Unconventional Ways to Deal with HIV Infection and AIDS: Three Paths

by Gary Null, Ph.D. & Adam Atkin, Ph.D.

This paper will first sketch our current knowledge of some alternative ways to understand the health disturbances that now fall under the rubrics of "asymptomatic HIV infection," ARC (AIDS-related complex), and AIDS; and then it will look at examples of alternative approaches to treating these disorders. The objective is to show some current directions for therapy that seem deserving of more intensive and extensive testing.

The first direction that will be examined is therapy aimed primarily toward supporting the organism's own mechanisms for healing and defense, by bringing deficient nutrient levels back toward optimal levels – which for the diseased organism may be higher than those considered 'normal', if there is need to compensate for lowered abilities to absorb and/or utilize those nutrients. This supportive approach may also use herbal products that have been found to strengthen immune responses or other body functions, even where the exact mechanism of these effects remain unknown.

The second direction involves a sophisticated but highly nonconventional approach to normalizing the body's metabolic balance, mostly through use of special fatty acid and trace metal preparations.

The third direction is a therapy that uses an elevated yet apparently entirely safe blood level of the triatomic form of the most common element in our body, oxygen, employing it for its effects (a) on the immune system, (b) on the metabolism of other cells, and (c) on viral activity and replication.

Then, examples of the application of these therapies to HIV infection will be given. Nutritional therapy will be exemplified by our first physician, Dr. Christopher Calapai; metabolic balance adjustment by our 2nd physician, Dr. Emanuel Revici (who originated and is the main exponent of this approach); and ozone therapy by our 3rd physician, Dr. 'Z'. In each case, the physician picked from his patient records some cases which demonstrated some benefit from his therapy. Thus, this survey will not tell us what proportion of each physician's patient population were helped, but will show how some were apparently benefited.

AIDS Factors and Etiologies

What is AIDS? And what are the consequences of HIV infection? The presently dominant theory (too well known to require much comment) is that AIDS results primarily from HIV infection through viral invasion of and damage to cells of various tissues, especially of the immune system, setting the stage for other invaders that can no longer be repulsed.

Evidence for a more complex story that is now gaining support will be sketched briefly in the first part of this section. This the autoimmune hypothesis, which likens the immune system damage of AIDS to the phenomena of graft-versus-host-disease.[1-3] Here also, HIV infection is the necessary and sufficient cause of AIDS.

Major variants of these single-factor scenarios are cofactor theories in which, though HIV may be necessary, it is not sufficient.[4] These theories may be relevant not only through indicating what lifestyle changes can be beneficial preventatively and/or therapeutically, but also (a) when we consider antiviral therapies that can also counter other viruses than HIV, and (b) when we consider nutritional therapies to correct depletions that accompany HIV infection.[5-8]

However, whether or not nutrient depletions play a fundamental etiologic role, in the sense of being necessary for the development of AIDS in HIV-infected individuals, there is increasing evidence that they are important causes of the downward slide, which they accelerate in various ways both by further depressing immune function and by deranging other functions. These phenomena will be surveyed in the second part of this section.

Autoimmune Hypothesis: Though AIDS (acquired immunodeficiency syndrome) was so named only recently, this syndrome has been around for a long time. People had expired even 40 or 50 years ago with sickness that had the same presentation.[9] And now, some knowledgeable people question whether the syndrome is caused primarily or solely by the human immunodeficiency virus, or HIV.[10,11] It has been asserted that "this organism displays only weak cytopathic effects and that the viral load is generally much too low to account directly for the remorseless destruction of CD4 lymphocytes characteristic of the disease."[12]

A controversial theory of AIDS has HIV triggering an autoimmune response. The idea is that HIV does not attack the immune system directly, as most biologists believe, but rather, that "the virus provokes the immune system into attacking itself" – a theory "based partly on the finding that HIV's envelope protein, GB 120, seems to mimic the shape of certain crucial proteins in the body's own immune system."[1] There is "evidence that HIV may trigger a self-destructive immune response, for which appropriate models may be found in graft-versus-host disease (GVHD), certain autoimmune disorders, and some animal viral infections."[12-14]

The concept, then, is of an immune response destroying part of the immune system, and thereby destroying our ability to fight other infection. Dr. Calapai, our 1st physician, considers this to be the most plausible reason for the overall immune dysfunction and depletion. He says he has seen patients (and knows of others) that are HIV negative, and who never had HIV, but who have full-blown AIDS. Generally, they are people that have had repeated exposure to numerous bizarre bacterial or viral infections.

Besides the hypothesis that an autoimmune mechanism may destroy components of the immune system, there is reason to suspect an

autoimmune component in other symptoms of AIDS – for example, in the neuropathies:

Thus, there seems reason to suspect that some of the effects of HIV infection on the central nervous system – including, perhaps, dementia – may involve an autoimmune mechanism; but significant depletion of the B vitamins might also be involved. Dr. Calapai is sure that there are many things that are in combination, affecting the body in many ways.

Cofactor and other (non-HIV) immune suppression theories: Another controversial theory of AIDS is that of HIV discoverer Luc Montagnier. His central hypothesis is that HIV requires a cofactor to cause AIDS, and that mycoplasma act as cofactors in AIDS pathogenesis.

But many other immune-suppressant environmental and lifestyle factors may also be highly relevant. One researcher has reported that 97% of United States AIDS cases and 87% of European AIDS cases have been exposed to severe, numerous and repeated immune compromising health risks.[11] These health risks include: the use of orally and intravenously taken *recreational drugs* (over 80% of all AIDS cases in the West have a history of recreational drug use); *repeated infections* including sexually transmitted diseases, requiring repeated prescription of immune undermining orthodox drugs; use of the anti-HIV drug AZT; an immune-undermining *emotional state* (exacerbated by an HIV-positive diagnosis, owing to its implicit death sentence); *malnutrition*; and receipt of blood transfusions or *blood products*. What is very interesting, in this regard, is that most of these same immune-suppressant factors (recreational drug use, malnutrition, multiple blood transfusions, and some infectious diseases) increase the risk of false-positive HIV test results[15] – which might falsely elevate the correlation of AIDS with HIV.

There are clues that seem to implicate the use of drugs as a major factor in this syndrome: It's been observed that AIDS defining illnesses are found in similar frequencies among IV drug users, irrespective of whether they carry antibodies to HIV or not, and the overall mortality rate in the two groups is the same.[16] Nitrites – the recreational drug known as 'poppers' – may be especially important, for epidemiological correlations indicate that they are implicated in the development of Kaposi's sarcoma, pneumocysitis carinii pneumonia, and other opportunistic infections used to characterize AIDS.[11] Poppers are immunosuppressant.[17-19]

However, some prescribed drugs can also be immunosuppressive. For example, there is toxicological evidence that repeated prescriptions of antibiotics can cause a decrease in white blood cells, diarrhea with impaired food absorption and gradual weight loss, decreased resistance to infection, persistent fevers, skin rashes, weakness and prostration, and diseases that affect the nervous system – all of which are considered to be primary symptoms of AIDS.[20] But here also, the links (if any) of antibiotic treatment to AIDS may be complex, for while the repeated treatment of infections can be immune suppressive, so can the infections which are being treated. It has been noted that "multiple, concurrent infections begin to affect people at risk for AIDS prior to and in the absence of HIV infection.....many, if not most, infections are present prior to HIV."[21]. The most immunosuppressive of these infectious agents are cytomegalovirus (CMV), herpes simplex viruses (HSV), Epstein-Barr virus (EBV), hepatitis B virus (HBV), human T-cell lymphotropic viruses (HTLV I & HTLV II), Myobacteria species, Mycoplasma species, Candida species and various parasitic diseases.[22] CMV, HSV and EBV infect macrophages and lymphocytes, and all cause a decrease in CD4 cells and an increase in CD8 cells leading to a reversed CD4/CD8 ratio, a situation characteristic of people with AIDS. HBV not only decreases CD4 cells leading to the same reversed CD4/CD8 ratio but can also cause severe liver damage impairing its ability to cleanse the body of accumulated drug toxicities.[23] Further, syphilis is common in those at risk for AIDS, is treated with antibiotics, is itself immunosuppressive, and has symptoms like those of AIDS – which has led to the suggestion that AIDS may be a combination of chemical immunosuppression and epidemic syphilis.[24]

Micronutrient deficiencies (Malabsorption): But though autoimmune and immune suppressant factors may be important, they do not seem the only factors in the immune dysfunction of AIDS patients. Nutritional factors associated both with life-style and with absorption/utilization abnormalities can also be important, for intestinal function is often disturbed in AIDS patients.[25-27]

For example, there are interesting articles that talk about glutathione depletion in HIV-infected patients, the role of cysteine deficiency, and effect of oral n-acetyl cysteine.[8] Glutathione is a very important substance: People with AIDS have lowered glutathione levels, and this deficiency could be a factor in the syndrome, since glutathione plays a major role in immune response, and (in part because a deficiency of antioxidants can allow an increase in free radical damage) is essential for healthy cell function.[28] "Reduced glutathione (GSH) is a major antioxidant and free radical scavenger" (though high levels of ascorbate can serve as a protective free radical scavenger when glutathione is exhausted).[29]

Glutathione levels have immediate effects upon the immune system, for glutathione is a T-cell stimulator and activator. The T-cells that are lost most frequently as HIV progresses are the CD4's, which are the ones which are most dependent upon glutathione to function.[30] Further, among the CD4 and CD8 T-cells, the ones that are selectively lost as the HIV infection progresses are those that have high intracellular glutathione levels.[31]

There are also nutrient effects more directly upon the virus: Antioxidants such as N-acetylcysteine (NAC), glutathione (GSH), and glutathione-monester (GSE) suppress HIV expression, with NAC, which inhibits cytokine-stimulated HIV replication, seeming the most effective of the three.[30,32,33] Thiol-based compounds (including glutathione) may thereby limit AIDS progression.[28,34] The drop in glutathione levels occurs early, and may be a contributing or even a major factor in the pathogenesis of AIDS.[30,35]

Other nutrient depletions that may also be relevant to early HIV disease (AIDS CDC stage III) include Vitamins

➤

A, E, B6, B12, riboflavin, copper, zinc, and folate.[5,6] Several of these are important for immune function: There are studies that were done at Tufts University that look at B6, and how, if individuals that are free of all other medical problems, are depleted in B6, their T-cells can drop. The same happens with glutathione deficiency (see above), with zinc deficiency (see below), as well as with protein malnourishment.

