GULF WAR SYNDROME: KILLING OUR OWN - IMMUNE AUGMENTATION THERAPY

By Gary Null Ph.D.

Abstract

After the Vietnam War, hundreds of thousands of our veterans suffered toxic reactions, neurological damage, and rare cancers due to exposure to 2,4,5,-D and 2,4,5-T dioxin that was used in the form of the defoliant Agent Orange. Unfortunately, it took 20 years for the government to acknowledge a link between Agent Orange and any of the illnesses that resulted from its use. Learning from that experience, we have accelerated efforts to associate the ailments that tens of thousands, and possibly hundreds of thousands, of veterans of the Persian Gulf War are suffering with the toxic conditions to which they were exposed. Gulf veterans' ailments include rare cancers, neurological disease, and autoimmune conditions, ranging from full-blown chronic fatigue syndrome to lupus, to scleroderma, to conditions shared within families.

We have now established a data base of thousands of pages substantiating the fact that our GI's were exposed to a variety of toxic agents, all of which can individually or in combination cause neurological damage. These include recycled depleted uranium in casing shells and ammunition shells in tanks; exotic, questionable inoculations for anthrax and botulism, as well as secret vaccine adjuvants, including squalene, which is forbidden by law to be used in humans but antibodies to which have been found in a very high percentage of Gulf War vets (vets suffering from Gulf War syndrome did not necessarily appear in the Gulf theater, but were given inoculations to prepare them for that eventuality); and biological and germ warfare agents to which troops were exposed. Another factor was our detonation of toxic munitions depots without protection for the troops doing the detonating or the surrounding troops within the wind current area. In addition, specific toxic microbes have been isolated, including a genetically engineered bacterium known as mycoplasm incognitus, that produces gradual but severe neurological damage.

The government has not come forth to take responsibility for properly treating affected vets, many of whom cannot work because of their disabilities. With this in mind, and considering that many vets do not have adequate medical insurance, we have developed an

inexpensive, nontoxic, holistic approach to treating Gulf War syndrome, one that any complementary or mainstream physician can easily implement. Modeled after approaches used for treating AIDS, cancer, and chronic fatigue,and centered around an organic vegetarian diet, its specific protocols include live botanicals, oral and intravenous therapy, and a six-month rebuilding program.

The Gulf War of 1991 was an American military success story in that we were victorious in a short time and the conflict exacted a relatively light casualty toll from our troops. But health-wise, the Gulf War has had troubling repercussions. Tens of thousands of our Gulf service people have become sick from a debilitating and sometimes deadly syndrome. While the existence of Gulf War syndrome has been questioned by some, it should be pointed out that most of the 27 other coalition nations that participated with us in the war have also reported unexpected numbers of sick veterans.

Symptoms

Part of the problem in defining what has been called Gulf War Syndrome is that the symptoms are so varied. The most common is chronic fatigue, which affects over half of syndrome sufferers. Lupus and scleroderma are other autoimmune conditions that have manifested. Other conditions include lymphoma, cardiac ailments,memory loss, leukoencephalopathy, and neurological diseases, such as multiple sclerosis. Severe aches and joint pains are common, and other frequently reported symptoms are dizziness, nausea, stomach pains, light sensitivity, intense anxiety, breathing difficulty, muscle spasms, diarrhea, blurred vision, inexplicable skin rashes, hives,bleeding gums, eye redness, night sweats, and acute migraine-like headaches. Sexual and urination disorders plague numerous victims, while up to 25 percent of syndrome patients have experienced hair loss, and 25 percent have acquired multiple chemical sensitivities,which means they have become allergic to a wide variety of chemical substances and can consequently have severe reactions to even the most common household items.

Causes

The Gulf War exposed our service people not just to enemy fire, but to a new and highly toxic mix of environmental hazards. The most publicized has been the fumes from Iraqi chemical weapons. For five years after the war, the Pentagon denied that any of our troops had been exposed to these poisons. In 1996, however, the government admitted that some

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Evidence has indicated that the procedure for administering the pills placed the recipients at risk. Records of who received the pills were not kept, and a standard dosage was distributed, regardless of sex, age, weight, or medical history.What's more, the toxicity of this experimental drug was actually heightened by issuing it along with powerful insecticides, such as DEET, a potentially lethal combination.

