

Abstracts from the 15th Annual International Symposium on Man and His Environment 1997

The 1997 Annual International Symposium focused on the Environmental Aspects of EMF and Bioelectricity. This Conference explored some of the latest data and provided a forum for discussion as well as case studies to help the professional.

"Electrical Sensitivity in Workers in a Hospital with Indoor Air Quality Problems"

Roy A. Fox, M.D., FRCPC
Nova Scotia Environmental Health Centre, Dalhousie University

An earlier study of a group of chemically sensitive disabled workers from Camp Hill Hospital revealed that about half were also electrically sensitive. For only one worker, electrical sensitivity (ES) was one of the major presenting complaints. For most of the other individuals, intolerance of electrical appliances or exacerbation of symptoms by exposure to electromagnetic fields was not included in the presenting history. However, direct questioning revealed that about half of the patients did have symptoms of ES and that most had made significant lifestyle changes to cope with the problem. Lessening of ES appeared to parallel improvement in health and reduction of chemical sensitivity. More than five years after the onset of environmental illness more than 100 workers from this hospital remain disabled and unable to pursue any gainful employment. Chemical sensitivity is the most important aspect of the illness that limits employment potential, and ES does not appear to be a major issue affecting lifestyle for any of these patients. However, a significant proportion admit to perturbation of well-being by exposure to various electrical appliances. Some of the recovered workers report the ability to sense coherent electromagnetic radiations and use this to avoid prolonged exposures. In this situation the heightened awareness might be considered an asset as a defense mechanism rather than a trigger for physiological dysfunction.

All patients who are seen in consultation in the NS Environmental Health Centre are asked about ES. At the present time this does not appear to be a significant problem for the majority of patients and does not appear to warrant specific treatment. In the patients where this has been identified as a major factor, addressing total body load or the use of desensitization techniques to lessen chemical sensitivity and allergy has resulted in significant amelioration of ES symptoms.

The patients or hospital workers with or without ES need to be looked at more closely to determine if there are differences in exposures or in biotransformation abilities that might account for the development of ES in some. Within the hospital workers, it is known that many problems contributed to the IAQ problems. The most significant appears to have been their exposure to mixtures of amines added to the boiler and steam supply for their anticorrosive properties. This mixture contained cyclohexylamine, morpholine, and other

amines. These substances have profound effects on nervous system function by competitive inhibition of biogenic amine metabolism and interaction with the NMDA receptors. Alteration of biogenic amine synthesis thus changing the ratios of putrescine, spermine, and spermidine can have profound effects on the nerve blood barrier and the blood brain barrier. The negatively charged amines have a more profound effect on membrane functions such as permeability. These changes in membrane function, which occur as a direct effect of the amines, the alteration in biogenic amines, or the increased penetration of other chemicals, are likely to result in altered function and altered electromagnetic characteristics.

"Basis for EMF Sensitivity Clinical Responses"

William J. Rea, M.D., FACS, FAAEM

The extracellular matrix and the ground regulation system are the environmental receptor system within the body. It is an open-ended dynamic molecular dissipative energy system, which is labile because of its molecular oscillation and the fact it is a receptor for all environmental stimuli, including electromagnetic, electric, atmospheric pressure, static electricity, spherics circadian rhythms and cycles, nutrition and total body pollutant or traumatic load, life forces, and subtle energy.

The ground regulation system controls homeostasis and is part of every defense and inflammatory reaction. The regulation of this system depends upon the spontaneity of molecular reactions with homeostasis being a dynamic balance between entropy (the random distribution of molecules) and enthalpy (the structured organization of molecules). Excess entropy means that there is an excess of exchanges of energy and this structure is lost; therefore, acute inflammation, allergy, rheumatoid disease, and tumors occur. Excess enthalpy means there is too little free exchange of energy; therefore, supermolecular states of order occur with sclerosis, nodules, sarcomas, aneurysms, dissecting aneurysms, and valvular disturbances occurring.

Understanding the ground regulation system results in the idea that energy ($E=Mc^2$) can be changed into mass and that inappropriate input of pollutants, bacteria, or viral energy can result in pathologic processes.

"Memory of Water"

Jacques Benveniste
Digital Biology Laboratory
32 rue des Carnets F-92140 Clamart

Many studies on the biological effects of highly diluted ligands have yielded significant results. Beyond the "memory of water," they could have wide consequences for biology, revealing fundamental aspects of molecular interaction. In 1988, we reported the effect of