Even when the intake of vitamin B6 is normal, B6 deficiencies are found in HIV-positive men who are asymptomatic except for generalized lymphadenopathy (stage III HIV infection). Immune functions – including the effectiveness of their 'natural killer cells' – in a sample of such men has been found to be related to their B6 status.[36] But though that report described deficiencies that occur at the third stage of HIV infection, Dr. Calapai has seen deficiencies at earlier stages also. The observation (above) that: "The B6 deficiency occurs even if the intake of vitamin B6 is normal" would seem to implicate a malabsorption problem (more about this later).

Zinc depletion may be equally important. Serum copper levels are elevated and serum zinc levels are reduced in HIV+ individuals who progress to AIDS, and this also is not related to dietary intake.[37] There are both human and animal studies that suggest a critical relationship between zinc deficiency, poor immune function, and susceptibility to infectious disease.[38]

Still another micronutrient that is important for immune function and that may be depleted in HIV-infected individuals is selenium: authors of a recent study concluded that "individuals with early HIV-1 infection frequently have abnormal selenium status, ...and that altered plasma selenium levels were associated with additional immune dysregulation."[39]

It has been shown, then, that AIDS is associated with nutritional depletion: and not only of the nutrients already examined, but also with significant protein and calorie malnutrition, resulting in depletion of body fat and muscle mass.

Finally, a very important observation is that deficiencies of micronutrients are frequent in people with HIV disease even when their dietary intakes are high, suggesting absorption problems, perhaps consequent to viral attack on cells of the gastrointestinal tract.[38,40]

When HIV-infected patients who were asymptomatic or had early ARC were evaluated, they usually exhibited decreased body mass, body fat, and total protein, which may have resulted in part from the frequently reported gastrointestinal dysfunction, diarrhea and malabsorption.[41,42] (This general pattern of early changes has been confirmed in a multicenter study.[43]) Thus malabsorption may be an early and continuing consequence of HIV infection, for "small intestinal malabsorption is a major component in the severe wasting seen in some HIV-infected patients with chronic diarrhea."[44] A vicious circle will result: "Once occurring, malnutrition leads to immunosuppression, infection, and mucosal damage, with failure of normal intestinal mucosal turnover and healing, resulting in further malnutrition."[45]

Malabsorption associated with HIV disease has other effects: it may be that the cognitive deficits ('AIDS dementia') that often characterize later stages results at least in part from B12 malabsorption, for vitamin B12 malabsorption is common in AIDS, and may be a very early manifestation of HIV infection.[46-49] Correspondingly, cognitive deficits may occur early in HIV infection.[50] Psychological functions are quite sensitive to vitamin deficiencies.[51] And in early AIDS patients, various measures of cognitive function were found to correlate with B12 levels.[47,48] Further, neural damage from demyelination may be a consequence of B12 or folate deficiencies in HIV-infected patients.[6]

Malabsorption in HIV-infected patients, at an early or a later stage, might also result in part from defective gastric acidity (possibly from an autoimmune reaction against gastric mucosa). For example, in 48 AIDS patients the mean fasting pH of gastric juice was 5.9, compared to 2.9 in controls.[52] The resulting multiple depletions are insidious and progressive.

Nutritional and Herbal AIDS Therapies

Nutritional Depletion and Augmentation: Our nutritional therapist, Dr. Calapai, believes that multiple nutrient depletions can begin early in the progression of HIV-associated disease. While most of his data has been gathered from patients with advanced disease and opportunistic infections, Dr. Calapai thinks it's critical to look at the nutritional state of a person as soon as she or he is diagnosed. He feels it's critical to look at the nutritional state of every single person upon presentation at his office, "rather than waiting for some medical problem to occur, and then looking at how to play 'catchup' medicine to help the person back to health." He emphasizes that the whole concept of preventive medicine is to make periodic assessments of the healthy person, and when you find things that are abnormal or problematic, correct them before they end up causing major problems. Dr. Calapai bases his therapeutic program of nutritional support upon results from many studies that showed improved immune function and other positive effects on health from various nutrient supplementations.

Malnutrition in HIV-infected patients can result not only from *malabsorption* of nutrients (already noted), but also from *anorexia* (high in HIV+ patients), and from *high resting energy expenditure*, which also occurs with HIV infection. The latter may be quite important: "in stable and malnourished HIV patients, the progressive wasting may be partly related to an increase in REE [resting energy expenditure]," even in the absence of opportunistic infection.[53]

This is very interesting! For an increase in resting energy expenditure may characterize other kinds of tissue damage that have not direct relation to AIDS, yet share an impairment of immune responses. And these metabolic imbalances may also be aided by nutritional therapy.[54] "The roles of substances such as arginine, n-3 polyunsaturated fatty acids, and RNA ...are being evaluated for their ability to modulate inflammation and improve immune function. The initial results are encouraging. They suggest that the

administration of the added nutrients is associated with the return to more normal responses of the immune system."[55]

Vitamins E and B6 are required to maintain the immune response, and supplementation at higher than RDA levels may be necessary for optimal immune function.[56] Beta-carotene may also prove useful for raising immune competence.[57] A preliminary trial of beta carotene with 11 HIV-infected patients showed rises in numbers of natural killer cells and activated lymphocytes after three months treatment, with no evidence of clinical toxicity.[58] A similar augmentation of cellular immunity by beta carotene was observed in HIV-negative subjects.[59] A cross-over study on 21 HIV-infected individuals showed a 17% higher CD4 (helper T-cell) count during a 4-week period of beta-carotene than during the placebo period.[60]

Another demonstration of a general relation between nutrition and immune function examined a different group of hospitalized patients that is also at risk of both malnutrition and infection – institutionalized elderly people. This study sought to "determine whether supplementation with vitamins A, C, and E would improve cell-mediated immune function in elderly long-stay hospital patients," with the result that "Several indices of immune function... showed significant improvement in the treated group but not in the placebo group."[61]

Nutritional support of immune function with antioxidants was shown in another geriatric study: "Improving the antioxidant status of the aged might be very beneficial in slowing the decline of immune response, which could then decrease the incidence of severe age-related diseases."[62]

While, as we have been discussing, several sorts of nutrient augmentation improve immune function, and thereby aid the body in coping with infection (including that by HIV), some nutrients – if in adequate amount – may have more direct effects upon infecting organisms. For example, HIV is suppressed by ascorbate. One of the most interesting studies talks about the comparative study of the *anti-HIV activities* of ascorbate (vitamin C), and of thiol-containing reducing agents like glutathione and n-acytl cysteine, in chronically HIV-infected cells. They report several studies showing that vitamin C both inactivates HIV, and inhibits its growth. After showing the last effects using infected T-lymphocytes, the researchers conclude: "These results further support the potent antiviral activity of ascorbate and suggest its therapeutic value in controlling HIV infection in combination with thiols."[63]

The just-mentioned paper also summarized evidence that ascorbic acid can inactivate poliovirus, herpesvirus, vaccinia virus, and hepatitis virus, that it can prevent the intracellular replication of rhino virus, Rouse sarcoma virus, and human T-cell leukemia virus, as well as improving the condition of patients with poliomyelitis, hepatitis, and infectious

➤

mononucleosis. And nutrients may also aid the use of more conventional antiviral medications: for example, it has been suggested that Vitamin E has clinical potential in ameliorating the fetal and bone marrow toxicity of AZT.[64,65]

In summary, certainly individuals that have full-blown AIDS have overwhelming nutritional problems resulting from malabsorption – whether from secretion defects, or from gut infection. Because of this, Dr. Calapai has put some patients on total parenteral nutrition (TPN) when they're not eating and not absorbing terribly well, to try and bypass the gut, and get nutrients into the bloodstream – and has found that many times this works well. Others have also been given diet supplements directly into the intestines (enteral diet) to enhance immunity in patients with suppressed immune systems. "Certain amino acids, as well as omega-3, omega-6, and short-chain fatty acids have been shown to be effective in enhancing immunity. ... Arginine was shown to enhance the function and levels of immune T-cells and reduce the incidence of infection and duration of hospitalization."[66]

Herbal Treatments: To complement such programs of nutritional supplementation, herbal therapies also deserve exploration. The Institute for Traditional Medicine (ITM) in Portland, Oregon has been sponsoring studies at AIDS clinics around the country, studying the effect of Chinese herbs on AIDS. Subhuti Dharmananda, Ph.D. (ITM's founder) has developed a formula for HIV-infected patients combining strong tonic herbs and other herbs used to directly inhibit infection and inflammation. In addition to the basic formula, ITM herbalists have developed a variety of adjunct formulas tailored to an individual's unique symptoms and constitution. Of 150 participants in the study who had undergone treatment for 12 weeks in San Francisco and Chicago centers: "76% of people who had described their prestudy energy levels as "poor" or "fair" reported an increase in energy. Sixty-eight percent of the patients had increased their activities. And 74% reported a greater sense of well-being. ...For patients suffering from diarrhea, 62.5% reported their condition was cured and 12.5% said it was improved."

And in that group, other symptoms similarly resolved or improved in large portions of those who had them initially, and out of the 150 subjects, only one progressed to a more severe stage of AIDS.[67]

Dr. Calapai notes that Dr. Chang at Sun Yat Sen Medical Center has also studied the usefulness of Chinese herbs for HIV infection.[68] Chang and Yeung found marked in vitro antiviral effects of eleven herbs used as traditional Chinese anti-infective medications. At concentrations nontoxic to growth of the H9 cells, extracts of the eleven herbs had inhibitory activity against HIV in the H9 cell line (reducing the percentage of cells positive for specific viral antigens by more than three standard deviations below the mean), and five of the extracts produced nearly complete inhibition of the synthesis of HIV antigens (97-100% inhibition of the growth of HIV) in H9 cell cultures.[69]

Dr. Calapai feels that is significant. It is his belief that herbs – if used appropriately – are not as damaging as other medications, and he therefore favors trying them.

Metabolic Imbalance and AIDS: In contrast with Dr. Calapai's therapeutic approach, which (as we have tried to show) rests upon a broad framework of research by many investigators in nutritional and herbal methods, Dr. Revici's therapeutic approach is highly individual, and his theory of health and disease is largely his own creation, carefully worked out both in the laboratory and in the clinic over more than fifty years.