Our use of depleted uranium in the Gulf is yet another immune-compromising factor. Its name implies that it is a harmless material but, in actuality, depleted uranium is still a highly poisonous, radioactive, heavy metal. The term "depleted" comes from the fact that natural uranium is made from a fissionable isotope, U-235, while depleted uranium is made from a relatively stable isotope, U-238. After U-235 is extracted from U-238 for use in nuclear weapons and breeder reactors, only U-238 remains. While it is now depleted because it no longer containsU-235, due to its density the uranium still emits one-third of its original radioactivity.

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In light of such immense pollution, it is easy to see that many people have come into contact with depleted uranium. Inhalation and ingestion of the substance were unavoidable for troops in close proximity to exploding shells. In addition,soldiers spent long hours sitting in tanks, handling uranium-laced shells and casings. Weapons were also taken home as souvenirs. Families of veterans came in contact with the substance after handling clothing laced with it.

Many of the symptoms experienced by Gulf War veterans and their families are indicative of radiation poisoning. Some of these are nausea, vomiting,wasting, memory loss, and raised rates of cancer. There is a terrible impact on the children of veterans as well, possibly due to affected sperm. Vets' children are manifesting an alarming rate of birth defects, lowered immunity, and childhood cancers.

Other factors contributing to the compromised health of those who served in the Gulf include petroleum-related pollution from oil-well fires, diesel fumes,a genetically engineered microbe known as mycoplasm incognitus, and parasites. Gulf War Syndrome is a complex and frustrating problem because affected individuals were not all subject to all of these factors. Plus some of the factors, in combination, no doubt worked synergistically. While the damage from each factor will probably never be quantified, the important question is, how best can those suffering from Gulf War illness regain their health?

Treatment

A nutritional approach to Gulf War syndrome is similar to that for chronic fatigue syndrome, as well as to those for AIDS and cancer. Even though we call these different diseases, these conditions have many biological manifestations in common;some of them are loss of motor skills, cognition, and memory; higher incidences than normal of MS and ALS; restless leg syndrome; circulatory problems; loss of weight and wasting syndrome; candida overgrowth; chronic upper respiratory infections; urinary tract infections; pneumocystis infections; high levels of Epstein-Barr and cytomegalovirus, as well as herpes 1, 2, and 6 and coxsackie virus; urinary and bowel incontinence; blurred vision and lack of peripheral vision; and changing tastes in the mouth. Clinically, I have seen people in all four groups respond favorably to similar detoxification, nutritional, herbal, and I.V. protocols.

Detoxification

Whenever immune system augmentation is the goal, the first strategy to take is one of detoxification. That is, people must make dietary changes that will enable their bodies to get rid of poisons that have accumulated over the years and that prevent their systems from operating optimally. To begin detoxifying, some people,depending upon their condition, can benefit greatly from going on a supervised fresh,organic vegetable juice fast for several days.

Foods that are particularly good detoxifiers include pears,blueberries, strawberries, papaya, and apples, and these are all recommended. Other recommendations for detoxification are actually measures that should ideally be continued for a lifetime. These include--in addition to eating a wide variety of fresh fruits and vegetables--eliminating alcohol and caffeine, as well as refined sugar, from the diet. Meat should, ideally, be

eliminated, and dairy products should be cut down on or eliminated if one is sensitive to them, as many people are.

Intake of pure water should be increased; water facilitates detoxification and many people go through life consuming a suboptimal amount without realizing it. Water is particularly important for chronic fatigue patients and others who are trying to maximize their immune function. Since cold liquids tend to shock chronic fatigue sufferers, warm ones are preferable.

General Dietary Guidelines

Again, in general, when one is not tailoring a protocol to a specific patient, dietary recommendations for people with Gulf War syndrome are similar to those that chronic fatigue sufferers have found helpful. Complex carbohydrates, in the form of organic whole grains, vegetables, fruits, nuts, and seeds, are the mainstay of the diet, which should be low in fat, as high-fat diets depress immunocompetence. 1

In addition, juices, especially juices containing dark vegetables,such as collards and dandelion, are essential for the chronic fatigue or Gulf War illness patient because they provide an ample supply of immune-system-boosting enzymes. Other green juices that can be rotated into the diet include cabbage, kale, broccoli, mustard,Swiss chard, spinach, watercress, parsley, and wheat grass. All of these can be juiced together with carrot, beet, garlic, or apple. Also, aloe vera, as well as celery,cucumber, and lemon, can be a valuable component of these juices. These green,chlorophyll-rich juices should be taken liberally--six 10-ounce glasses per day are not too much.

