diminution or disappearance of irregular heart rhythms, decreases in coronary failure, and increased fitness levels.²⁵ When used in the treatment of early-stage stroke, ozone also demonstrated benefits, according to a German study. ²⁶ Glaucoma was another condition for which scientists reported ozone's benefits, ²⁷ and central nervous system disorders were also shown to be helped.⁽²⁸⁾

In orthopedics, ozone has a significant contribution to make, as reported by C.H. Siemsen, of Buxtehude, Germany.⁽²⁹⁾ He stated that "The application of medical ozone in acute and chronic painful diseases of the joints is an alternative method of treatment for obtaining rapid pain relief, decongestion, subsidence of effusion, a reduction in temperature, and an increase in motility." Siemsen reported that a number of therapy-resistant painful joint conditions were recently treated with ozone for the first time, noting that the treatment is a low-risk one.

The Cubans, in particular, seem to be keeping abreast of ozone's possibilities. Cuba's Ozone Research Center, at Havana's National Center for Scientific Research, recently

investigated the cholesterol- lowering effect of the substance. F. Fernandez and others reported on a positive effect found for ozone in cholesterol metabolism, as well as in the stimulation of the antioxidative defense system. (30) Other researchers from Cuba reported on clinical improvements in humoral immunity for children who received ozone treatments. (31) Children with hearing loss benefited from ozone too, according to Cuban researcher E. Basabe and his colleagues. (32) In a double-blind study with 34 children, hearing loss was reduced in the ozone-treated group. Ozonized oils were used in still other Cuban studies to successfully treat candidiasis 33 and giardiasis, a parasitic condition.(34) In yet another area, a report on the influence of ozone treatment in sports medicine gave details on improved aerobic performance in individuals receiving blood treatment and rectal insufflation of ozone.35 The allotrope's effects on intracellular metabolism and utilization of free fatty acids were credited here. An Italian paper seemed to back this up. E. Riva Sanseverino and P. Catellacci of the University of Bologna's Institute of Human Physiology summarized their findings thus: (38)

"On the basis of the circulatory and biochemical positive effects of ... oxygen-ozone therapy, a study was programmed in order to check if physical activity in humans is improved by treatment with medical ozone administered by means of ... AHT. Preliminary observations indicate that physical activity, performed 12- 24 hours after one or several administrations of medical ozone, is improved by 8-12 percent."

Other reports at Lille concerned dermatology in Russia, and how ozone is being successfully used there³⁷; and ozone's disinfectant uses in oral surgery. (38,39) So the wide-spectrum applicability of ozone therapy was certainly in evidence at the meeting. This is not to say that ozone's problems with acceptability by the mainstream were ignored at the Lille symposium. V. Bocci, of Italy's University of Siena Institute of General Physiology, acknowledged these in a general talk on ozone therapy. This modality is still only used legally in a handful of countries and American states, and Bocci, in a realistic overview of the therapy's status today, suggested some reasons why.(24)

First, Bocci feels, the biological basis for ozone's therapeutic effectiveness needs to be further clarified.

More study is definitely needed, but with a lack of support from the pharmaceutical industry, there's the ever-present funding problem. Bocci acknowledged too that reports of ozone's benefits have at times tended toward the subjective and anecdotal; this is a consequence of the fact that clinical experience with ozone, although vast, has remained limited to private practice. Bocci also acknowledges two other factors that have not worked in medical ozone's favor--unfortunately, some practitioners have used this modality improperly; and people are prejudiced against the concept of ozone because they have in mind the pollutant type.

What the Future Holds

Despite these problems, Bocci's assessment of ozone therapy today was an upbeat one. The general sense of his presentation was that this is a therapy that has already contributed so much, and that in the future will benefit people even more, providing some interesting investigative work along the way. These were some of his final remarks: "...Ozonated autohemotherapy performed with an optimized procedure represents a powerful therapeutic approach. Its main advantages are the lack of toxicity, often a feeling of well-being, and the equilibrated, although slow, stimulation of cytokine production accompanied by improved oxygenation and metabolism. Both in the treatment of neoplasia, particularly after chemotherapy, and of chronic viral diseases, the frequent report of well-being after treatment is relevant because the quality of life of these patients is generally poor. We are planning to investigate the reason for euphoria and we believe that it may be due to an immune-neuroendocrine response elicited by the ozonated blood. "On clinical grounds there is also the need to carry out extensive and well-controlled clinical trials in several diseases, including HIV infection. The treatment is simple to execute, safe, far less expensive than comparable procedures, and could be carried out easily... in Third-World countries, where it could be applied also to several parasitic diseases." 24 In short, Bocci is optimistic about the future of ozone. He cites increased precision in ozone dosing, with reproducible delivery systems, as a plus for this healing technique. And he says that ozone is now considered a cytokine inducer, with immunorestitution potential. Indeed, the studies--both his own and those of other researchers--are there to back up this last contention. (16, 40, 41, 42,

43, 44, 45, 46) As the century draws to a close, this modality should become increasingly visible. The public is growing disenchanted with toxic and problematic "magic bullet" remedies, and more interested in holistic and natural approaches to health care. So it's only a matter of time before ozone comes into its own.

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