

Treatment for Immune Dysfunction from Post-Traumatic Stress Disorder and Chronic Disease with AHCC

By Dan Kenner, Ph.D., L.Ac.

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The recent terrorist attacks in New York and Washington have created the potential for widespread post-traumatic stress disorder in thousands of direct victims and hundreds of millions exposed to graphic images through the media. According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM IV-TR) the "stressor" which initiates Post-Traumatic Stress Disorder (PTSD) must be an occurrence in which an individual has experienced or witnessed a life-threatening event which then results in feelings of "intense fear, helplessness or horror." Acute and latent effects include a variety of somatic complaints (generalized "aches and pains," headaches, chest pain, alterations in sleep patterns and appetite, and lowered immunity), emotional reactions (anxiety, anger, grief, irritability, restlessness, nightmares, and flashbacks), and the onset or exacerbation of substance abuse.

Over decades, research has identified the physiological basis whereby physical and emotional injury alters neurological, endocrine and immunological status and can set the stage for chronic illness in previously healthy individuals. Research during the last decade has identified Natural Killer (NK) cell function as the only reliable immune system parameter that predicts the severity of post-traumatic stress-related psychological and biological illness. Studies suggest that supporting NK cell function with Active Hexose Correlated Compound (ImmPower™ AHCC®), a cultured mushroom extract, and other modalities can prevent the initiation of chronic illness by post-traumatic stress disorder.

AHCC (Active Hexose Correlated Compound) is a biological response modifier manufactured from a cultured extract of the mycelia of therapeutic mushrooms by the Amino Up Chemical Company of Sapporo, Japan. The concept of this therapeutic agent has its roots in the traditional Japanese lifestyle in which fermented "live foods" were a feature of the daily diet, and fermented mushrooms and herbs soaked in alcoholic beverages were an important part of folk medicine. In a relatively short time AHCC has become a prominent therapeutic agent in east Asia and is available in the U.S. as ImmPower™

AHCC® Research into the effects of AHCC on the immune system and chronic disease has been carried out in fifteen countries since its development in 1987. The influence of AHCC on activating NK cell function has been one of the most conspicuous effects observed in researching its impact on the immune system.

NK Cell Activity and Stress Disorders

Several studies have shown that reduced NK cell activity correlates strongly with the intensity and duration of the lingering mental and physical effects of PTSD. In some cases it is the only immune system parameter that can definitely be correlated with the psychological damage associated with PTSD. Even more important is the fact that PTSD can have a long-term impact on health since it is known to suppress immunity for long periods of time. Subjects with a history of PTSD have shown significantly lower immune competence even years after the initial trauma.

NK cells are described as the "sentinel" cells in the immune system, providing the first line of defense against pathogens such as bacteria, viruses and incipient malignancies. The NK cell participates either directly or indirectly in numerous developmental, regulatory and communication networks within the immune system. NK cells are large lymphocytes that, like cytotoxic T cells, are filled with granules. They selectively target tumor cells and other abnormal cells and a wide variety of infectious microbes. Unlike cytotoxic T cells, they don't need to recognize a specific antigen before they attack and destroy a target cell. For this reason they are called "natural" killer cells. Unlike phagocytes, they do not engulf and ingest target cells, but attach to them and inject chemicals that erode the membranes of the target cells until they burst. In many chronic and degenerative diseases, the level of NK cell function proves to be an important indicator of disease progression and patient prognosis.

A variety of "stressors" can suppress NK cell function: physical injury caused by accidents, surgery and medical treatments, nutritional deficiencies,

emotional trauma, grief, hormone imbalances and others. Research on victims of disasters such as hurricanes and earthquakes show lower activity of NK cells. NK cell activity is affected by negative psychological states such as depression, anxiety and fatigue, even if lymphocyte counts and CD4/CD8 ratio do not change. Self-consciousness and self-criticism have also been shown to decrease NK cell activity.

Among the mechanisms proposed to explain the relationship between stress and NK cell activity, the nervous system connection is often invoked. Substance Y, a neuropeptide that is associated with sympathetic nervous system activation, can significantly suppress NK cell activity. Norepinephrine has also been shown to inhibit NK cell activity. The b-adrenergic activation associated with stress-induced changes also appears to have an immediate and significant negative impact on the ability of NK cells to function normally.

