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EVENTS

Conference Highlights

Telomerase therapy and more were discussed at the International College of Advanced Longevity Medicine (InCALM) held last Fall in Reno, Nevada

By Dayna Dye

This InCALM conference brought together a health-hungry group of professionals with a will to learn, and brought to light a wealth of information on longevity medicine. Thanks to Dr. Gary Gordon's boundless energy, a number of distinguished individuals gathered at the Hilton in Reno Nevada from October 29 through November 1, 1998, to speak to an audience replete with innovative physicians and other health care providers.



I was privileged to attend talks by and for inventive physicians who want to get their patients well, no matter what the prevailing government attitude may be. And indeed, many of these pioneers had tales to tell of government harassment, a dark note in a conference otherwise full of hope and compassion. One of the bright notes that weekend was a news release article published in the *Reno Gazette Journal* on Friday, October 30, reporting on the November issue of the journal *Nature Medicine*. The journal carried an announcement stating that adult brains could grow new cells, a finding that reverses the long held belief that brain cells were incapable of regrowth and once lost, were gone forever. The weekend of the conference was perfect timing for this announcement that flies in the face of what mainstream medicine has always told us was inevitable, which is what InCALM's conference speakers and members have set out to do as well.

A summarization of the history of the practice of medicine today is in order, so that one may see the necessity of an organization such as InCALM. In his book, "World Without Cancer," Edward Griffin provides an excellent analysis of the evolution of allopathic medicine during this century. At the beginning of the twentieth century the United States was home to a wide variety of medical schools, some being little more than diploma mills. John D. Rockefeller Sr. and Andrew Carnegie offered many of the struggling schools what were at the time enormous grants on the stipulation that one of the donor's representatives might be given a place on their boards, an offer which the grateful schools were honored to accept. These board members then had a say in determining curriculum, which came to lean heavily on drug therapy. Rockefeller, of course, had a huge financial interest in the pharmaceutical industry. And so, the practice of medicine came to be the practice of dispensing drugs.

Any medicine that does not utilize drugs is labeled as quackery and persecuted by law. The medical schools not receiving grants could not compete and were forced to close. Today's allopathic physicians are not to be blamed if their school's curriculum is centered around the use of pharmaceutical products. Most of them receive little education on nutrition and alternative therapies, although a growing number are expressing an interest in these areas. However, alternatives to "medicine" as it is practiced today continue to be sought after by an increasingly aware public.

Chinese medicine, ayurveda, chelation and oxidative therapies are being utilized not just as sole treatment modalities by practitioners who specialize in them. They are being integrated into physicians' practices who use multimodality approaches to patients and diseases, taking into account the biochemical individuality of each person they see. Take cancer, for example. One speaker pointed out that most oncologists will privately express their belief that there is no such disease as "cancer," but there is "your cancer," "my cancer," "his cancer" and "her cancer." The disease is expressed differently in each person, necessitating as many approaches to treatment.

Orthomolecular Medicine: The Custom-Made Approach

Schizophrenia is an example of a diagnosis that certainly warrants far more than the cookie cutter approach given these patients by so-called modern medicine. Perhaps an aversion to a disease with such frightening manifestations has been responsible for the

fact that psychiatric medicine has barely emerged among the days of condemning patients to the snake pit. Orthomolecular medicine, a term coined by Linus Pauling meaning "right molecule," seeks to treat this and other diseases on a patient by patient basis, determining their biochemical individuality and recommending the correct nutrients accordingly. One of the conference speakers that weekend, Dr. Richard Kunin, is a longtime practitioner of orthomolecular medicine. Dr. Kunin discussed the chemistry of homocysteine, which has finally gotten the attention it deserves both in and outside mainstream medicine. Readers of Life Extension magazine's November 1997 and March 1998 issues will be familiar with the basics of homocysteine's role in heart disease, among other health problems. Dr. Kunin presented his theory that homocysteic acid, a homocysteine derivative containing extra oxygen atoms, does its damage by chelating copper, pulling it out of the subendothelium in the blood vessels and damaging the tissues. The effectiveness of pangamic acid as a methyl donor was discussed, a substance that experienced popularity over a decade ago whose benefits were studied in the former Soviet Union. Methyl donors are necessary to convert homocysteine to other harmless molecules used by the body. He also hypothesized that lecithin's effectiveness against atherosclerosis may be due to its high choline content, which converts homocysteine to methionine.

Age No More

One of the many stimulating talks of the program was given by Michael Fossel, M.D. Dr. Fossel's fast paced style conveyed some of the excitement of his field of telomere research. His prediction: within the next ten years we will have two to five hundred year lifespans. Dr. Fossel juxtaposed new theories of aging against the old habits of thinking, such as that of aging caused by wear and tear. "Aging is not wear and tear, but wear and tear unleashed," he explained. It's not a passive process but a programmed altered pattern of gene expression. Gerontology has in the past mainly concerned itself with the effects of aging, but we need to treat the causes.

Some treatments Dr. Fossel listed as gaining a lot of recent media attention, but having no effect on aging, are melatonin, growth hormone, DHEA, vitamin E, nonsteroidal anti-inflammatories, retinoids, exercise and estrogen replacement. Evidently all of the aforementioned therapies have their value in treating the effects of aging, but do nothing to alter the causes. Some practices that can affect the aging process itself but are not useful clinically are dietary restriction, selective breeding and genetic alteration. Dietary restriction has shown in almost every study to slow the aging process of the species studied, and some people have taken the initiative to try restricting their calories in the manner of Roy Walford, M.D. But few lack the discipline to continue to restrict their calorie intake for the remainder of their lives. It must also be noted that the animals studied, although much longer lived, eventually succumbed to death. Selective breeding and genetic alteration could lengthen the lifespan of one's offspring, but don't offer a lot of comfort to those wanting to live longer now.