Purification and stimulation of the spleen and lymphatic system can be enhanced by consuming fresh dandelions, sprouts, asparagus, mustard greens, radishes,and cruciferous vegetables, such as broccoli and cauliflower. Sea vegetables, including kombu, wakame, hijiki, arame, and dulse, are beneficial for the maintenance of bone marrow and the thymus gland. Sea vegetables contain trace minerals that are now diminished in foods grown on land. Studies show that dulse chelates heavy metals and protects against radiation.

It is important to incorporate high-quality protein derived from vegetarian sources into the diet. Examples of such sources are tofu, tempeh, fortified soy milk, and legumes. Since fish contain a rich supply of omega-3 fatty acids, small quantities of fresh fish may also be advantageous, but the fish consumed should be obtained from an unpolluted source and

should not have been submerged into chlorine during preparation. If a person eats animal protein, consumption of this type of food should not exceed 8 ounces daily. Note that since many animals raised in factory farm conditions are exposed to harmful hormones and pesticides, organic supplies of animal protein are recommended.

There is an immune-enhancing soup created by the Chinese that can help weakened individuals regain energy. The recipe consists of a mixture of a whole astragalus root with onions, garlic, ginger, and either organic poultry, fish, tofu, or tempeh. Brown rice and fresh green vegetables can also be added. After the soup reaches the boiling point, it should be allowed to simmer. Finally, miso is added to further boost nutrition, and enhance flavor.

If calorie consumption needs to be increased, recommended foods include avocado, nut butters, almonds, and sunflower seeds.

Small quantities of fat are important, but these should come from high-quality sources. A tablespoon of unrefined olive or canola oil can be added to salads. Flaxseed oil and fatty fish, like salmon, are also excellent. Fish oils may be helpful in autoimmune conditions. 2 Remember that oils need refrigeration to prevent rancidity.

Oriental mushrooms, like shiitake and maiitake, boost the immune system. Shiitake mushrooms contain lentinen, a substance that stimulates the body's interferon and helps to fight viruses. Maitake mushrooms have been shown to be effective against cancer. 3, 4. Soups and teas can be made from these mushrooms and taken daily.

Garlic is another valuable food. It contains allicin, a potent antibacterial and antiviral agent. When garlic is cooked, allicin is diminished, so this herb is best taken raw or in capsules. Garlic also contains vitamins A and C, thiamine,calcium, potassium, copper, and selenium. Note that garlic can be juiced along with other vegetables.

Supplements

Many chronic fatigue and Gulf War syndrome sufferers have deficiencies of magnesium, chromium, zinc, and other nutrients. Thus, a multivitamin/multi-mineral supplement is important.

Beyond this, consuming between 5000 and 10,000 mg of vitamin C daily is beneficial. Numerous studies have demonstrated ascorbic acid's ability to inactivate a variety of

viruses, from the common cold to herpes to hepatitis to the AIDS virus. 5 Since this antioxidant tends to be discharged from the body during excretion, distributing the dose over the course of a day is recommended. Also, it should be noted that smoking, among its other drawbacks, cuts the effectiveness of this important nutrient.

Higher doses of vitamin C can be administered through intravenous drips under the supervision of a physician. Intravenous supplements have proven to be quite successful in the treatment of chronic fatigue syndrome, as well as hepatitis, AIDS,and cancer. Often 150,000 to 200,000 mg of vitamin C is dispensed intravenously, while the patient continues to consume quantities of oral supplements to bowel tolerance. (These high I.V. dosages of therapeutic vitamin C are gradually built up to--and then stepped down from--over the course of many weeks.)

It is a good idea to take vitamin C together with bioflavonoids because the latter enhance the vitamin's absorption and further aid immune function.