Dr. Emanuel Revici's theory of health and disease concerns the balance and imbalance of opposing processes. These are of two types, the *anabolic* (building up) processes, also referred to as "heterotropic," that generate negentropy; and the *catabolic* (breaking down) processes, also referred to as "homotropic," that generate entropy. "A normal entity can be conceived as one which is able to maintain its constants with their characteristic values, rhythms and intensities by means of the alternate operation of homotropic and heterotropic forces. ...As expected from the dualistic concept, abnormal changes can take place in either of two opposite directions and this is a significant fact of abnormality. ... The large number of constants which compose each entity and which can become abnormal, help not only to explain the great variety of abnormalities but also offer a means of obtaining analytical pictures of disease."[70]

He relates AIDS to the loss of specific phospholipids (which he calls "refractoriness lipids" that normally play an important role in disease resistance. He has summarized his approach to pathogenesis and treatment thus: "AIDS appears to represent a quadruple pathological condition as follows: (1) a primary viral infection inducing (2) a deficiency of the body's natural lipidic defense, followed by (3) secondary opportunistic infections or specific neoplastic conditions, consequent to the lack of the refractoriness lipids, resulting in (4) an exaggerated manifest imbalance, usually catabolic. In therapy, each of these conditions requires its own specific therapeutic approach. For the viral infections, the antiviral agents are indicated. For the refractoriness deficiency, the refractoriness lipids are administered by injection. For the secondary opportunistic infections, proper antibiotics or other antimicrobial/antifungal agents are applied. For the imbalances consequent to the opportunistic infections or neoplasms, the appropriate anticatabolic or antianabolic agents are used. ... each component must have its own specific therapeutic approach."[71]

Now we will look at some of the clinical experience of the doctors treating HIV infection using these two rather different yet not mutually exclusive theoretical frameworks. First the ways that Dr. Calapai works with nutritional variables and herbal tools will be outlined; then (in the following subsection) some of Dr. Revici's experience will be given.

Dr. Christopher Calapai (Nutritional support)

Approach and Method: Immune function is strongly influenced by nutritional status. In treating immunological disorders – AIDS currently being the most prominent – it seems eminently reasonable to pay close attention to nutrition. Such attention,

however, is now uncommon among physicians who treat AIDS. Dr. Calapai notes: "We see many patients who, as soon as they were determined to be HIV-positive, were put on anti-retroviral medication, with no attention to their diet, or other aspects of their life-styles that might affect their immune function. Nevertheless, there is considerable published research that supports our view that nutrition is highly relevant and should not be neglected." Some of this experience will be surveyed below.

Dr. Calapai wants new patients to bring in a week's worth of their diet history, which he goes over carefully. He then tells them how important it is to institute certain lifestyle changes that are beneficial for them. He is convinced that smoking is very damaging in many ways – it helps to wipe out vitamin C (interfering with its actions), and generates a great deal of free radicals, which is certainly bad for the body and the tissues. He also make sure that his patients don't drink any alcohol – again, because that interferes with the uptake of certain nutrients, as well as generating free radicals. He informs them about other lifestyle factors that also have strong effects on immune function – for example, high-fat diets depress immunocompetence.[72] He wants to teach his patients not to do anything or to put anything into their bodies that's going to be damaging.

Nevertheless, he is flexible: for example, if a patient wants to use the anti-retrovirals – and many of the patients that do come in either have taken them, or want to take them – that's fine. While the crux of what he's doing is nutritional assessment and adjustment, if they do want to take the prophylactic Bactrim or antibiotics, that's fine too – he has recommended them for patients, and has written prescriptions for them. And he has no objection if a patient wants to see other doctors. His objective is be comprehensive, yet to tailor his program to the particular unique person, making the best use he can of many different approaches, so they complement and augment each other to ultimately get the best results for each patient.

One of the problems, he says, is that a lot of people are walking around who are HIV positive and are progressing into this syndrome, but haven't gotten diagnosed, because they don't think they have a problem. So they may be HIV positive for five or ten years before they're actually tested. And they may also have other immune-suppressing infections. Therefore Dr. Calapai recommends aggressive testing for other common infections that can contribute to the progression of the disease: CMV, EBV, herpes, mycoplasma, TB, toxoplasma, etc.

Dr. Calapai's general diagnostic protocol begins with detailed blood evaluations of cellular, mineral, vitamin, hormone, and viral and antigen levels, as well as immunologic indices. It also includes a physical examination. These results plus the history are used to devise dietary recommendations. Lifestyle changes are recommended, and programs of oral, intravenous, and intramuscular supplementation (including certain herbs) are initiated.

Certain people, Dr. Calapai says, have opted not to have certain tests done, and they don't want to know whether or not they're HIV-positive – which is somewhat difficult. When patients don't want to have tests done – whether it's because they don't believe in it, or they don't have insurance necessary to cover the testing – that certainly ties a physician's hands. He notes that it's important to see if the T-cells were very high before, and now they're lower; or they were low before, and they're higher...

He then goes on to outline his therapeutic lifestyle recommendations:

In review of the blood testing, and review of the diet, I sit down with the patient, I give him a five-page handout as to what they should eat, what they shouldn't eat. I like to try to get them away from red meat, get them more towards a vegetarian diet. There's some interesting information relative to sea food - shell fish and chicken: both can present the body with a lot of arsenic. And arsenic is certainly something that's damaging to immune function. Arsenic exposure can also come from cigarette smoking. So I like to have people as close to a vegetarian diet as possible.

Clinical Experience: Here's how Dr. Calapai describes the results he's seen with this therapeutic program –

Many of the patients that I put on the protocol after two weeks or so say they're feeling very good – they have a lot of energy, they're sleeping better, many of them say that some of the skin problems that they have are changing, and their skin is improving. And I have not had people say: this is causing me a problem, or I feel worse. The majority – the overwhelming majority of people say that they feel better, in a number of different ways.

The interesting thing that I've seen is that a majority of people that come to me don't want to take prescription medication, they don't want to take the anti-retrovirals. Certainly, I'm not going to force things on patients – but they're ➤

6

doing extremely well, just on this protocol. Certainly, some of them do have very low T cells, and I don't know whether or not that's a great indicator of how well a person is doing. Because I have patients that have been on the intravenous protocol, and that have taken vitamins and minerals, and have opted not to take any prescriptions, and their T cells may be 5 or 12 total helper cells – but they've been for a year free of coughs, colds, or any other opportunistic infections. Some of them are exercising, gaining weight – some are body builders. It's hard to get a good handle on everything that's going on with them, but these people are coming back and saying that they're doing wonderfully! So, I think that's certainly an important picture.

One of the interesting things that a lot of the patients say to me is that all of their friends and people that they've known that have gone on some of the strong anti-virals – especially AZT – are individuals that either have expired, or have gotten sicker and sicker continually. But those who had not ever taken it seemed to be doing very well.

AIDS is a syndrome where people are dying relatively rapidly, so I don't know how appropriate it is to wait until there's firm and hard data before recommending some of these safe, nontoxic treatments. A lot of people are not doing well with the conventional approach. I think we have to try to use the safe things – the herbs and the nutrients – and see how much help we can offer the patient, whether they do or don't want to take the anti-virals. (Recent information is showing that the anti-virals may not actually prolong life.) If we could help to extend a person's life by a couple of years – by months, by whatever – that's important. Something may come out in six months to a year that may be of overwhelming benefit; but I certainly think we have to do whatever we can and be as comprehensive as we can with each patient.

Then Dr. Calapai told a story of a patient who almost made the changes that seemed essential for her health and survival but couldn't stay with it, resumed smoking, had a recurrence of bronchitis, and expired in the hospital. He said that only reinforced his low opinion (from the health standpoint) of cigarettes – noting that its effect upon the development of AIDS has been examined by others. Dr. Calapai concluded: "That experience again showed how irritating and how much of a problem smoking can be."

Case Summaries: As examples of his approach, Dr. Calapai gives the following four brief case summaries –

Patient #045

This is a 32 year-old Caucasian female presenting 1/92 with a HIV+ history since testing 9/91. She has a history of headaches, sinus congestion and fatigue. Initial testing revealed low cholesterol level. CD4 T cells prior to presentation here (10/91) were 616.

Patient was put on protocol. CD4 cells went up to 1,000 by 9/92. P24, B2 and neopterine 2/93 were normal. The patient feels very good and hasn't had any opportunistic or other infections.

Patient #046

A 33 year-old male Caucasian presented 1/93. Had tested HIV+ 8/91. History of IV substance abuse 11 years ago. Patient experiencing fatigue, recurrent VRIs. Patient was put on Bactrim 3 x weekly. Initial blood testing revealed elevated liver enzymes, low WBC, RBC and hemoglobin, high monocytes and low vitamin C levels. CD4 was 2%.

Patient was put on I.V. protocol and after 3 weeks felt significant improvement in energy and strength. Patient exercises regularly, including weight lifting, and has gained weight since on protocol. P24 test was negative 2/93. B2 micro was normal 2/93. Neopterin 12.5H. Repeat chemistry showed a decrease in LFTs, CD4 # is 3 on 4/17/93. The patient clinically feels "great," hasn't had any symptoms, or infection history, and continues to exercise regularly without problem. (All tests that were abnormal are in the process of being repeated.)

Patient #541

This is a 32 year-old Caucasian male who presented 2/10/93 with a 3 year history of HIV+ by test. He had hepatitis B in the past. Initial testing revealed high protein, high LFTs, +herpes, and +CMV. There were magnesium, vitamin A, B6 and vitamin D deficiencies. CD4 were 62 at 3%.

The patient was put on protocol. LFTs decreased, vitamin and mineral deficiencies were corrected, P24, B2 and Neopterin were normal. CMV turned negative. Clinically, the patient is doing very well, weight is stable. Patient exercises frequently, and is very energetic.

Patient #559

This is a 33 year-old male Caucasian presenting 2/93 with a 4 year history of HIV+. The patient has had no apparent opportunistic infections; however, has some fatigue. Initial blood testing revealed hypocalcemia, hyperproteinemia, low cholesterol, low WBC, high monocytes, positive for herpes and cytomegalovirus. B2 micro was 3.0, Neopt. was normal, P24 was negative, and beta carotene was deficient.