a highly diluted antihuman IgE antibody on human basophil achromasia, triggering shallow criticisms. In 1990, we performed two series of blind experiments in collaboration with biostatisticians: (1) activation of human basophils by IgE (but not anti-IgG) antisera diluted to 10^{-30} ; (2) inhibition of basophil activation by highly diluted/agitated *Apis mellifica*, but not by placebo. Thus, these effects cannot be explained by the agitation, a never validated hypothesis. In three series of experiments, we measured the synthesis by mouse macrophages of the inflammatory mediator pafacether after oral intake of highly diluted silica. Differences between treated and control mice were highly significant in all experiments ($p < 0.01$ to $p < 0.05$), demonstrating a cellular in vivo effect of high dilutions of silica. Isolated guinea-pig hearts were infused with highly diluted agonists. A significant ($p < 0.001$) time-dependent modification of the coronary flow was induced by histamine dilutions (10^{-31} - 10^{-41}) but not by diluted/agitated buffer. Heating high dilutions (70°C , 30 min) or exposing to magnetic field (50 Hz, 150 oersteds, 30 min) suppressed their effect, but not that of molecules. In toto, several hundred experiments have been performed in blind or open protocols with highly significant results. Thus, a biological activity can be induced by substances so highly dilute that no molecule remains. An artefact has often been suggested, but not a single good hypothesis has ever been proposed. To date, 22 peer-reviewed publications have reported positive high dilution experiments in several biological systems, underlining the ubiquitous nature of the phenomenon.

"The Electricity of Touch"

Rollin McCraty, MA and Mike Atkinson
HeartMath Research Center
Institute of HeartMath
14700 West Park Avenue
Boulder Creek, CA 95006

The concept of an energy exchange between individuals is central to many of the healing arts of both Eastern and Western medicine that involve contact or proximity between practitioner and patient. One main block to the acceptance of these therapies by western science has been the lack of a plausible mechanism to explain the nature of this energy or how it is exchanged. The fact that the heart generates the strongest electromagnetic field produced by the body, coupled with the recent discovery that this field becomes more coherent as the individual shifts to a sincerely loving or caring state, prompted us to investigate the possibility that the field generated by the human heart may contribute to this energy exchange.

We present a sampling of results that provide intriguing evidence of the exchange of electromagnetic energy produced by the human heart that occurs when two people touch, as well as an experimental protocol that allows such effects to be measured. Signal averaging techniques are used to show that when two individuals touch or are in proximity, one's electrocardiogram (ECG) signal is registered in the other person's electroencephalogram (EEG) and elsewhere on the person's body. While the transmission of the signal is strongest when people are in contact, the effect is still detectable when

subjects are in proximity without contact. Our results suggest that the signal transferred is electromagnetic in origin and that some component of it is radiated.

This study represents one of the first successful attempts to measure directly an energy exchange between people and provides a solid, testable theory to explain the observed effects of many healing modalities that are based upon the assumption that such an exchange takes place. Nonlinear stochastic resonance is discussed as a mechanism by which weak, coherent electromagnetic fields, such as that generated by the heart of an individual in a caring state, may be amplified by biological tissue and potentially produce measurable effects in living systems. One implication is that the effects of therapeutic techniques involving contact or proximity between practitioner and patient could be amplified by practitioners consciously adopting a sincere, caring attitude and thus introducing increased coherence into their cardiac field.

"Neurocognitive Patterns of Chemical Sensitivity"

Joel R. Butler, PhD
Environmental Health Psychologists
Dewey, OK

Nancy A. Didriksen, PhD
Health Psychology/Behavioral Medicine Associates
Richardson, TX

Ernest H. Harrell, PhD
University of North Texas
Denton, TX

The purpose of the present study was to identify the more consistent and pervasive neurocognitive deficits and to determine any patterns of behavior or theoretical brain involvement among chemically sensitive patients. An important objective was to detect those behavioral items that most patients fail, indicating a neurocognitive deficit or problem area.

The subjects were fifty confirmed chemically sensitive patients 26 females, 24 males. All subjects were administered the Harrell-Butler Comprehensive Neuropsychological Screen under standardized conditions. The data were treated statistically.

A brief review of results shows that most chemically sensitive patients reveal some degree of brain-function impairment, ranging from mild to severe. Some examples of the most common errors or deficits were visual-motor memory sequence (following a sequence of instructions involving looking, listening, remembering, and performing a perceptual-motor task), simple verbal recall (being forgetful of directions, conversations, and/or main points and being distracted by intervening input), gross motor movement (unsteady balance and gait), oral apraxia sequencing under time pressure, attention,

vigilance and concentration, short attention span, sensory-tactile (peripheral nerve involvement), spatial organization or reorganization with a shift in set, visual-motor (remembering what is seen and then reproducing it), receptive speech (comprehension of verbal statement), and perceptual-motor learning (using more than one sense modality).

Theoretical brain involvement tends to be rather diffuse, including left and right hemisphere, frontal motor sequencing, cerebellar-vestibular motor system, parietal, and occipital.

"Drop Sensitivity, Raising Tolerance to Electricity in Power Line Workers with Neurasthenia by 50-80 Hz EMF, Hydrotherapy (HT)"

G. Markarov
Hospital 83, Moscow, 115598
P.O. Box 53, Russia

Introduction: The dependence of neurohaemodynamics, brain activity (BA) upon selective frequencies of EMF, HT is known (1).

Objective: To establish the increased tolerance to electricity in neurasthenia power line workers (nplw) by weak EMF and HT.