Another important antioxidant, vitamin E, should be supplemented in quantities of 400 to 800 units per day, while 100 mg of vitamin B complex should be consumed three times daily. It's been shown that 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. 6 Beta carotene may also prove useful for raising immune competence. 7

Zinc picolinate can substantially augment the body's supply of zinc when it's taken in quantities of 35-50 mg daily. The picolinate element of the supplement aids in transporting this vital element into the cell. Note, though, that excessive quantities of zinc are harmful; amounts over 100 mg have been found to have an adverse effect on the immune system.

Chromium supplements, in either the GTF form or the picolinate form,may be helpful in that they enable the body's supply of insulin to carry blood sugar into the cells. The mineral magnesium is also crucial to the production of energy, as it aids in the synthesis of ATP. Unfortunately the presence of a magnesium deficiency is difficult to ascertain, as standard blood tests fail to take into account actual mineral levels within the cells.

NADH, commonly known as coenzyme 1, is a relatively new therapy that has demonstrated an ability to alleviate chronic fatigue without harmful side effects. Coenzyme 1 is a natural substance that can be found in every cell within the human body;it's essential in the

production of energy. Supplementing it on a daily basis can naturally augment the energy supply. The amino acid tyrosine also enhances the production of energy by aiding functioning of neurotransmitters. Tyrosine is not recommended, though,for those suffering from melanoma or schizophrenia.

Coenzyme Q10 acts as an energy stimulant and can be effectively supplemented in quantities of 75 to 300 mg per day, while the amino acid glutamine can further increase energy.

New research shows striking improvement from evening primrose oil.The oil's active ingredient, gamma linoleic acid (GLA), has been shown to help patients overcome severe fatigue, muscle pain, depression, and confusion in six months' time.

If antibiotics have destroyed the balance of a patient's intestinal flora, lactobacillus acidophilus, lactobacillus bulgaris, and bifido bacteria may be essential supplements.

Herbs

As complements of a dietary and vitamin/mineral supplementation program, herbal therapies have proven helpful. Many of the plants that have been useful in treating illness and that are referred to as tonics, belong to the category of herbs known as adaptogens. That is, they work through a wide variety of actions to help create homeostasis. So, for example, if the blood pressure is too high, adaptogens help the body lower it; if it is too low, the body responds by raising it. Adaptogens help normalize the system regardless of the pathology.

Studies demonstrate that adaptogenic plants are especially good at stimulating the body's own natural immune functions. For example, they have been shown to increase CD4 counts, interferon production, macrophage activity, and natural killer cell action. Adaptogens are often combined for a more potent synergistic effect. An example isastragalus and legustrum; the combination is more effective than either plant used alone. 8

Astragalus membranaceous root has a centuries-long history of use,in China. Today, we know that this herb is able to foster normal immune response in cancer and AIDS patients, to correct T-cell deficiency, and to promote antiviral action. 9, 10, 11 Combined with legustrum, it is available in extract and capsule form. These two herbs can also be bought

whole, then crushed, and then simmered in a small amount of water for several hours. The Chinese prepare herbs in this way and consume them daily.

Often used in conjunction with astragalus and legustrum is the ganoderma, or reishi mushroom. This is a general energy stimulant, as well as a cancer-fighter. Reishi mushroom has long been used in the Orient to help those recovering from chronic illness, especially general weakness.

Another valuable adaptogen originally used by the Chinese is ginseng. Siberian ginseng has been shown to protect the body against environmental pollution and radiation, regulate blood sugar levels, protect the liver, and improve adrenal function, among other benefits. 8 Both the Siberian and panax varieties stabilize energy levels by heightening vitality during the day and promoting relaxation at night. Furthermore, ginseng strengthens the immune system by increasing the quantity and performance of disease-fighting cells. The recommended dosage of Siberian ginseng is 200-300 mg/day, while the suggested dosage of panax is slightly less. Ginseng can be consumed either as a tea or as an extract.

Basil is another adaptogen, one shown to increase physical endurance and body resistance. Considered a sacred plant in India, it has traditionally been used as an expectorant, diaphoretic, antiemetic, antiseptic, and analgesic. This tonic herb also has antiparasitic action.