The patient was put on I.V. protocol. Repeat testing revealed B2 of 2.8, CMV negative (IgM), and a slight increase in WBC. The patient feels great, has a lot of energy, and weight is stable.

Summary of Experience and Results: All four patients reported on above showed a substantial improvement in health status in a very short time, and have continued to improve since the case summaries were assembled in Spring 1993.

Dr. Emanuel Revici (Metabolic Normalization)

Now ten cases of HIV infection treated by Dr. Revici will be reviewed.

Case Summaries: The treatment records for 11 HIV+ patients were examined. One of these was seen by Dr. Revici on only one occasion (a 6 month old infant of one of the other patients), and so will not be mentioned again. The ages of the other ten patients at the time of HIV infection ranged from 24 to 50 years (averaging 33 years), and their periods of treatment by Dr. Revici ranged from 1 to 10 years (averaging a little less than 5 years). There were seven men and three women.

Patient #1

A 31 year-old man was diagnosed HIV positive in March 1986. In August, when therapy was started, there were swollen inguinal lymph glands and a

rectal discharge, with a slight elevation of temperature (99.5°), but he was otherwise asymptomatic. Before therapy his T4 count was 668, and since it has fluctuated between about 700 and 850 (Nov. '88 through July '91), then dropping slightly to a range between 500 and 650 (January through October 1992). T8 has also decreased correspondingly, so that his T4/T8 ratio remains between 0.4 and 0.6 with no downward or upward trend evident.

He continues to "feel pretty good", "feeling O.K.", and is continuing therapy.

Patient #2

A 50 year-old man was diagnosed HIV positive in July 1988. He had submaxillary and axillary adenopathy. He was treated from May 1989 to the present. At the end of 1991 he said he was "feeling very very well." In August 1989, shortly after the initial diagnosis, his absolute CD4 was 813; a year later it had dipped to 517. However, since then, it has remained in the range from 750 to 850, and his T4/T8 ratio has varied between .6 and .9, with no downward or upward trend evident. At the end of 1991 he said he was "feeling very very well" – and is reported to still feel well, to be working, and continuing treatment at this time (Spring 1993).

Patient #3

A 27 year-old man was diagnosed HIV positive in 1986. He had axillary adenopathy, and complained of tiredness, headaches, and night sweats. He was treated from April 1987 through March 1993, and is continuing treatment. Around the time of his initial HIV-positive diagnosis his absolute CD4 was 625; subsequently, it stayed around 650 until February 1992, when it was reported to have doubled – to 1,310. Correspondingly, his T4/T8 ratio has risen from about 0.8 in 1986 and 1991 to 1.6 in 1992 and 1.7 in 1993. In 1992, said he was "feeling well," in March 1993 "feels very well," with "no complaints except mild weakness." Now, in May 1993, he is working, and is doing and feeling well.

Patient #4

A 30 year-old man was diagnosed HIV positive in 1990. He came for treatment in 1992 with memory difficulties, and cervical, axillary, and inguinal adenopathy. Nevertheless, he said he was "feeling well." He was treated from March 1992 through April 1993, and is continuing treatment. Around the time of his initial HIV-positive diagnosis his absolute CD4 was 243; after three months of treatment it had risen to 636, but at the time of treatment termination, though still above the pretreatment level, it had dropped somewhat, to 420. Over this time, his T4/T8 ratio changed very little. At the end of therapy in April 1993 the adenopathy remained, and there was a mild oral thrush.

Patient #5

A 35 year-old man came for treatment in November 1988 with a previous diagnosis of "HIV positive." His only reported symptoms were "pain in left leg" and a herniated disk. He was treated from November 1988 through November 1992, and is continuing treatment. Over this period his T4 count showed a gradual decline, especially in 1992, starting above 600 (7/88 & 2/89) and ending at 153 (7/92), while his T4/T8 ratio changed very little. Nevertheless, throughout he continued to report feeling "very well" (July & Aug. '89, July & Feb. '91), "feeling fine" (mid-June & Nov. '92) though at the end of June '92 his report was only "feeling O.K." During and at the end of the period of therapy, no symptoms were reported.

Patient #6

A 31 year-old woman was diagnosed HIV positive in April 1988, after her husband had died of AIDS. She complained of fatigue, insomnia, pain in abdomen, weak knees, itchy skin, hair loss, ganglions and hemorrhoids, as well as constipation and diarrhea. She was treated from August 1988 through November 1992, and is continuing treatment. She reported feeling "very well" soon after the start of therapy, and by 1989 she was gaining weight. Her T4 counts varied over a range from 158 to 953, but showed no ➤

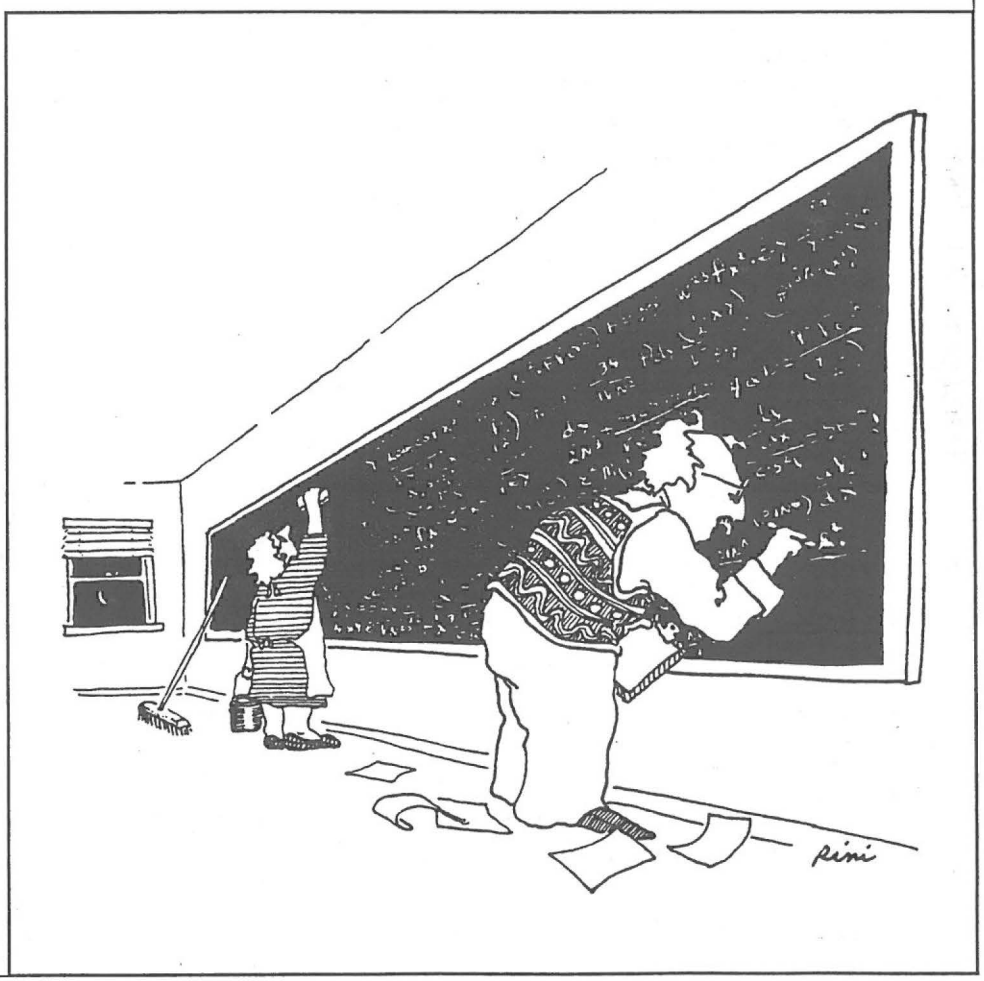

TABLE 1 — Patient Status at time of HIV-Positive Diagnosis.
The symptoms and immunologic markers (columns 4-6) refer to patient's condition at the time of HIV+ diagnosis, or (sometimes) the findings within a month or so afterwards.

			At time of HIV-positive diagnosis				
ID	Sex	Age	SYMPTOMS	Infections	Secondary Ca	T4	T4/T8
1	M	31	A, rectal discharge, intermittent F, tenesmus			668	0.4
2	M	50	A			813	0.69
3	M	27	A, F, G, N, headaches			456	0.8
4	M	32	A, M, T			248	0.36
5	M	35	A, herniated disk			625	0.5
6	F	31	D, I, G, "weakness of knees," hair loss			510	0.61
7	F	24	A, D	H (dx 1987)	Cervical Ca dx 3/89	600	0.42
8	M	40	bronchitis (smoking)			617	0.74
9	M	36	A, F, G	Herpes (dx '85)	K dx 7/91, H 12/90	1305	0.8
10	F	24	A, D, F, pulmonary			717	0.5

TABLE 2 – Course and Results of Treatment.
Treatment duration ("Yrs Rx"); response trends during treatment (TRENDS during Rx"); status at end of treatment ("Status POST-Rx &/or now").

	TRENDS during Rx:				Status POST-Rx &/or now:			
ID	Yrs Rx	Sx	T4	T4/T8	SYMPTOMS	T4	T4/T8	Gen'l Health (self-report)
1	4.6	++	0	0	none	567	0.5	3 (pretty good, O.K.)
2	3.5	++	0	0	none	756	0.65	4 (feeling very very well)
3	6	++	++	++	none	1310	1.7	3 or 4 (feels very well)
4	1	+/0	+	0	A, M (& mild T)	420	0.29	?
5	4	+/0	—	0/-	none mentioned	153	0.48	3 (is feeling fine)
6	4.2	+	-	0	A	425	0.46	3 (feeling well)
7	3.3	+	++	++	"no complaints"	1016	0.83	3
8	5	0/+	0	++	G	560	1.67	3 ("feeling well")
9	10	+/0	-	-	none (K gone '92)	591	0.47	2-3 ("well", "doing pretty good")
10	5.7	-	-	0	N, A, F, pulmonary (pneumonia?), T	479	0.69	-

Key Used In Tables 1 and 2 (Dr. E. Revici's Patients and Outcomes):

Symptoms: A (adenopathy; D (diarrhea); F (fever); G (fatigue); I (insomnia); M (memory/thinking); N (neuropathy); P (depression); S (night sweats); W (weight loss).
Infections: C (CMV); H (herpes); T (thrush); V (vaginitis); X (toxoplasmosis).
Secondary Ca: K (KS); L (lymphoma). Trends of Symptoms: 0 (no clear trend); + (improved, partial resolution); ++ (full resolution); - (somewhat worse); - - (severe decline).
TRENDS of T4: 0 (no clear trend); + (count raised somewhat, 15-50%); ++ (count markedly raised, e.g., >50%); - (count lower, 15-50%); - - (count markedly lower, e.g., <50%).
TRENDS of T4/T8: 0 (no clear trend); + (ratio raised somewhat, 15-50%); ++ (ratio markedly raised, e.g., >50%); - (ratio lower, 15-50%); - - (ratio markedly lower, e.g., <50%).
Post-Rx/now: General Health: 1 (very ill); 2 (moderately ill); 3 (moderately well: feel "pretty good", "good", "O.K."...); 4 (very well: feel "very good", "great",...).