NK cell activity can also be positively influenced by a variety of factors. In a Japanese study with Alzheimer's disease, cerebrovascular disease and Parkinson's disease, music therapy not only increased NK cell activity, but the NK cell count as well. NK cell numbers and activity were measured in a study of 29 gay men, 20 of whom were HIV+. Daily massage increased not only NK cell activity but NK cell count as well compared to the control group. In a Korean study, emitted qi from Korean ChunSoo Energy Healing on cultured tumor cells was found to significantly increase NK cell activity in the treated group alone. Qi projection from 3 to 5 minutes in 30 second sets was optimum for increasing the NK cell activity.

Lifestyle is also an important factor in NK cell activity. In a Japanese study, lifestyle evaluation was performed by means of a questionnaire inquiring about hours of sleep, exercise time, hours of work, mental stress, healthy diet including a daily breakfast, and alcohol and tobacco consumption. Respondents who observe a healthy lifestyle were found to have significantly higher NK cell and LAK (lymphokine-activated killer) cell activity. Use of antioxidants such as NAC (n-acetyl cysteine), thioprolin, vitamin E and to some extent vitamin C

were also found to improve NK cell activity.

It is also possible that the use of biological response modifiers can mitigate the effects of stress on the immune system. Antioxidants can offset the damage to immunity resulting from stress. Glucocorticoid production increases under stress suppressing immune response. Acute stress causes secretion of epinephrine, which activates the sympathetic nervous system and raises blood sugar levels. Doctors at Dokkyo University Medical School in Japan pre-treated rats with AHCC and subjected them to immobilization stress. Compared to controls, the AHCC pre-treated rats did not show increased levels of corticosteroids and had normal blood glucose levels. The control group showed an immediate increase in uric acid levels that did not appear in the AHCC pre-treated rats. The indication is that AHCC, in addition to activating NK cell function, may act directly against stress by restraining corticosteroid and epinephrine production.

NK Cell Activity and Chronic Disease

NK cell activity is not only an important link in mind-body medicine, but may be a key factor in chronic disease. The breakdown of immunity, and in particular the scavenging function of NK cells and macrophages, may be the origin of such diseases as cancer hepatitis, diabetes, chronic and opportunistic infections and even autoimmune diseases. The reason AHCC can be effective for so many types of chronic disease is that it seems to be a nutrient for the immune system and NK cells in particular. When health care providers do a systems review, they interrogate and examine the classical systems, respiratory, circulatory, digestive, etc. In examining these systems one looks for a specific type of damage or disease name. Only recently has medical science begun to explore the idea that some health problems are diseases of the whole system, not just one of the parts.

The emergence of AIDS as a disease entity focused abundant resources and attention on a systemic problem, since the immune system interpenetrates all of the other classical body systems. The immune system's activity intimately affects each organ and system at a fundamental level. The awareness that many HIV+ patients did not develop AIDS, and even some HIV- patients who did, highlighted the search for HIV co-factors or a type of "terrain" model to explain why some patients got sick and

others did not. If the immune system is weakened, it then becomes possible for the HIV to take hold and do its damage to the whole system.

The inability of the body to dispose of abnormal cells may play a role in the development of a chronic or life-threatening disease in any of the classical anatomical systems. The NK cells have a primary role in preventing this deposition that eventually results in tissue destruction, congestion or neoplasm.

Abnormality of NK cell function has been associated with a broad spectrum of afflictions including autoimmune disorders, cancer, and susceptibility to infectious disease. The ability of the immune system, especially macrophages and killer cells, to kill microbes is important on infectious disease, but it may be an important deterrent to chronic disease. In recent years there have been microbe connections identified with diseases such as arteriosclerosis, heart disease, Alzheimer's disease, duodenal ulcers, diabetes, SLE (systemic lupus erythematosus), rheumatoid arthritis, Hashimoto's thyroiditis, multiple sclerosis, some forms of cancer, polycystic ovary disease, some types of inflammatory bowel disease, cerebral palsy and even some major psychiatric diseases. In this new "germ theory," the ability of the immune system to control disease-causing microbes could be a major factor in the onset and progression of these diseases. The immune system, which spans the boundaries of all of the body's vital systems, could be the key factor in understanding the cause of chronic and degenerative disease. The implication is that cancer, hepatitis C, chronic fatigue syndrome, diabetes and other diseases are actually caused by immune dysfunction.