Tulip poplar bark, which Western cultures have borrowed from traditional Native American medicine, is yet another energy stimulant.

Garlic is an immunosupportive substance useful in combating infectious organisms by aiding the body's natural killer cells. It's been proven effective against herpes and candida, and also has antitumor and antiparasitic properties, 12 and has the advantages of being easy to absorb through the gastrointestinal system and being of low toxicity. When garlic is taken in tablet form, two capsules should be consumed with every meal.

Fresh oats (not to be confused with rolled or Quaker oats) are a nervous system rejuvenator used in the treatment of chronic fatigue. This herb is of particular value in lessening nicotine, caffeine, and recreational drug withdrawal symptoms.

Another recommended herb is licorice root, which aids in arousing adrenal energy and has powerful antiviral qualities. Licorice root, or glycyrrhizin, is effective against herpes and other viruses, including HIV, 13 and is ago od detoxifier.

A fungus commonly used by Asians, poria cocos, is used to purify the blood and can aid in increasing stamina. Usnea and lomacium have antiviral characteristic sand have also demonstrated their ability to quell chronic fatigue.

Finally, stinging nettle and common burdock root have proven useful in fortifying the immune system. Burdock, a close relative of echinacea, dandelion, and feverfew, has chemical constituents proven to be antibacterial, antifungal, and protective against tumors. 14

Sample Program

Specific protocols for Gulf War syndrome are of course tailored to the individual patient, with consideration given to the symptoms being manifested and the toxic factors to which the person was exposed. Following is an example of one program that has been successfully used under the supervision of a physician:

1. Discussion--Lifestyle changes:

No smoking, drug use, caffeine, or alcohol

Plant-food-centered diet

2. Intravenous therapy (infused 2-3 hours, 1-2 times weekly):

Vitamin C--15-30 g

B complex

Zinc

Glutathione

Magnesium

B12

Dexpanthenol

3. Intramuscular therapy (1x week):

Gamma globulin

Iron/B12 injection

Magnesium sulfate

4. Oral nutrients:

Vitamins

Multivitamin (B complex, A, beta carotene) 4x daily

Buffered vitamin C 3x daily (10-15 g)

Digestive enzymes 1-3x daily

NAC (glutathione) 1500 mg daily

Garlic capsules 3x daily

Herbs

St. John's Wort (Hypericum) 5 drops 2x daily

Echinacea

Ginseng

Astragalus

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

6. Patients with bacterial or fungal infections are treated with appropriate antibacterial or antifungal therapy, as well as the foregoing protocol.

Gulf War Veterans Support Groups

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Many of the symptoms experienced by Gulf War veterans and their families are indicative of radiation poisoning. Some of these are nausea, vomiting,wasting, memory loss, and raised rates of cancer. There is a terrible impact on the children of veterans as well, possibly due to affected sperm. Vets' children are manifesting an alarming rate of birth defects, lowered immunity, and childhood cancers.

Other factors contributing to the compromised health of those who served in the Gulf include petroleum-related pollution from oil-well fires, diesel fumes,a genetically engineered microbe known as mycoplasm incognitus, and parasites. Gulf War Syndrome is a complex and frustrating problem because affected individuals were not all subject to all of these factors. Plus some of the factors, in combination, no doubt worked synergistically. While the damage from each factor will probably never be quantified, the important question is, how best can those suffering from Gulf War illness regain their health?

TreatmentA nutritional approach to Gulf War syndrome is similar to that for chronic fatigue syndrome, as well as to those for AIDS and cancer. Even though we call these different diseases, these conditions have many biological manifestations in common;some of them are loss of motor skills, cognition, and memory; higher incidences than normal of MS and ALS; restless leg syndrome; circulatory problems; loss of weight and wasting syndrome; candida overgrowth; chronic upper respiratory infections; urinary tract infections; pneumocystis infections; high levels of Epstein-Barr and cytomegalovirus, as well as herpes

1, 2, and 6 and coxsackie virus; urinary and bowel incontinence; blurred vision and lack of peripheral vision; and changing tastes in the mouth. Clinically, I have seen people in all four groups respond favorably to similar detoxification, nutritional, herbal, and I.V. protocols.

