

LE Magazine March 1999

EVENTS

Conference Highlights

Bustling with activity, Las Vegas was host to the Sixth International Congress on Anti-Aging and Bio-Medical Technologies Conference Last Winter

by Ivy Greenwell

Testosterone was all the talk, and for good reason. At the Sixth International Congress on Anti-Aging and Bio-Medical Technologies Conference, held in Las Vegas last December, the primary anti-aging therapy discussed was testosterone replacement for men and women. While this approach has been criticized in the past, compelling new evidence was presented that may cause life extenders to once again consider this aggressive approach.

There were also several impressive presentations on the prevention and treatment of cancer. The doctors at this conference have come to a conclusion that the best cancer treatment is one that combines powerful alternative treatments with selected conventional therapies. This approach to treating cancer has long been advocated by The Life Extension Foundation.

In the following pages you will read about some of the Conference's highlights, in the form of lecture synopses, that may be of immediate benefit to health advocates worldwide. Later, we'll mention some of the lectures that, in our opinion, may not yet be scientifically substantiated.

Anti-Aging Effects of Testosterone

Eugene Shippen, MD, presented extensive evidence documenting the pathology of the testosterone deficiency syndrome in men, now slowly becoming recognized as the equivalent of estrogen deficiency in women. Due to several factors, men are fifteen years behind women in their awareness of the need for hormone replacement. One obstacle is the extreme misinformation about the effects of testosterone.

First, testosterone is not just a "sex hormone." It should be seen as a "total body hormone," affecting every cell in the body. The changes seen in aging, such as the loss of lean body mass, the decline in energy, strength, and stamina, unexplained depression, and decrease in sexual drive and performance, are all directly related to testosterone deficiency. Degenerative diseases such as heart disease, stroke, diabetes, arthritis, osteoporosis, and hypertension are all directly or indirectly linked to testosterone decline. Secondly, testosterone also functions as a prohormone. Local tissue conversion to estrogens, dihydrotestosterone (DHT), or other active metabolites plays an important part in cellular physiology.

Dr. Shippen confirmed that it is excess estrogen that seems to be the culprit in prostate enlargement and prostate cancer, and not DHT. Low testosterone levels are in fact associated with more aggressive prostate cancer. While fear of prostate cancer keeps many men from testosterone replacement, it is in fact testosterone deficiency that leads to the pathology that favors the development of prostate cancer. Accordingly, clinicians who use high-dose testosterone therapy have reported no prostate cancer cases. Furthermore, testosterone improves cellular bioenergetics-it acts as a cellular energizer. Since testosterone increases the metabolic rate and aerobic metabolism, it also dramatically improves glucose metabolism and lowers insulin resistance.

Another myth is that testosterone is bad for the heart. Actually, low testosterone correlates with heart disease more reliably than high cholesterol. According to Dr. Shippen, testosterone is the most powerful cardiovascular protector for men. Testosterone strengthens the heart muscle; there are more testosterone receptors in the heart than in any other muscle. Testosterone also lowers LDL cholesterol and total cholesterol, improves every cardiac risk factor, and has been shown to improve or eliminate arrhythmia and angina. Dr. Shippen believes that "testosterone replacement is the most underutilized, important treatment for heart



disease." Testosterone also:

- Shines as a blood thinner, preventing blood clots.
- Can stop the progression of gangrene, which is of great importance to diabetics.
- Helps prevent colon cancer.

Dr. Shippen criticized the current research on testosterone as using the wrong form of replacement. Injections result in initial excess of testosterone, with excess conversion to estrogens. Likewise, total testosterone is often measured instead of free testosterone, the bioavailable form, and some studies do not last long enough to show improvement. For instance, it may take six months to a year before the genital tissue fully recovers from atrophy caused by testosterone deficiency, and potency is restored.

Physicians urgently need to be educated about the benefits of testosterone and delicate balance between androgens estrogens. Each individual has his or her own pattern hormone balance; this indicates that replacement should individualized carefully monitored. (For more information on therapies improve estrogen in men, refer last month's issue >*Life Extension* magazine, Feb. 1999).

Hormonal Prevention of Breast and Prostate Cancer

Multiple hormonal abnormalities are usually seen in hormone-dependent cancers. David Zava, Ph.D., pointed out that breast cancer patients often consume a diet heavy in refined carbohydrates, which leads to excess insulin and obesity. Excess insulin induces an abnormally large number of estrogen receptors in the breast tissue, while the excess body fat keeps producing extra estrogens.