The Effects of AHCC on the Immune System

Research on the effects of AHCC on the immune system reveal a consistent and powerful stimulating effect on natural killer (NK) cells, the activity and number of lymphocytes and modulation of various cytokines that are critical to Th1 (cellular) immunity, including gamma-interferon, interleukins 2 and 12 (IL-2 and IL-12) and tumor necrosis factor (TNF-a). As a result of this research, AHCC is used in over 600 hospitals and clinics in Japan as a main treatment or more often an adjunctive treatment for cancer, hepatitis C and other chronic diseases. Because of the effect of AHCC on stimulating NK cells, which selectively destroy cancer and

other abnormal cells, AHCC is one of the few biological response modifiers that has actually reversed the cancer process. Laboratory and clinical research have demonstrated its value in the treatment of cancer, hepatitis, diabetes, chronic fatigue syndrome, inflammatory diseases and infections. AIDS trials using AHCC were begun in Bangkok in early 2001.

The effect of AHCC in activating NK cell activity is of particular interest with respect to diseases of modern civilization, not only the chronic and degenerative diseases, but stress-related disorders. NK cells destroy abnormal cells, cancer cells, foreign microbes or virus-infected cells, but NK cell activity is also used as an index of the effects of stress on the immune system. This places the activity of NK cells squarely at the nexus of mind-body medicine.

AHCC is widely considered to be the strongest known immune system strengthening biological response modifier in Japan. Since AHCC strengthens immune system function, it could be recommended for any type of cancer. Data from the treatment of over 100,000 cancer patients with various types of cancer has shown that 60 percent of patients have benefitted to some degree and many have found it effective enough to induce remission. AHCC has shown itself to be particularly effective for liver, lung, stomach, colon, breast, thyroid, ovarian, testicular, tongue, kidney and pancreatic cancers. Results range from actual reduction of tumor mass, arresting tumor growth, stopping the spread of the tumor throughout the body (metastasis), increased survival time, and very significantly, improvement of the quality of life.

AHCC and Cancer

One important Japanese study showed that the rate of survival after five years was 14 percent higher in liver cancer patients following surgery in a group given AHCC compare to the control group. When the study had ended, 79 percent of the group taking AHCC was alive compared to 51 percent of the control group. The post-operative occurrence of hepatitis and cirrhosis was reduced as shown by laboratory test evidence even five years later. And best of all, fewer patients had recurrence of cancer: 49 percent in the AHCC group compared to 67 percent in the control group. The survival rate among the participants who took AHCC was an average of twenty-three months longer.

AHCC administered to cancer patients also prevents hair loss and myelosuppression from cytotoxic chemotherapy. The bone marrow is an important part of the immune system and the site for red blood cell production. The result of bone marrow damage is low white blood cell counts, which is a cardinal sign of impaired immunity, leaving the patient hypersensitive to infections. Another result is anemia, which contributes to the patient's fatigue and overall loss of resistance. Research in Korea showed that oral treatment with AHCC raised the white blood cell count remarkably in cancer patients who had received chemotherapy. In seven months white blood cell counts averaging below 6,000 were elevated almost to 8,000. AHCC has also been helpful in improving appetite in cancer patients undergoing chemotherapy and helping them to gain weight. Clinical studies in Korea and Japan have indicated that AHCC remarkably improves quality of life of late stage cancer patients, not only in terms of nausea and vomiting, but also in general well-being.

Other Clinical Applications of AHCC

AHCC protects the liver from the effects of cytotoxic chemotherapy in cancer, but it can also protect the liver from damage resulting from alcohol intake. AHCC also prevents liver deterioration in chronic viral hepatitis and low blood platelet count, which can deteriorate into cirrhosis of the liver and liver cancer. Fred Pescatore, M.D. of Dallas, Texas has reported marked reductions in liver enzymes in hepatitis patients, and has seen the viral loads in hepatitis C patients drop from 200,000 down to 20,000 in as little as two months at a daily dose of three grams.