DetoxificationWhenever immune system augmentation is the goal, the first strategy to take is one of detoxification. That is, people must make dietary changes that will enable their bodies to get rid of poisons that have accumulated over the years and that prevent their systems from operating optimally. To begin detoxifying, some people,depending upon their condition, can benefit greatly from going on a supervised fresh,organic vegetable juice fast for several days.

Foods that are particularly good detoxifiers include pears,blueberries, strawberries, papaya, and apples, and these are all recommended. Other recommendations for detoxification are actually measures that should ideally be continued for a lifetime. These include--in addition to eating a wide variety of fresh fruits and vegetables--eliminating alcohol and caffeine, as well as refined sugar, from the diet. Meat should, ideally, be eliminated, and dairy products should be cut down on or eliminated if one is sensitive to them, as many people are.

Intake of pure water should be increased; water facilitates detoxification and many people go through life consuming a suboptimal amount without realizing it. Water is particularly important for chronic fatigue patients and others who are trying to maximize their immune function. Since cold liquids tend to shock chronic fatigue sufferers, warm ones are preferable.

General Dietary GuidelinesAgain, in general, when one is not tailoring a protocol to a specific patient, dietary recommendations for people with Gulf War syndrome are similar to those that chronic fatigue sufferers have found helpful. Complex carbohydrates, in the form of organic whole grains, vegetables, fruits, nuts, and seeds, are the mainstay of the diet, which should be low in fat, as high-fat diets depress immunocompetence. 1

In addition, juices, especially juices containing dark vegetables,such as collards and dandelion, are essential for the chronic fatigue or Gulf War illness patient because they provide an ample supply of immune-system-boosting enzymes. Other green juices that can be rotated into the diet include cabbage, kale, broccoli, mustard,Swiss chard, spinach, watercress, parsley, and wheat grass. All of these can be juiced together with carrot, beet, garlic, or apple. Also, aloe vera, as well as celery,cucumber, and lemon, can be a valuable component of these juices. These green,chlorophyll-rich juices should be taken liberally--

six 10-ounce glasses per day are not too much.

Purification and stimulation of the spleen and lymphatic system can be enhanced by consuming fresh dandelions, sprouts, asparagus, mustard greens, radishes,and cruciferous vegetables, such as broccoli and cauliflower. Sea vegetables, including kombu, wakame, hijiki, arame, and dulse, are beneficial for the maintenance of bone marrow and the thymus gland. Sea vegetables contain trace minerals that are now diminished in foods grown on land. Studies show that dulse chelates heavy metals and protects against radiation.

It is important to incorporate high-quality protein derived from vegetarian sources into the diet. Examples of such sources are tofu, tempeh, fortified soy milk, and legumes. Since fish contain a rich supply of omega-3 fatty acids, small quantities of fresh fish may also be advantageous, but the fish consumed should be obtained from an unpolluted source and should not have been submerged into chlorine during preparation. If a person eats animal protein, consumption of this type of food should not exceed 8 ounces daily. Note that since many animals raised in factory farm conditions are exposed to harmful hormones and pesticides, organic supplies of animal protein are recommended.

There is an immune-enhancing soup created by the Chinese that can help weakened individuals regain energy. The recipe consists of a mixture of a whole astragalus root with onions, garlic, ginger, and either organic poultry, fish, tofu, or tempeh. Brown rice and fresh green vegetables can also be added. After the soup reaches the boiling point, it should be allowed to simmer. Finally, miso is added to further boost nutrition, and enhance flavor.

If calorie consumption needs to be increased, recommended foods include avocado, nut butters, almonds, and sunflower seeds.

Small quantities of fat are important, but these should come from high-quality sources. A tablespoon of unrefined olive or canola oil can be added to salads. Flaxseed oil and fatty fish, like salmon, are also excellent. Fish oils may be helpful in autoimmune conditions. 2 Remember that oils need refrigeration to prevent rancidity.

Oriental mushrooms, like shiitake and maiitake, boost the immune system. Shiitake mushrooms contain lentinen, a substance that stimulates the body's interferon and helps to fight viruses. Maitake mushrooms have been shown to be effective against cancer. 3, 4. Soups and teas can be made from these mushrooms and taken daily.