Excess insulin, stress and environmental toxins also cause ovarian dysfunction, which leads to low levels of progesterone and thyroid hormones. Stress also leads to high cortisol levels and low melatonin levels. Progesterone, thyroid, and melatonin are hormones that protect against breast cancer, while excess insulin and excess cortisol favor the development of breast cancer.

Dr. Zava explained that estradiol itself is not carcinogenic. It is one of its metabolites-4-hydroxyestrone-that is potentially mutagenic. 4-hydroxyestrone can either be methylated and thus rendered harmless, or it can be further oxidized to quinones, which can damage DNA. Pollutants, stress hormones and the easily oxidizable polyunsaturated fats (from sources such as corn oil) lead to increased production of quinones. Protection is provided by methylating agents (such as TMG, folic acid & vitamin B12), as well as by selenium and the tri-peptide antioxidant glutathione, since a transferase enzyme dependent on both selenium and glutathione prevents quinones from binding to DNA.

According to Dr. Zava, there is no evidence that 16-hydroxyestrone, a direct precursor to estriol, raises the risk of breast cancer. The current scientific consensus points to 4-hydroxyestrone and its excessive conversion to mutagenic quinones. In fact, estriol is the only human estrogen that cannot be converted to quinones-hence its possible usefulness in postmenopausal hormone replacement therapy. Accordingly, European studies show no increased breast cancer risk when estriol is used as estrogen replacement. An argument has even been advanced that teenage girls should be treated with estriol in order to safely differentiate their breast tissue (which is what happens with early pregnancy).

It is progesterone, however, that has the greatest potential for preventing breast cancer. Dr. Zava estimates that correct use of progesterone could result in up to 90% reduction in the incidence of breast cancer. Progesterone has many anti-carcinogenic properties, such as the activation of natural killer cells, but one factor of special relevance is that progesterone diminishes the production of 4-hydroxyestrone, while increasing the production of estriol.

While estriol-based estrogen-replacement may be safest, in Dr. Zava's view, any form of estrogen replacement can be made safe through concomitant use of progesterone. Estrogens are potent anti-aging hormones; their multiple benefits are beyond question. The key to hormonal prevention of breast cancer is progesterone. "Estrogen can be the 'angel of life' or the 'angel of death,'" Dr. Zava stated. "Progesterone makes estrogen safe, makes it only the 'angel of life.' "

Turning to prostate cancer, Dr. Zava observed that as men grow older, their testosterone declines (free testosterone in particular) while their estrogen levels increase. Both benign hyperplasia and prostate cancer are linked to excess estrogen, and not high testosterone or dihydrotestosterone (DHT). Progesterone inhibits the aromatase enzyme that converts testosterone to estrogens; progesterone also inhibits the production of the dangerous 4-hydroxyestrone. So progesterone replacement for men (at lower doses than for women) has great potential for preventing prostate cancer. Bioflavonoids, found in fruits and vegetables, also inhibit aromatase, decreasing the local conversion of testosterone into estrogens and thus helping prevent prostate enlargement and prostate cancer. Selenium, zinc, and magnesium also provide protection.

After the lecture, Dr. Zava was besieged for more than an hour by scores of participants, many of them MDs, wanting to know more about progesterone, including progesterone as part of male hormone replacement. (An update on progesterone therapies available for women and men appears in this issue.)

Of all the lectures presented at this year's conferences, the ones on testosterone replacement were the best attended and aroused the most interest. Old myths about this extremely beneficial anti-aging hormone are finally being put to rest. Currently, The Life Extension Foundation is extensively investigating the clinical application of testosterone replacement therapy and how to block any negative effects it may have on other hormone levels. The results of this investigation will be published in a future issue of *Life Extension* magazine.

Melatonin and DHEA in Cancer Prevention

DHEA and melatonin have documented cancer-preventive action. Though cancer prevention and treatment was not the main focus of his lecture, William Regelson, MD, author of *The Melatonin Miracle* and *The Superhormone Promise*, reassured the listeners that there is no evidence for any link between DHEA replacement and prostate or liver cancer in humans. Furthermore, cancers dependent on interleukin-6, such as myeloma and pancreatic cancer, respond to treatment with DHEA since DHEA suppresses IL-6. The use of DHEA against breast cancer, however, remains problematic. The best clinical results with DHEA relate to its ability to prevent stress-related injury.

Coenzyme Q10 and Cancer

Stephen Sinatra, MD, hypothesized that just as the deficiency of Coenzyme Q10 underlies heart failure, so it too underlies the immune failure that leads to the development of cancer. To a significant extent, cancer may turn out to be a CoQ10 deficiency disease. One of the functions of CoQ10 is protecting DNA from oxidative damage. Another is the enhancement of immune function, and the regulation of aerobic metabolism and energy production. It has been established that 100 mg of CoQ10 per day is the dose required to provide antioxidant protection for LDL cholesterol. Since cancer patients show deficient levels of CoQ10, we need to establish the dose that is likely to prevent cancer.