Several clinicians and researchers have reported that AHCC reduces the blood glucose levels in diabetics. Diabetes was induced in rats by injecting STZ (streptozotocin), which destroys the insulin-secreting B cells of the Islets of Langerhans in the pancreas. In one group oral AHCC was administered. In the STZ group without AHCC, the body weight decreased and even by the second day after STZ administration their general appearance deteriorated. In the group that received STZ plus AHCC, the weight remained steady and the appearance was not affected. Insulin levels decreased in the STZ-only group, but increased with the STZ-plus-AHCC group. Damage to the B cells of the Islets of Langerhans in the pancreas was

also minimized in the AHCC group. In humans 13 diabetic patients were given AHCC over a six month period. Glycohemoglobin levels, which change much more gradually than blood glucose levels, as well as blood glucose levels, decreased significantly in all 13 subjects. This indicates a potential therapeutic use for AHCC in diabetes.

AHCC was originally developed for the treatment for hypertension before its powerful immune enhancing effects were observed. Patients taking AHCC often experience normalization of their blood pressure. Dr. M. Iwamoto of the En-Zan-Kai Medical Corporation reported a beneficial influence of AHCC on ventricular arrhythmias, a type of heart disorder in which the heart rhythm is disrupted.

The problem of resistance to antibiotics by disease-causing microbes has been a great cause of concern by the medical profession in recent years. AHCC can work synergistically with conventional antibiotics and can be used alone at early stages of infection. Since AHCC helps control infections by protecting the immune system's resources rather than killing microbes, there can be no acquired antibiotic resistance to AHCC.

AHCC has been shown to be effective in protecting patients from opportunistic infections. Opportunistic infections occur in patients with suppressed immune systems. Cancer patients are susceptible to pseudomonas infections. Diabetic patients are susceptible to pseudomonas and staphylococcus infections. AIDS patients are susceptible to infections with candida, herpes, pneumocystis and others. According to reports, AHCC gives protection to candida, aspergillus, pseudomonas and a type of Staphylococcus aureus, that is especially difficult to control (methicillin-resistant Staphylococcus aureus, sometimes called MRSA).

If the root cause of chronic degenerative diseases like cancer hepatitis C and diabetes is immune dysfunction, it is also possible that poor immunity is the root cause of infectious disease. Microbes have long been thought to be causative agents, but if the cause of infections is high susceptibility caused by poor resistance, as it appears to be in the case of opportunistic infections, then AHCC can address the original cause of infection by bolstering immunity.

There are numerous other applications for AHCC according to research and clinical experience. AHCC has been tested for its efficacy for inflammation at Teikyo University where they found that rats with peritonitis were protected by AHCC taken orally. AHCC may be useful as an anti-inflammatory agent, but it also has the potential to protect the immune system from the effects of anti-inflammatory drugs, possibly to work with them synergistically, and even possibly to improve the underlying cause of the disease by activating cellular immunity.

Clinical trials being carried out in Bangkok will confirm or deny anecdotal reports of the efficacy of AHCC for treating AIDS patients. In almost all HIV cases reported, T cell counts can be maintained and even increased. An increase in T cell counts has been observed in as little as one month along with a significant increase in the activity of NK cells, which are weakened by the presence of HIV.

Improved stamina and remissions have been reported in patients with chronic fatigue syndrome. Decreases in intraocular pressure have been reported in cases of glaucoma. Healing of wounds has been accelerated in slow-healing wounds and bedsores. Patients have recovered from stomach and duodenal ulcers. Women with a questionable PAP smear, indicating cervical dysplasia or atypia, have taken AHCC with no other form of treatment, and returned to normal, even with PAP readings indicating stage II and stage III dysplasia. The reports of improvement of a wide variety of complaints continues to accumulate from clinicians using AHCC.

The therapeutic limitations of AHCC are not yet known and may be limited only by what can be accomplished by optimizing macrophage and NK cell activity. The range of application of AHCC extends from treatment of post-traumatic stress disorder to chronic and degenerative disease. Future research trials will help to define how this powerful therapeutic "superfood" can enhance the effects of natural and conventional therapies in the clinic.

For more information about AHCC, see www.ahccpublishedresearch.com

Correspondence:
Dan Kenner, OMD, L.Ac.
7455 Poplar Drive
Forestville, CA 95436
(707) 575-7070

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