Garlic is another valuable food. It contains allicin, a potent antibacterial and antiviral agent. When garlic is cooked, allicin is diminished, so this herb is best taken raw or in capsules. Garlic also contains vitamins A and C, thiamine,calcium, potassium, copper, and selenium.

Note that garlic can be juiced along with other vegetables.

SupplementsMany chronic fatigue and Gulf War syndrome sufferers have deficiencies of magnesium, chromium, zinc, and other nutrients. Thus, a multivitamin/multi-mineral supplement is important.

Beyond this, consuming between 5000 and 10,000 mg of vitamin C daily is beneficial. Numerous studies have demonstrated ascorbic acid's ability to inactivate a variety of viruses, from the common cold to herpes to hepatitis to the AIDS virus. 5 Since this antioxidant tends to be discharged from the body during excretion, distributing the dose over the course of a day is recommended. Also, it should be noted that smoking, among its other drawbacks, cuts the effectiveness of this important nutrient.

Higher doses of vitamin C can be administered through intravenous drips under the supervision of a physician. Intravenous supplements have proven to be quite successful in the treatment of chronic fatigue syndrome, as well as hepatitis, AIDS,and cancer. Often 150,000 to 200,000 mg of vitamin C is dispensed intravenously, while the patient continues to consume quantities of oral supplements to bowel tolerance. (These high I.V. dosages of therapeutic vitamin C are gradually built up to--and then stepped down from--over the course of many weeks.)

It is a good idea to take vitamin C together with bioflavonoids because the latter enhance the vitamin's absorption and further aid immune function.

Another important antioxidant, vitamin E, should be supplemented in quantities of 400 to 800 units per day, while 100 mg of vitamin B complex should be consumed three times daily. It's been shown that 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. 6 Beta carotene may also prove useful for raising immune competence. 7

Zinc picolinate can substantially augment the body's supply of zinc when it's taken in quantities of 35-50 mg daily. The picolinate element of the supplement aids in transporting this vital element into the cell. Note, though, that excessive quantities of zinc are harmful; amounts over 100 mg have been found to have an adverse effect on the immune system.

Chromium supplements, in either the GTF form or the picolinate form,may be helpful in that they enable the body's supply of insulin to carry blood sugar into the cells. The mineral magnesium is also crucial to the production of energy, as it aids in the synthesis of ATP. Unfortunately the presence of a magnesium deficiency is difficult to ascertain, as standard blood tests fail to take into account actual mineral levels within the cells.

NADH, commonly known as coenzyme 1, is a relatively new therapy that has demonstrated an ability to alleviate chronic fatigue without harmful side effects. Coenzyme 1 is a natural substance that can be found in every cell within the human body;it's essential in the production of energy. Supplementing it on a daily basis can naturally augment the energy supply. The amino acid tyrosine also enhances the production of energy by aiding functioning of neurotransmitters. Tyrosine is not recommended, though,for those suffering from melanoma or schizophrenia.

Coenzyme Q10 acts as an energy stimulant and can be effectively supplemented in quantities of 75 to 300 mg per day, while the amino acid glutamine can further increase energy.

New research shows striking improvement from evening primrose oil.The oil's active ingredient, gamma linoleic acid (GLA), has been shown to help patients overcome severe fatigue, muscle pain, depression, and confusion in six months' time.

If antibiotics have destroyed the balance of a patient's intestinal flora, lactobacillus acidophilus, lactobacillus bulgaris, and bifido bacteria may be essential supplements.

HerbsAs complements of a dietary and vitamin/mineral supplementation program, herbal therapies have proven helpful. Many of the plants that have been useful in treating illness and that are referred to as tonics, belong to the category of herbs known as adaptogens. That is, they work through a wide variety of actions to help create homeostasis. So, for example, if the blood pressure is too high, adaptogens help the body lower it; if it is too low, the body responds by raising it. Adaptogens help normalize the system regardless of the pathology.