It is interesting that the most lethal of human cancers, pancreatic cancer, is associated with the greatest CoQ10 depletion. Interestingly, vegetarians are not likely to obtain much CoQ10 in their diet. According to Dr. Sinatra, vegetarians might be in particular need of CoQ10 supplementation, especially as their ability to synthesize it declines with aging. Dr. Sinatra stressed that CoQ10 has produced dramatic tumor-regression results (particularly in metastatic breast cancer) when used together with other treatments, alternative or conventional or both. This reiterates one of the main principles of holistic and anti-aging medicine: Do not seek a single "magic bullet," but use several treatments simultaneously.

Dr. Sinatra warned that dry powdered CoQ10 is poorly absorbed, and it is difficult to achieve therapeutic levels of CoQ10 with it. The gel form in which CoQ10 is combined with an oil is preferable.

Anti-Cancer Properties of Soy Isoflavones

Soy isoflavones, genistein, daidzein and glycitein have major anti-cancer properties that go far beyond their ability to modulate the effects of human estrogens. According to Stephen Holt, MD, these isoflavones are also powerful antioxidants, inhibit the formation of new blood vessels (anti-angiogenesis), and interfere with tumor-promoting enzymes. Their aromatase-inhibiting properties makes soy isoflavones of great interest in the prevention and treatment of prostate cancer. Likewise, leukemia and several other cancers have been shown to respond to high-dose soy isoflavone treatment. Epidemiological studies indicate that frequent consumption of isoflavone-rich foods is associated with lower incidence of cancer.

PET Scan for Early Cancer Detection

Eric Braverman, MD, discussed the use of PET scan (Positron Emission Tomography) in the early detection of cancer. A whole-body PET scan provides highly reliable early cancer detection since it shows metabolically "hot" areas. Cancer cells are hypermetabolic, so the areas of very rapid glucose metabolism are easily identified on PET scan. Lymph node spread shows up, eliminating the need for lymph node dissection. A PET scan can also eliminate mammography and provide a more accurate diagnosis. Finally, a PET scan shows the regression or progression of cancer, and thus should also be used to evaluate the effectiveness of various therapies.

Hyperthermia Destroys Cancer Cells

The use of whole-body hyperthermia in tumor regression was the focus of Lawrence Stowe, Ph.D. He stated that cancer is a systemic disease, and is metastatic from the start. Hence the need to treat the whole body. High heat is extremely effective against tumor cells and viruses, but it needs to be applied in a safe way. Raising the body temperature to 43 degrees centigrade is considered the maximum safe limit, with 41 degrees being the lower limit for effectiveness. Blood chemistry needs to be monitored to make sure there is no cardiac failure. If hyperthermia is used in conjunction with chemotherapy, lower temperature should be used, or else the chemotherapy drugs become excessively toxic. Correctly used, whole body hyperthermia can achieve up to 90%

remission in Stage I and II breast and prostate cancer. Hyperthermia can also be used locally, and in combination with radiation therapy and other mainstream or alternative therapies. Hyperthermia also works to destroy viruses, and appears to be effective against AIDS. Considering that the use of hyperthermia gained FDA approval back in 1985, it is tragic that it is so underutilized. The audience reacted with bitter merriment to the revelation that the use of microwave-induced hyperthermia for the treatment of prostate and brain tumors originated from the Defense Department's research designed to produce weapons that would destroy living organisms while sparing buildings and other structures.

Dr. Stowe also suggested that chelation is a useful adjunct cancer therapy, since it removes the heavy metal catalysts for free radical reactions. Thanks to chelation one can reduce free radical reactions a million-fold.

Premature Stress-Related Brain Aging and Cancer

Dr. Eric Braverman, who practices in Princeton, New Jersey, also discussed the role of the brain function in susceptibility to cancer. "I have never seen a cancer patient with a normal voltage in the brain," he said. Cancer patients show an abnormally low brain voltage as shown by the P-300 amplitude test (this decline in voltage is also seen in aging). Furthermore, this decline in brain voltage can be detected years before the diagnosis of cancer. Dr. Braverman concluded that brain health needs to be addressed first, since cancer is predated by a deterioration in brain function, usually in connection with depression, chronic anxiety and addictions, including carbohydrate addiction.