In an interview originally published in *AGE News* and reprinted in the February 1998 issue of Life Extension magazine, Dr. Fossel provides a lengthy explanation of telomeres and telomerase therapy. A telomere is a set of repeated base pairs at the end of a chromosome that shorten with age, associated with the timing of the onset of aging of the cell or the whole organism, according to which hypothesis one accepts. Telomerase is an enzyme which can relengthen telomeres to their youthful level. Dr. Fossel boldly stated that telomerase therapy will work-and can prevent all age related diseases. A cell will be able to have two hundred divisions, soaring beyond the Hayflick limit of fifty, which is the maximum amount of divisions believed to be possible in a normal, noncancerous cell. Will an agent that extends the maximum lifespan of the cell extend the maximum lifespan of the organism? Since the cell is the basic unit of our physical selves, that answer may very well be yes. Telomere research may also discover a way to shorten the lifespan of immortal cancer cells by applying telomerase inhibitors. Those who are interested may wish to attend an upcoming conference on Telomeres scheduled for May of 1999 in Washington DC, sponsored by Mary Ann Liebert.

Free Radicals and Antioxidants

From Taipei Medical College in Taiwan, Jen-Fong Chiou discussed measuring free radical reactions through the ultra weak chemiluminescence analyzer. Prior to its development, free radicals were measured by electron spin resonance, which is often difficult. The chemiluminescence analyzer detects the spectrum of various free radicals and can be used to measure antioxidant abilities of various substances, as well as free radicals produced by various disease states. Interestingly, free radicals are detected in greater abundance in early cancer but decline in terminal stages, which led to various speculations by other speakers.

Russel J. Reiter, Ph.D., author of "Your Body's Natural Wonder Drug Melatonin," described melatonin's significant antioxidant ability. While melatonin is known by most of the general public as a popular sleep remedy, its ability to quench free radicals is a far more important reason to use it. The brain utilizes large amounts of oxygen-in fact, 20% of the oxygen we breathe is used by the brain. The brain also contains large amounts of iron that are highly subject to react with naturally occurring hydrogen peroxide to form hydroxyl radicals. Additionally, iron causes vitamin C in its presence to become a pro-oxidant. Polyunsaturated fatty acids in the cell membranes are easily mutable by free radicals. When the cell membrane is damaged too much calcium can enter, causing cell death. This damage occurring in the brain may contribute to Alzheimer's disease, amyotrophic lateral sclerosis, myasthenia gravis, Parkinson's disease, Down's syndrome, aluminum induced neuropathy and muscular dystrophy. So the obvious question is, "How can we quench free radicals occurring in the brain?"

Vitamin E doesn't cross the blood brain barrier very well, but melatonin crosses all morphophysiological barriers. Melatonin's ability

to do so could be part of its great efficacy. When neurons were grown in vitro in the presence of amyloid beta-peptide-a substance formed in the brains of Alzheimer's patients that kills cells-the addition of melatonin reduced the level of cell death to that almost of control levels. Pinealectomized mice shown substantially greater DNA damage over a lifetime, implying that melatonin provides a protective benefit (melatonin is produced by the pineal gland). The decline in melatonin parallels the increase in age-related degenerative diseases. However, this does not prove that melatonin deficiency causes these diseases, as the body experiences a decline in a number of functions and hormones with aging.

One of the recurring themes expressed during the conference was the value of free radicals, deliberately generated as a treatment modality in "oxidative therapies"-hydrogen peroxide and ozone therapies. For those of us who have grown up with the free radical theory of aging, this is a difficult concept to accept. Although it is well known that some free radicals are essential to human life, it's also known that we produce more than enough to damage our tissues leading to various disease states and aging. Many are of the opinion that we produce enough free radicals in the process of normal metabolism and that it's not necessary or beneficial to deliberately generate more. Yet during the conference there were many case studies cited in which individuals showed improvements while undergoing oxidative therapies. I will continue to attempt to observe the success of this modality with an open, albeit skeptical, eye.

Parathyroid Hypercalcemic Factor (PHF) On the last day of the conference Jonathan Wright M.D. presented a talk entitled, "The Discovery and Development of Parathyroid Hypertensive Factor"-which has been more appropriately renamed parathyroid hypercalcemic factor or PHF. PHF has been identified in the blood of hypertensive patients. It is made by the parathyroid and encourages extracellular calcium to enter the cell. The question has been asked why hypertensive individuals respond favorably to both an increase in dietary calcium and calcium channel blockers. Dr. Wright explained the reason: dietary calcium causes the inability of the parathyroid gland to elaborate PHF. Calcium channel blockers, on the other hand, don't allow calcium ions into the cell.

African American women have higher PHFs than any group studied, which may help explain the higher incidence of hypertension also found in this group. Parathyroid hypercalcemic factor actually appears in the blood several years before hypertension is diagnosed, and therefore is a good predictor of hypertension's onset. High PHF may be implicated not only in hypertension but in diabetes, when calcium floods cells and renders them less responsive to insulin, in colon cancer-60% of colon cancer patients were found to have elevated PHF, and in breast cancer, in which 70% show an elevated PHF. It may be recalled that calcium is protective against colon cancer.

There were many more innovative speakers scheduled for the four day event, too many to cover in this article. I encourage everyone to support InCALM and attend their next conference.

NOTE: Readers of the April 1998 issue of Life Extension magazine may recall that InCALM was founded by Dr. Gordon in November of 1997 to provide training in longevity medicine, not only to M.D.s and D.O.s, but other health professionals such as chiropractors, naturopaths, physician's assistants and nurse practitioners. Those who complete the training are credentialed by InCALM's certifying board, IBALM (International Board of Advanced Longevity Medicine).

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