Studies demonstrate that adaptogenic plants are especially good at stimulating the body's own natural immune functions. For example, they have been shown to increase CD4 counts, interferon production, macrophage activity, and natural killer cell action. Adaptogens are often combined for a more potent synergistic effect. An example isastragalus and legustrum; the combination is more effective than either plant used alone. 8

Astragalus membranaceous root has a centuries-long history of use,in China. Today, we know that this herb is able to foster normal immune response in cancer and AIDS patients, to correct T-cell deficiency, and to promote antiviral action. 9, 10, 11 Combined with legustrum, it is available in extract and capsule form. These two herbs can also be bought whole, then crushed, and then simmered in a small amount of water for several hours. The Chinese prepare herbs in this way and consume them daily.

Often used in conjunction with astragalus and legustrum is the ganoderma, or reishi mushroom. This is a general energy stimulant, as well as a cancer-fighter. Reishi mushroom has long been used in the Orient to help those recovering from chronic illness, especially general weakness.

Another valuable adaptogen originally used by the Chinese is ginseng. Siberian ginseng has been shown to protect the body against environmental pollution and radiation, regulate blood sugar levels, protect the liver, and improve adrenal function, among other benefits. 8 Both the Siberian and panax varieties stabilize energy levels by heightening vitality during the day and promoting relaxation at night. Furthermore, ginseng strengthens the immune system by increasing the quantity and performance of disease-fighting cells. The recommended dosage of Siberian ginseng is 200-300 mg/day, while the suggested dosage of panax is slightly less. Ginseng can be consumed either as a tea or as an extract.

Basil is another adaptogen, one shown to increase physical endurance and body resistance. Considered a sacred plant in India, it has traditionally been used as an expectorant, diaphoretic, antiemetic, antiseptic, and analgesic. This tonic herb also has antiparasitic action.

Tulip poplar bark, which Western cultures have borrowed from traditional Native American medicine, is yet another energy stimulant.

Garlic is an immunosupportive substance useful in combating infectious organisms by aiding the body's natural killer cells. It's been proven effective against herpes and candida, and also has antitumor and antiparasitic properties, 12 and has the advantages of being easy to absorb through the gastrointestinal system and being of low toxicity. When garlic is taken in tablet form, two capsules should be consumed with every meal.

Fresh oats (not to be confused with rolled or Quaker oats) are a nervous system rejuvenator used in the treatment of chronic fatigue. This herb is of particular value in lessening nicotine, caffeine, and recreational drug withdrawal symptoms.

Another recommended herb is licorice root, which aids in arousing adrenal energy and has powerful antiviral qualities. Licorice root, or glycyrrhizin, is effective against herpes and other viruses, including HIV, 13 and is ago od detoxifier.

A fungus commonly used by Asians, poria cocos, is used to purify the blood and can aid in increasing stamina. Usnea and lomacium have antiviral characteristic sand have also demonstrated their ability to quell chronic fatigue.

Finally, stinging nettle and common burdock root have proven useful in fortifying the

immune system. Burdock, a close relative of echinacea, dandelion, and feverfew, has chemical constituents proven to be antibacterial, antifungal, and protective against tumors. 14

Sample ProgramSpecific protocols for Gulf War syndrome are of course tailored to the individual patient, with consideration given to the symptoms being manifested and the toxic factors to which the person was exposed. Following is an example of one program that has been successfully used under the supervision of a physician:

1. Discussion--Lifestyle changes:No smoking, drug use, caffeine, or alcoholPlant-food-centered diet2. Intravenous therapy (infused 2-3 hours, 1-2 times weekly):Vitamin C--15-30 gB complexZincGlutathioneMagnesiumB12Dexpanthenol3. Intramuscular therapy (1x week):Gamma globulinIron/B12 injectionMagnesium sulfate4. Oral nutrients:VitaminsMultivitamin (B complex, A, beta carotene) 4x dailyBuffered vitamin C 3x daily (10-15 g)Digestive enzymes 1-3x dailyNAC (glutathione) 1500 mg dailyGarlic capsules 3x dailyHerbsSt. John's Wort (Hypericum) 5 drops 2x dailyEchinaceaGinsengAstragalus5. TPN Intravenous therapy consisting of proteins,carbohydrates and fats if patient has lost 15 lb or more, or has severe malabsorption.

6. Patients with bacterial or fungal infections are treated with appropriate antibacterial or antifungal therapy, as well as the foregoing protocol.Gulf War Veterans Support Groups

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