9

consistent trend; her count at the start was 510, and at the end of treatment was 425. (Her T4/T8 ratios also varied widely, but ended just slightly below where they started.) Throughout she continued to report "feeling well," though in 9/89 there may have been a fever episode, and in 8/91 she complained of "some pain in upper abdomen." In 2/92 there was mention of herpes, and in 11/92 it was reported that she had axillary adenopathy, and had had diarrhea for two months. Nevertheless, she said she "feels fine."

Patient #7

A woman diagnosed HIV positive in 1985 at the age of 24, came for treatment in 1989. She was treated from November 1989 to April 1993. When she came she had carcinoma in situ of the cervix, bilateral adenopathy, tiredness, nausea, and complained first of constipation, then (after starting treatment) some diarrhea. In 10/91 patient reported severe pain in her lower abdomen during her menstrual period, and endometriosis was noted. Over the course of her treatment her T4 counts and T4/T8 ratios nearly doubled, from 600 to 1016 and from 0.42 to 0.83, respectively. Axillary adenopathy was again noted in 3/92, and she was feeling "well" in 5 & 6/92, though there was "tiredness" in 9/92. In 3/93 it was mentioned that she has "no complaints." Now (May 1993) she is well, working, and continuing treatment.

Patient #8

A 40 year-old man who was HIV positive came for treatment in 1987, with no symptoms except bronchitis, attributed to smoking (which he stopped). He was treated from 11/87 to 10/92. His T4 levels fluctuated considerably, but ended (at 560) about where they had started (at 617); however, his T4/T8 ratios more than doubled over the same period, going from 0.74 to 1.67. He continued "feeling well" or "feeling very well" most of the time, and at the end of treatment there was still no adenopathy or other symptoms except "harsh pulmonary murmur with crackles"; and he reported feeling "tired."

Patient #9

A 36 year-old man came for treatment in 1983, having been found in 1980 to be HIV positive. He had left axillary and submaxillary adenopathy, a slight elevation of temperature, and was "tired." He was treated from 3/16/83 to 2/19/93. His T4 levels started at 1305 in 8/83, by 1/85 had dropped to 544, then in 10/85 to 275; but thereafter fluctuated between 500 and 700, ending at 591 (6/92). Over the same period, his T4/T8 ratios dropped gradually to about half the starting value – from 0.8 to 0.47. By 6/94 he was "feeling well." In 3/85 he had a "cold" with fever and chills, and in 8/85 herpes zoster was noted. In 3/86 a fever of 102-104° was noted, but was gone a few days later. In 9/87 "some pain right upper chest front" was noted. At the beginning of 1989 a "very small lesion left arm" was

➤

10

noted, and in 4/89 he was "not well"; in 5/89 "submaxillary glands" were noted. However, by 6/89 he was "well," in 8/89 reported "feeling well." In 11/90 herpes is mentioned, and in 12/90 there is a notation of "severe herpes – otherwise well." In 7/91 he had a rectal biopsy revealing Kaposi sarcoma lesions. But the next year (10/92) he said his proctologist said that "The K.S. was totally gone." In 1992, he was feeling "better," then "well" (7/92), and finally, "pt. says he's doing pretty good." (11/92)

Patient #10

A 24 year-old woman whose ex-boyfriend had AIDS was diagnosed HIV positive, and treated from 5/87 to 2/93. Her T4 count was 717 when she came, and 479 at the end. The T4/T8 ratio increased slightly, from 0.50 to 0.69. At the start (5/87) she had some adenopathy, fever, night sweats, and pains in the legs, neck and hands. In 7/87 diarrhea was reported. In 10/87 she was "not well," but no diarrhea," and no fever. In 2/88 she was "feeling well," but had a "bad taste." At the end of therapy in 2/93, there was no adenopathy, but a low grade fever, a cough, and ralls at base of thorax were noted; and night sweats were again mentioned.

Summary of Treatment Result: The foregoing case summaries were assembled in Spring 1993. The ten patients have continued to improve since then.

Of these ten patients, only three (two men and one women; patients #5, #9, and #10) seem not to have improved *during* therapy. Yet of these three, patient #9, though worsening in immunologic markers (T4 count and T4/T8 ratio declining to about half), nevertheless felt "well" at the end of 10 years of treatment, and his KS had disappeared, according to his proctologist. Further, patient #5, though his T4 count also declined considerably (from 625 to 153) over his 4 years of treatment, was still "feeling fine" at the end of that period.

Of the other seven who showed more clear improvement, two (patients #3 and #7) had considerable increases in T4 counts and T4/T8 ratios – they roughly doubled. Both also showed complete resolution of pretreatment symptoms (which for patient #3 had been fatigue, adenopathy, headaches, fevers and night sweats; for patient #7, adenopathy and diarrhea).

Two others (patients #2 and #6), though not showing such improvement in immunologic markers, also had diminution of symptoms.

Thus, of the ten patients, eight currently (or recently) report feeling well (or "very well" – patient #3; and "very very well" – patient #2) after an average period of 5.2 years of therapy. Five of the eight also report no remaining symptomatic complaints; and two of those have had a marked improvement in immune markers. All are currently continuing in therapy.

While there was insufficient detail in the records at our disposal to stage all ten patients, it seemed that three were Stage 2 (Asymptomatic HIV disease), three were Stage 3 (ARC) patients, and one was Stage 4 (AIDS). Then there were two who might have been either Stage 2 or Stage 3, and one who might have been either Stage 3 or Stage 4 – deciding would require more information.

It appears, then, that some HIV+ patients were certainly helped by Dr. Revici's therapy. However, since we do not yet have full statistics on all the HIV+ patients he has treated, nor on the relation of this subset to that larger population, we cannot draw inferences about the overall effectiveness of his treatment.

An observation that, we believe, deserves further exploration has to do with metabolic imbalances – the special sphere of interest of this physician. As noted in a previous section, it seems that there are highly stressed patients, some with HIV infections and some without, who suffer, simultaneously, from an abnormally elevated resting energy expenditure, and depressed immune function.[53,55] It was also noted that nutritional therapies seemed simultaneously helpful for both the metabolic and the immunologic abnormalities. I hope to find further information on the relation between the 'nutritional augmentation' carried out by the first physician and the 'metabolic rebalancing' performed, using a quite different rationale and method, by Dr. Revici.

Oxygen, Ozone, and AIDS

This section will begin with a survey of some of the health and medical applications of ozone, with special attention to HIV and other viral infections.

Certainly, oxygen is an essential nutrient. It is, in fact, the most essential – as it is the only one which must be continuously available, at pain of quick death. As we all know, life ceases if the supply is cut off for more than a few minutes. But are the levels necessary for life identical with those which support optimal health? Clearly, the answer here is 'no,' since chronic hypoxia is consistent with continued life but has many deleterious health effects.

Those observations are so taken for granted that we hardly think about them further. Specifically, have we thought in any depth about how ubiquitous 'hidden' hypoxias may be? Certainly, there are possibilities for all kinds of highly localized hypoxias, many far less obvious than the gross ones we're wary of. This, at any rate, might be one approach to explaining the sometimes surprising therapeutic effectiveness of oxygenation therapies, of which the application of ozone to HIV infection is one of the newest.

While it is well known that ozone is toxic to pulmonary epithelium, it has also been found to be "highly effective against viruses and has an unusually high degree of tolerance when administered parenterally.[74] In the case of AIDS and ARC patients, hyperbaric ozone therapy can lead to obvious remittances of the reduced lymphocytic population and to an astonishing improvement in the clinical status provided that the disease has not severely progressed. If the complete manifestation of AIDS is present partial remissions can still be achieved in 30% of the cases."[74]

Virucidal effects: Ozone inactivates viruses, and the HIV virus specifically, at low and safe concentrations. Carpendale has outlined how ozone was shown to inactivate human immunodeficiency virus (HIV) in serum at noncytotoxic concentrations and in whole blood. [75,76] These latter data are consistent with the improved clinical and immunologic status found in patients with acquired immunodeficiency syndrome (AIDS) or

11

AIDS-related complex (ARC) who have undergone ozone therapy.[74] "In all experiments reported here, treatment of serum or culture media with ozone was completed before the addition of virus or cells ... [supporting] the hypothesis that HIV inactivation is effected by secondary reaction products of ozone in serum... The ozonide reaction products of fatty acids have been shown to mimic the direct cellular effects of ozone...."[77]

Nevertheless, one report appears to be at odds with this apparent lack of cytotoxicity, for levels of ozone in blood that produced greater than 4 log10 inactivation of an animal virus (VSV) and a bacterial virus (phi 6) also resulted in 30% hemolysis.[78] It may better be said, therefore, that the level of cytotoxicity is low relative to its antiviral effectiveness, but may not be zero. Another report found "no significant toxicity" in "a phase I study of ozone blood treatments in 10 patients," but then, after a "phase II controlled and randomized double-blinded study" with an 8-week treatment period, the conclusion was that "ozone therapy does not enhance parameters of immune activation nor does it diminish measurable p24 antigen in HIV-infected individuals."[79] (A negative result has also been reported by another group.[80])

Extracellularly, ozone appears to be highly effective as a virucidal treatment: "Greater than 11 log inactivation has been achieved within 2 hours at a concentration of 1,200 ppm ozone. ... The data indicate that the antiviral effects of ozone include viral particle disruption, reverse transcriptase inactivation, and/or a perturbation of the ability of the virus to bind to its receptor on target cells."[81]