Together with abnormal neurotransmitter levels and a decrease in dopamine and serotonin receptors, the abnormally low brain voltage indicates stress-related premature brain aging. Such premature brain aging means that the brain loses control of body metabolism. Brain dysfunction could be one key reason behind the current epidemic of cancer, even in people who are chronologically young. The implication for cancer treatment is that it is erroneous to focus exclusively on destroying cancer cells; one should try to restore the whole body to healthy physiological function, starting with the brain. Dr. Braverman advocates a "head-first" approach to cancer prevention and treatment.

Maitake D Fraction

Shari Lieberman, Ph.D., presented findings on the effectiveness of maitake (*Grifola frondosa*), both powdered whole mushrooms and the maitake D fraction extract, in the prevention and treatment of cancer. The main mechanism seems to be the activation of the natural killer cells by the beta glucans present in maitake. Animal studies show tremendous effectiveness in tumor growth inhibition (up to 98%) when maitake D fraction is used in combination with half the usual dose of chemotherapy. A Japanese study did show extended survival when maitake was used together with chemotherapy. Concurrent use of maitake also greatly lessened the side effects of chemotherapy. An American pilot study on the chemotherapy/D fraction combination in advanced breast cancer and prostate cancer patients has recently been granted permission by the FDA.

MGN-3

One of the most promising newest alternative cancer treatments, MGN-3 consists of arabinoxylane from rice bran, enzymatically modified with polysaccharides from shiitake, kawaratake and suehirotake mushrooms. To the wider public, the compound will probably become known as rice bran extract combined with shiitake extract.

Mandooh Ghoneum, Ph.D., presented a thorough review of the effectiveness of MGN-3 as part of cancer immunotherapy. The main action of the compound is to greatly enhance the aggressiveness of natural killer cells. Cancer patients tend to have very weak natural killer cells, often empty of the toxic granules that these cells use as their ammunition to inject into the cancer cells. Treatment with MGN-3 recharges NK cells with granules. The activity of T cells and B cells is likewise enhanced. MGN-3 also increases the production of interferon, tumor necrosis factor (TNF), and interleukin 12. The effectiveness of MGN-3 does not seem to decline with time.

Dr. Ghoneum stressed that "You can't destroy cancer just by activating NK cells." Treatment with MGN-3 should be combined with other therapies. For instance, tumor mass can be reduced through chemotherapy and/or surgery ("debulking"). MGN-3-activated NK cells can then follow as "ground troops" to destroy those cancer cells that managed to escape the conventional treatments. The first survivor ever of multiple myeloma was given MGN-3 after chemotherapy.

Note: The Foundation reviewed the published literature on these mushroom extracts and beta glucans 14 months ago, and the science did not appear to corroborate the claims made by promoters of these products. As a result, these products are not included in the Foundation's Cancer Treatment Protocol.

IP-6 in the Treatment of Cancer

Another promising anti-cancer compound is a combination of inositol, a common B vitamin, with phytic acid, also known as

inositol hexaphosphate (IP-6). Grains and soybeans are common dietary sources of phytic acid. The combination of inositol and phytic acid has shown the ability to activate natural killer cells, decrease proliferation and increase the differentiation of cancer cells, and suppress mutant p53 gene activity. One major anti-cancer mechanism of these two synergistic nutrients is probably the normalizing of the cell cycle by modifying signal pathways. The promising results obtained in animal xenotransplant studies need to be replicated in human trials. Note: IP-6 is a "promising" compound, but its efficacy has not yet been proven to work in humans.

Reversal of Macular Degeneration

"You are as old as your capillaries," Richard Davis, MD, announced before presenting a revolutionary technique to reverse macular degeneration through the use of special blood filtration that removes macroproteins. For the layperson, it could be called "filtering the crud from the blood."

One characteristic of macular degeneration patients is poor blood flow. Once the large-molecular-weight material is removed from the blood through the use of apheresis filters, the purified whole blood is sent back to the patient. The procedure takes two hours. Just a single treatment brings a dramatic improvement in blood flow and in vision. After eight treatments, many patients' vision improves to the point that they are able to drive and read and play golf. The only side effects are slight dizziness or nausea during treatment.

Other benefits of the removal of heavy macromolecules include improvement in cholesterol profile, lower fibrinogen, better memory, potency, and endurance. This type of filtration, besides being the only treatment that can actually reverse macular degeneration and restore vision, promises to be useful in the treatment of cardiovascular disease, diabetes, autoimmune diseases and cancer. Note: While we are unfamiliar with this approach to treating macular degeneration, your comments on its efficacy are welcome. For further reading on the matter, please see our article on the treatment and possible reversal of macular degeneration that appears in this issue.

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