However, it is inferred that ozone treatment must somehow reach and inactivate intracellular virus, because otherwise the inactivation could not be as extensive as has been observed. The mystery has been how extracellular ozone could affect virus particles within the cell, even within its nucleus. It is proposed that such effects might be mediated through the oxidation of molecules which are able to enter the cell in a highly activated and reactive state. Alternatively, however, the extensive viral inactivation might be effected not by making infected cells 'healthy' – that is, inactivating their intracellular virus – but rather by destroying infected cells. Some studies indicated that infected cells are in fact more vulnerable.[82]

Effects on immune system: Those would be some more direct effects upon an infecting organism. But amelioration of infection may be mediated by the immune system, perhaps in the way proposed by Bocci.[83] Several studies have shown that ozone treatments can strengthen immune responses: as oxidizing agents can induce interferon and probably other cytokines, it was hypothesized that ozone or its reactive oxygen species may stimulate the release of lymphokines from peripheral blood mononuclear cells – and it was found that "under strictly defined conditions of ozonisation, [peripheral blood mononuclear cells] either in whole blood or after isolation can be induced to produce significant amounts of [interferon]." Then "interferon and other mediators may ... operate either directly as antiviral, or indirectly by activation of immune effector cells."[84]

Dr. 'Z' –
A holistic Physician (Ozone)

Treatment Protocol: Dr. Z reports that he has treated several hundred patients with ozone therapy, including many HIV+ patients. The method he used in the patient reported below is as follows:

About a pint of venous blood is taken from the patient into an IV bottle, to which is introduced an O3/O2 mixture (on the order of 2% O3), generated using an ozone machine. The blood is shaken up with the ozone mixture, and then dripped back into the patient.

Case Summary: A man exposed in 1988 by an HIV-positive woman began to experience fevers, night sweats, malaise, muscle aches, and swollen glands. He was diagnosed HIV-positive in 1989, when he was found to have a T4 cell count of 153, and started immediately on a 70-day program of daily ozone treatments, plus some adjunctive therapy.

12

➤

He became asymptomatic within about a month, and his T4 cell count began to rise, reaching 728 a year later. Some time thereafter, he applied for a hospital job and was retested for AIDS. *The result showed him to be HIV-negative.* This was confirmed by repeated testing, including a PCR test indicating no virus in his system.

Summary of Experience and Results: Dr. 'Z' reports that he has treated many other HIV+ patients with ozone therapy, and most have been helped; but this is his first experience of an instance of HIV seroconversion. Especially now, after this episode, he is very impressed with the possibilities of this mode of therapy, and is continuing to apply it where it seems indicated.

Discussion (Alternative health-disease-therapy concepts)

The three physicians whose work with HIV infection was examined approach health and illness from somewhat different perspectives. Medicine, like other therapeutic human enterprises, is inherently teleological. Therapies are directed towards the maintenance and/or restoration of health. But this can mean different things, for there are several more or less distinct ways to understand health and its perturbations. We may here sketch four *alternative concepts of disease and therapy*:

(1) Disease as loss of adaptive flexibility, and therapy as 'retraining.'

(2) Disease as excess deviation from 'normal' balance-points, and therapy as restoration of balance.

(3) Disease as impoverishment of essential resources, and therapy as replacement (or enrichment).

(4) Disease as invader, and therapy as a kind of 'war' which removes and/or destroys the invader.

In our estimation, the first physician, Dr. Christopher Calapai, makes use mainly of the third approach (restore depleted resources); the second physician, Dr. Emanuel Revici, is deeply committed to the second viewpoint (that of restoring balance); while the third physician, Dr. 'Z,' who also uses the third (restoration of resources) approach, here employed it in combination with the fourth approach (inactivate the viral invader).

Actually, it's not so simple: nutrients are used for more than countering deficiencies; and ozone may do more than kill HIV. While in the nutritional approach to therapy, the third view of "Disease as impoverishment of essential resources, and therapy as replacement (or enrichment)" does quite precisely determine the means of therapy, the use of megadose nutrients goes beyond that rationale, as it can partake also of the second ("rebalancing") and fourth ("repulsing") approaches. Similarly, there is no simple correspondence of herbal therapies to any one health-disease paradigm: some herbal therapies can be understood in terms of the second ("balancing") perspective; some in terms of the third ("replacement") perspective; and others in terms of the fourth ("expulsion") perspective.

Similarly, the ozone story also is not a simple one, for studies were cited showing effects that might make all of the four reference frames appropriate. As will be seen, ozone may (1) 'exercise' the immune system, and thereby increase its adaptive flexibility; it also (2) brings some immune variables back toward a more normal balance; and (4) it has antiviral effects. Only the third reference frame is not obviously fitted; yet perhaps it is also, as ozone raises levels of oxygenation, and thus might sometimes be viewed in the "enrichment" frame.

So there is no simple correspondence between the four identified 'paradigms' and specific therapeutic modalities. Nevertheless, they seem conceptually useful in giving some order to how we think about disorder. The four concepts of disease and therapy progress from the active, self-organizing and self-dependent organism to one that is passive and externally dependent. In the first paradigm, the origin of disorder is internal to the disordered living system ("loss of adaptive flexibility"); in the last, it is external to it ("invasion" scenario); and in the middle two, there is some combination of internal and external source (an impoverished or unbalanced state from deprivation of essential supplies). Thus the approaches of the three physicians, though differing considerably, share a greater emphasis upon supporting the body's own healing powers than is usual among allopathic physicians (who work for the most part within the fourth, "invasion," paradigm).

Underlying this inside/outside, active/passive distinction with regard to cause is a more pervasive difference of worldviews. How do I think of my own health and illnesses? My understanding of health and disease taps very deep attitudes that I take toward myself and my life. What is the complexity of the health-state? Am I (a) a congeries of mechanisms, with subsystems that can be adequately understood separately, with little regard to the status of all the myriad other subsystems? Or (b) is the level of interconnectedness far higher than such ideas acknowledge, so that in a healthy organism all the subsystems are supporting each other in myriad ways (most of which are not yet observable or understood)? In the first (allopathic) worldview, most disease originates through the breakdown of some one mechanism, or a few discrete mechanisms; disease then is to be treated by fixing (or bypassing) the defective mechanism(s). In the second (holistic) worldview, however, disease has to do not only with individual mechanisms, but with weakenings of many kinds of couplings between mechanisms, and with overstressing supporting systems through excessive demands for support. In this view, the total system can be strengthened by adding inputs that may rouse relatively quiescent supporting subsystems to become more active, as well as by giving additional resources to many different supporting systems – therapeutic strategies that are emphasized in the work of the three doctors we have used as examples.

Thus, depending upon one's ruling conception either (a) of mechanistic simplicity or (b) of self-organizing complexity of the health state, one's concepts of what is required for maintaining or returning toward health will range from (a) completely passive ("comply with doctor's orders: take your prescribed medicine") to (b) highly active ("take responsibility for your own health, learn all you can, make your own choices"). As we are becoming increasingly aware, today's high-tech medicine shows a decided preference, in how it organizes its decisions and actions, for the simplifying, mechanistic

models that put the "patient" in a passive role. The aim, usually, is to find a single "pathogen" that is the cause of each definable disease. Then the therapy can be aimed at removing or "inactivating" the pathogen, after which the "patient" can be presumed to have been "cured" – or if not, then at least to be "in remission." In our current health care system, the drive to structure things in this way is very powerful. And according to one prominent virus researcher, it has taken our concept of AIDS and its etiology up a blind alley.[10,11]

Conclusions

Theories and methods that seem very different can have broadly similar results. All three of these treatment approaches have, at the very least, reversed some of the symptoms of HIV infection in some patients, and have improved the quality of life, according to the patients themselves, in many. Some of the observed improvements – but certainly not all – have been accompanied by some normalization of immune system indices; parameters such as T4 counts and T4/T8 ratios. But even when these indices did not improve appreciably, immunological status, and general health, was usually better, as indicated by a marked decline in opportunistic infections.

The three approaches – the *nutritional* therapy of Dr. Calapai, *metabolic* therapy of Dr. Revici, and *ozone* therapy of Physician Z – are not mutually exclusive. Is there any reason why they should not be used together, complementing each other? For example, it was noteworthy that some of the reported actions of the vitamin C infusions[61,63] used by the first physician were very similar to those of the ozone infusions[74,75,81] used by the third physician: both were found to be highly effective in inactivating many viruses, and HIV in particular; and both seemed to augment the effectiveness of the immune system. Perhaps if they were used together, these effects of each would potentiate each other, with results better than either alone. (Here, however, is a further question: Is there something paradoxical about these similarities of effect? Ozone is a powerful oxidant; vitamin C a very effective antioxidant. These parallel effects of seeming opposites may deserve more looking into!)

Here it must be noted again that many of these techniques that are widely thought of as "non-conventional" (and in many instances as "unproven") are in fact supported not only by much clinical experience, but also by a considerable quantity of publications in peer-review journals. In our experience, many if not most of those who denigrate these other methods are unaware of this literature. What has been cited in this paper is only a very small sample of what is available – much of it in our own professional and scientific journals, and still more from other parts of the world. Good science and good medicine are practiced in many other countries as well as ours, and if this is recognized, we will be more open than we have been in recent years to effective methods that are in use elsewhere, and give our physicians and their patients the freedom to choose whatever, in their most carefully considered judgment, best meets their professional and personal needs.

One of the very important advantages of many of these "non-conventional" methods is that, whether or not they are effective (and there is evidence that some are), they are generally safe. Most nutritional and herbal methods cause far fewer side effects than the pharmaceutical and surgical methods now in favor here. This is a major argument for permitting them to be used at the discretion of the individual, as an exercise of each one's constitutional rights to self-determination.

That is a reason for not bringing these modalities under the regulatory authority of the state or organized medicine. It is a matter of constitutional freedoms. But there are also strong economic arguments. The costs of these 'alternative' techniques are almost always far lower than the treatments now approved by organized medicine for the same disorders. Thus, encouraging the use of these other approaches can save the American public, both as taxpayer and as health-care consumer, vast sums of money. And since these approaches offer important help not only for the treatment but also for the prevention of disease, if their prophylactic use (where appropriate) were to be encouraged, additional vast savings would accrue.

Those are some of the reasons why we feel it is important for American physicians to acquaint themselves more fully with the uses of these methods, and have here presented some preliminary evidence of their potential value for the treatment of AIDS, and of other effects of HIV infection. It is the authors' view that a physician can be most effective by becoming knowledgeable about several schools and traditions of healing, in addition to that in which she/he has been trained, so that conventional allopathic methods can be supplemented by other approaches that have in practice been proven helpful, even when they have not yet been fitted fully within the explanatory framework of today's 'scientific medicine.'

Correspondence:
Gary Null, Ph.D.
Gary Null Associates
P.O. Box 918
Planetarium Station
New York, New York 10024 USA

Adam Atkin, Ph.D.
85 Aspinswall Road (P.O. Box 950)
Briarcliff, New York 10510 USA
914-941-8926

Gary Null, Ph.D., award winning investigative reporter, has authored 50 books on health and nutrition, as well as numerous articles published in leading magazines. Dr. Null holds a Ph.D. in human nutrition and public health science from the Union Graduate School. Former publisher of *Natural Living Newsletter*, the current *Gary Null's Natural Living Journal* reports on healthy alternatives in today's medicine, nutrition and lifestyle choices, ten times a year, and is available by calling 516-547-7177. Null hosts a national syndicated radio show, *Natural Living*, from New York City. Call 212-799-1246 for a radio listing in your area.

References

1. Brown, P. (1991). Does HIV trigger an autoimmune response? *New Scientist*, Sept 14, 1991; 31(1786):22.
2. Cooper, M. (1989). Nerve damage may be caused by HIV-triggered autoimmune attack. *CDC AIDS Weekly*, May 15, 1989 p8(1).
3. Vegas, M.A., Guigo, R., & Smith, T.F. (1990). Autoimmune response in AIDS. *Nature*, May 3, 1990; 345:26.
4. DeNoon, D.J. (1992). HIV, mycoplasmal superantigens program T cells for death, Montagnier says. (Luc Montagnier's theory of AIDS cofactors) (VIII International Conference on AIDS). *CDC AIDS Weekly*, August 17, 1992 p3(2).
5. Beach, R., Mantero-Atienza, E. et al. (1992a). Specific nutrient abnormalities in asymptomatic HIV-1 infection. *AIDS*; 1992 July; 6(7):p701-708.
6. Boudes, P., Henrion-Geant, E., Mandelbrot, L. et al. (1990). Folate, vitamin B12, and HIV infection. *The Lancet*, June 9, 1990; 335:1401-1402.
7. Cohen, S.A. & Kotler, D.P. (1991). Malnutrition and acquired immunodeficiency syndrome. *Current Opinion in Gastroenterology*, 7:284-289.
8. de Quay, B., Malinverni, R., & Lauterburg, B.H. (1992). Glutathione depletion in HIV-infected patients: role of cysteine deficiency and effect of oral N-acetylcysteine. *CDC AIDS Weekly*, August 1992;6(8):815-819.
9. Root-Bernstein, R.S. (1992). *Rethinking AIDS*. New York: Free Press/Macmillan.
10. Duesberg, P.H. (1989). Human immunodeficiency virus and acquired immunodeficiency syndrome: correlation but not causation. *Proc Natl Acad Sci USA* 1989; 86:755-64.
11. Duesberg, P.H. (1992). AIDS acquired by drug consumption and other noncontagious risk factors. *Pharmacol. Ther.*, 55(3):201-277.
12. Editorial (1992). AIDS: how can a pussy cat kill? (HIV may cause autoimmune disease). *The Lancet*, April 4, 1992; 339(8797):839-840.
13. Dalgleish, A.G., Wilson, S., Gompels, M., et al. (1992). T-cell receptor variable gene products and early HIV-1 infection. *The Lancet*, April 4, 1992; 339(8797):824-828.
14. Dalgleish, A.G. (1992). The pathogenesis of AIDS: classical and alternative views. *J.R.Coll. Physicians-Lond.* (1992 April), 26(2):152-158.
15. Papadopulos-Eleopulos, E. et al. Is a positive Western Blot proof of HIV infection? *Bio/Technology*, 1993, 11:696-707.
16. Stoneburner et al., *Science*, 1988, 242:916.
17. Lotzova, E. et al. Depression of murine natural killer cell cytotoxicity by isobutyl nitrite. *Cancer Immunology Immunotherapy*, 1984, 17:130134.
18. Soderberg, I. & Barnett, J. Exposure to inhaled isobutyl nitrate reduces T-cell blstogenesis and antibody responsiveness. *Fundamental and Applied Toxicology*, 1991, 17:821-824.
19. Soderberg, L. et al. Inhaled isobutyl nitrate impairs T-cell reactivity. *Experimental Biology*, 1992, 288:265-269.
20. *The Physicians Desk Reference* (1993). Medical Economics Data. 47:829-835.
21. Root-Bernstein, R. 'Multiple, concurrent infections and AIDS'. IN: *Rethinking AIDS*. 1993. Free Press. P. 149.
22. Rogers, M. et al. National case-control study of Kaposi's Sarcoma and PCP in homosexual men: Part 2, Laboratory results. *Ann. Intern. Med.*, 1983, 99:151-158.
23. Root-Bernstein, R., 1993; op. cit., pp. 148-183.
24. McKenna, J. et al. 'Unmasking AIDS: Chemical immunosuppression and seronegative syphilis.' *Medical Hypotheses*. 1986. 21:421-430.
25. Coodley, G. (1990). Nutritional deficiency and AIDS (Letter to the editor). *Annals of Internal Medicine*, November 15, 1990; 113(10):807.
26. Cohen, S.A. & Kotler, D.P. (1991). Malnutrition and acquired immunodeficiency syndrome. *Current Opinion in Gastroenterology*, 7:284-289.
27. Ott, M. et al. (1991). Intestinal permeability in patients with immunodeficiency syndrome. *Klin. Wochenschr.*, 69:715-721.
28. Meister, A. et al. (1991). Glutathione blocks HIV in vitro. (Glutathione deficiency may contribute to HIV infection.) *Proc. National Acad. of Science*. Feb. 1, 1991.
29. Cathcart, R.F. (1990). Glutathione and HIV infection. *The Lancet* (Jan 27, 1990), 335:235.

15

30. Staal, F.J.T., Ela, S.W., Roederer, M., Anderson M.T., Herzenberg, Leonore A., & Herzenberg, Leonard A. (1992). Glutathione deficiency and human immunodeficiency virus infection. *The Lancet*, April 11; 339(8798):909-912. [cited in *CDC AIDS Weekly*, May 11, p. 21(2).]
31. Roederer, M., & Herzenberg, L.A. (1991). CD4 and CD8 T-cells with high intracellular glutathione levels are selectively lost as the HIV infection progresses. *International Immunology*, Sept.;3(9):933-937.
32. Kinter, A.L., Kalebic, T., Poli, G., & Fauci, A.S. (1991). Suppression of cytokine-induced human immunodeficiency virus (HIV) expression by N-acetyl-cystein (NAC), glutathione (GSH), and glutathione-monester (GSE). *CDC AIDS Weekly*, May 6 1991, p. 19(1).
33. Kalabic, T., Kinter, A., Poli, G. et al. (1991b). Suppression of human immunodeficiency virus expression in chronically infected monocytic cells by glutathione, glutathione ester, and N-acetylcysteine. *Proc. NatlAcad. Sci. U.S.A.*, 88(3):986-990.
34. Kalabic, T., Fauci, A., et al. (1991a). Thiol-based compounds may limit AIDS progression. *CDC AIDS Weekly*, Feb 25, p3(1).
35. Buhl, R. et al. (1989). Systemic glutathione deficiency in symptom-free HIV-seropositive individuals. *The Lancet*, Dec 2, 1989; ii(8675):1294-1297.
36. Baum, M.K., Mantero-Atienza, E., Shor-Posner, G., et al. (1991). Association of vitamin B6 status with parameters of immune function in early HIV-1 infection. *J. Acquired Immune Deficiency Syndromes*, Nov 1991, 4(11):1122-1132.
37. Graham, N.M.H., Sorensen, D., Odaka, N. et al. (1991). Relationship of serum copper and zinc levels to HIV-1 seropositivity and progression to AIDS. *J. Acquired Immune Deficiency Syndromes*, Oct 1991;4(10):976-980. [cited in *CDC AIDS Weekly*, Oct 14, 1991 p25(2).]
38. Cunningham-Rundles, S. (1989). Role of zinc in Aids receives research attention. *HealthFacts*, July 1989, 14(122):p2(2).
39. Mantero-Atienza, E., Beach, R.S., Gavancho, M.C. et al. (1991b). Selenium status and immune function in asymptomatic HIV-1 seropositive men. *Nutrition Research*, 1991;11(11):1237-1250. [cited in *CDC AIDS Weekly*, Jan 27, 1992 p23(1).]
40. Baum, M.K., Shor-Posner, G., Bonvehi, P, I. Cassetti, I., Lu, Y., Mantero-Atienza, E., et al. (1992). Influence of HIV infection on vitamin status and requirements. *Annals N.Y. Acad. of Sciences*, 669:165-174.
41. Cohen, S.A. & Kotler, D.P. (1991). Malnutrition and acquired immunodeficiency syndrome. *Current Opinion in Gastroenterology*, 7:284-289.
42. McCorkindale, C., Dybevik, K., Coulston, A.M., & Sucher, K.P. (1990). Nutritional status of HIV-infected patients during the early disease stages. *J. Amer. Dietetic Assoc.*, 90(9):1236(6).
43. Hoover, D.R., Saah, A.J., Bacellar, H., et al. (1993). Signs and symptoms of "asymptomatic" HIV-1 infection in homosexual men. Multicenter AIDS Cohort Study. *J. Acquir. Immune Defic. Syndr.* (1993 Jan), 6(1):66-71.
44. Ehrenpreis, E.D., Ganger, D.R., Kochvar, G.T. et al. (1992). D-xylose malabsorption: characteristic finding in patients with the AIDS wasting syndrome and chronic diarrhea. *J. Acquir. Immune Defic. Syndr.* (1992 Oct), 5(10):1047-1050.
45. Baum et al. 1992, op. cit., p. 165.
46. Harriman, G.R., Smith, P.D., Horne, M.K., et al. (1989). Vitamin B12 malabsorption in patients with acquired immunodeficiency syndrome. *Arch. Internal Med.*, 149(9):2039-2041.
47. Beach, R., et al. (1992b). Correlation between vitamin B12 levels and cognitive ability noted in patients with HIV infection. *CDC AIDS Weekly*, July 13, 1992 p11(2).
48. Beach, R.S., Morgan R. et al. (1992c). Plasma vitamin B12 level as a potential cofactor in studies of human immunodeficiency virus type 1-related cognitive changes. *Arch. Neurol.*, 1992 May; 49(5):501-506.
49. Mantero-Atienza, Baum, M.K., Morgan, R., Wilke, F. et al. (1991a). Vitamin B12 in early human immunodeficiency virus-1 infection. *Arch. Intern. Med.* (May 1991), 151:1019-1020.
50. Wilkie, F.L., Eisdorfer, C., Morgan, R. et al. (1990). Cognition in early human immunodeficiency virus infection. *Arch. Neurol.* (April 1990), 47:433-440.
51. Heseker, H., Kobler, W., Pudel, V., & Westenhoffer, J. (1992). Psychological disorders as early symptoms of mild-to-moderate vitamin deficiency. *Annals of the New York Academy of Sciences* (Sept 30, 1992), 669:352-357.
52. Lake-Bakaar, G. et al. (1988). Gastric secretory failure in patients with the acquired immunodeficiency syndrome (AIDS). *Ann Intern Med*, 1988 September:502-504.
53. Melchoir, J.C., Salmon, D., et al. (1991). Resting energy expenditure is increased in stable, malnourished HIV-infected patients. *Am. J. Clin. Nutr.*, 1991 Feb.; 53(2):437-41.
54. Cerra, F.B. et al. (1991). Improvement in immune function in ICU patients by enteral nutrition supplemented with arginine, RNA, and menhaden oil is independent of nitrogen balance. *Nutrition* (1991 May-June) 7(3):193-199.
55. Cerra, F.B. (1991). Nutrient modulation of inflammatory and immune function. *Amer J Surgery*, 161(2):230-234.
56. Meydani, S.N., Hayek, M, & Coleman, L. (1992). Influence of vitamins E and B6 on immune response. *Annals N.Y. Acad. of Sciences*, 669:125-137.
57. Schmidt, K. (1991). Antioxidant vitamins and beta-carotene: effects on immunocompetence. *Am. J. Clin. Nutr.* (1991 Jan), 53(1 Suppl):383S-385S.
58. Garewal, H.S., Ampel, N.M., Watson, R.R., et al. (1992). A preliminary trial of beta-carotene in subjects infected with the human immunodeficiency virus. *J. Nutr.* (1992 Mar.), 122(3 Suppl):728-732.
59. Prabhala, R.H., Garewal, H.S., Hicks, M.J., et al. (1991). The effects of 13-cis-retinoic acid and beta-carotene on cellular immunity in humans. *Cancer* (1991 Mar 15), 67(6):1556-1560.
60. McKeown, L.A. (1993). Beta carotene lifts CD4 counts. *Med Tribune*, February 25, 1993, p. 1.

➤

61. Penn, N.D. et al. (1991). The effects of dietary supplementation with vitamins A, C and E on cell-mediated immune function in elderly long-stay patients: A randomized controlled trial. *Age & Aging*, 20(3):169-174, May 1991. [Summarized as "Vitamins and immune function in the elderly" in *Nutrition Research Newsletter*, July-August 1991 v10 n7-8 p83(1).]
62. Meydani, S.N. (1991). Dietary modulation of immune response in the aged. Age, 14:108-115.
63. Harakeh, S. & Jariwalla, R.J. (1991). Comparative study of the anti-HIV activities of ascorbate and thiol-containing reducing agents in chronically HIV-infected cells. *Amer J Clin Nutrition*, 54(6 Suppl):1231S-1235S.
64. Gogu, S.R., Lertora, J.J., et al. (1991). Protection of zidovudine-induced toxicity against murine erythroid progenitor cells by vitamin E. *Exp. Hematol.* (1991 Aug.), 19(7):649-52.
65. Gogu, S.R., Beckman, B.S., & Agrawal, K.C. Amelioration of zidovudine-induced fetal toxicity in pregnant mice. *Antimicrob. Agents. Chemother.* (1992 Nov.), 36(11):2370-74.
66. Hinds, A. (1991). Nutrients as modulators of immune function. *Canadian Med Assoc J*, July 1, 1991; 145(1):35.
67. Jacobson, E. (1992). Chinese herbs: new hope for AIDS. *Vegetarian Times*, April 1992 n176 p85(5).
68. DeNoon, D.J. (1990c). Chinese medicinal herbs. (Directory of Antiviral and Immunomodulatory Therapies for AIDS, part 1). *CDC AIDS Weekly*, Jan 1, 1990 p45(2).
69. Chang, R.S. & Yeung, H.W. (1988). Inhibition of growth of human immunodeficiency virus in vitro by crude extracts of Chinese medicinal herbs. *Antiviral Research*, 9(3):163-75.
70. Revici, E. (1961). *Research in Physiopathology as Basis of Guided Chemotherapy with Special Application to Cancer*. Van Nostrand. Pp. 36-7.
71. Revici, E. (1987). Research and theoretical background for treatment of the acquired immunodeficiency syndrome (AIDS). *Townsend Letter for Doctors*, #45, Feb./March 1987, 1-13. P. 11.
72. Maki, Patricia A. & Newberne, P.R. (1992). Dietary lipids and immune function. *J. of Nutrition*, 122(3):610(5).
73. Nieman, R.B, Fleming, J., Coker, R.J., Harris, J.R.W., & Mitchell, D.M. (1993). The effect of cigarette smoking on the development of AIDS in HIV-1-seropositive individuals. *AIDS*, 7:705-710.
74. Kief, H. (1988). Die Behandlung von Viruserkrankungen mit Ozon. *Erfahrungsheilkunde*, 37:3-11.
75. Carpendale, M.T.F. & Freeberg J.K. (1991). Ozone inactivates HIV at noncytotoxic concentrations. *Antiviral Research*, 16:281-292.
76. Wagner, K.F., Mayers, D.L., Linette, G.P., & Sheppard, R.III. (1988). Effect of ozone on HIV in experimentally infected human blood. Abstract, *28th Interscience Conference on Antimicrobial Agents and Chemotherapy* (Los Angeles, CA, 1988).
77. Carpendale & Freeberg 1991, op. cit., p. 289.
78. Wagner, S.J., Wagner, K.F., Friedman, L.I., & Benade, L.F. (1991). Virucidal levels of ozone induce hemolysis and hemoglobin degradation. *Transfusion*, 31(8):748-751.
79. Garber, G.E., Cameron, D.W., Hawley-Foss, N., et al. (1991). The use of ozone-treated blood in the therapy of HIV infection and immune disease: a pilot study of safety and efficacy. *AIDS* (1991 Aug), 5(8):981-984.
80. Hooker, M.H & Gazzard, B.G. (1992). Ozone-treated blood in the treatment of HIV infection [letter; comment]. *AIDS*, 6(1):131.
81. Wells, K.H., Latino, J., Gavalchin, J., & Poiesz, B.J. (1991). Inactivation of human immunodeficiency virus type 1 by ozone in vitro. *Blood*, 78(7):1882-1890. P. 1882.
82. Staal, F.J.T., Ela, S.W., Roederer, M., Anderson M.T., Herzenberg, Leonore A., & Herzenberg, Leonard A. (1992). Glutathione deficiency and human immunodeficiency virus infection. *The Lancet*, April 11; 339(8798):909-912. [cited in *CDC AIDS Weekly*, May 11, p. 21(2).]
83. Bocci, V. (1992). Ozonization of blood for the therapy of viral diseases and immunodeficiencies. A hypothesis. *Medical Hypotheses*, 39:30-34.
84. Bocci, V. & Paulesu, L. (1990). Studies on the biological effects of ozone. 1. Induction of interferon gamma on human leucocytes. *Haematologica*, 75(6):510-515. P. 514.

Appendix I

Christopher Calapai, D.O.

AIDS PROTOCOL

1. Complete blood evaluation:
   - CBC
   - SMA 20
   - Thyroid function panel
   - Viral titers CMV, EBV, herpes, adenovirus
   - Vitamin & mineral levels
   - Gastrin; total protein; albumin; globulin
   - IgG, A, M
   - T cell subsets
   - Total IgE, and IgE for food allergens

2. Physical examination:
   - EKG
   - Spiromenter
   - TB test

3. Discussion – Lifestyle changes:
   - No smoking, drug use, caffeine or alcohol
   - No unprotected intimate activities

4. Intravenous therapy
   (infused over 2-3 hours, done 1-2 times per week as needed):
   - Vit. C 15-30 grams
   - B complex 1-2 cc
   - Zinc 1-2 cc
   - Glutathione 5-10 cc
   - Magnesium 1-2 cc
   - B12 1-2 cc
   - Dexpanthenol 1-2 cc

5. Intramuscular therapy:
   - Gamma globulin 1-2 cc (if needed) 1x week
   - Iron/B12 injection 1-2 cc (if needed) 1x week
   - Magnesium sulfate 1-2 cc (if needed) 1x week

6. Oral nutrients:
   Vitamins
   - Multivitamin (B complex, A, beta carotene) 4x daily
   - Buffered vit. C 3x daily (10-15 grams)
   - Digestive enzymes 1-3 daily
   - NAC (glutathione) 1500 mg daily
   - Garlic capsules 3x daily

   Herbs
   - St. John's Wort (Hypericum) 5 drops 2x daily
   - Echinacea
   - Ginseng
   - Astragalus

7. TPN
   Intravenous therapy consisting of proteins, carbohydrates, and fats if patient has lost 15 lbs or more, or has severe malabsorption.

8. Individual blood tests are repeated as needed.
   Patients with bacterial or fungal infections are treated with appropriate antibacterial or antifungal therapy, as well as the foregoing protocol.

NOTE: A majority (almost all, in fact) of the patients who have been put on this protocol have chosen on their own not to use AZT, or if they had already started, to discontinue it.

◆