Materials, methods: 93 nplw were examined by double-blind control method. The treatment in the Main Group (31nplw) was represented by HT (250 g/l salt hands, legs bath, #10, swimming pool, #10), EMF 50-80 Hz, 1 mV/cm directed to the eyes, head, during 20 sec 1 min, 3 times in a day, 10 days. 1 Control Group (31 nplw)-EMF/placebo/+HT. 2nd control group (31 nplw)-HT.

Results, discussion: The following symptoms were noted after treatment: decreased hypersensitivity to EMF in nplw; reduced fatigue, headache, and memory disorders in the Main Group. Alfa-waves (EEG data) became the modulated coherented. Delta waves increased; the power in tetra-waves became normal; what good correlated with a decrease of the level of glutamate, glycin in blood, and it is possible led to decreased excitotoxicity effect in brain, showed the sedative effect in this group. Cerebral, general haemodynamics improved in groups, more pronounced in the Main. The treatment effectiveness in the Main Group 91%. In 1,2 Control groups 78%, 76%.

Conclusion: It was stated possibility to enlarge tolerance to electricity, improve intracortex communication, optimize brain tone, neurotransmitter changes in the power line workers with neurasthenia by selective frequencies of EMF, HT.

Reference: 1. Markarov, G. "Rehabilitation by Sea Bath and Low Frequency Pulse Electromagnetic Field 20-40 Hz in Drug Resistant Hypertonic Patients. XXth International Congress on Talassotherapy. Abstracts, Germany, Borkum (1991): 87.

"Intracellular Electric Fields: Production and Function"

William J. Meggs, M.D., PhD
East Carolina University

Highly organized structures rapidly form inside cells, carry out a specialized function, and may dissipate rapidly. Examples include the mitotic spindle structure, pseudopods in neutrophils during chemotaxis, and the microtubule network in axons. The objective of this work is to develop an understanding of how electric fields can develop inside cells and how these fields can cause a polymerization of macromolecules into structures within cells. Sustained electric fields cannot develop from static charges inside of cells because the electrolytes in solution rapidly set up a screening field. Hence, in order to develop internal fields inside cells, currents must flow. Ion pumps are proposed as a mechanism for producing the current flows needed to set up internal electric fields. Once these fields are established, polar macromolecules will rotate into the direction of the fields, enhancing polymerization. Polymers will form parallel to the electric field lines. This theory has been tested with a computer simulation of mitosis, with ion pumps located at the spindle poles. Tubulin polymerizes parallel to the field lines, to form the spindle fibers. Good quantitative results are obtained. Practical applications of this theory are discussed.

Conclusion: Internal electrical fields in cells can be produced by currents from ion pumps that will not be screened by electrolytes. Polar macromolecules will polymerize in the direction of the electric fields, forming structures determined by the electric field lines. This theory provides a mechanism to explain a number of processes in biology, including mitosis.

"Clinical Applications of Heart Rate Variability: Significant Changes in Autonomic Nervous System Activity after the Administration of a Single Dose of Homeopathic Medicine"

F. Fuller Royal, M.D.
Saul Kullo
Daniel F. Royal, D.O.
J.R. Kullo
Shlomo Amselem
D. Gregory Olson

This study, conducted on two similar sample populations, a total of 193 men and women presenting medical complaints, ages 50 and older, objectively demonstrates for the first time that after a single dose of a homeopathic medicine significant changes in autonomic nervous system (ANS) activity can be measured with special medical equipment. The values of heart rate variability (HRV) variables were computed from data acquired from a one-lead electrocardiogram (ECG) with a 23-minute basal and standardized methodology. In the first group, both time and frequency domain analysis of the RR intervals were obtained for 131 subjects before and after the oral administration of a

homeopathic medicine. The results, or statistical changes, were either significant or very significant in 9 of the 10 variables of HRV investigated ($0.04 > p > 0.0002$). Pearson correlation coefficient for paired measurements ranged from 0.8439 to 0.5173.

In a second or "control" group of 62 subjects, time and frequency domain analysis were again obtained, but in this case before and after a double-blind oral administration of a placebo of distilled water. For the control group, no significant statistical change was obtained in any of the ten variables investigated in this study ($0.064 > p > 0.825$). Pearson correlation coefficient for paired measurements was high in nine of the ten variables, ranging from 0.808 to 0.926. These results demonstrate the stability of the HRV baseline measurement, as well as the total lack of sensitivity of HRV variables to the effects of placebo medication in a patient population. Indeed, the values of all HRV variables obtained with the standardized 23-minute basal method for ECG data collection used in this study proved to be unusually stable.

As a result, we submit that patient response to appropriately selected homeopathic medicines can now be accurately monitored through the assessment of changes in HRV variables with a noninvasive method carried out in a clinical environment. Implications of these findings for present and future homeopathic, alternative, and orthodox medicine are discussed.

"Basic Bioelectricity"

Cyril W. Smith, PhD
Salford University Business Services, Ltd
P.O. Box 50
Salford M6 6BY, England

Electricity is as fundamental to biological systems as is the chemical bond from which it derives. There must also be a duality between chemical structure and frequency; otherwise, spectroscopic analysis would be impossible. Electric charge in motion generates a magnetic field in the surrounding space; the acceleration or deceleration of electric charge generates frequencies of electric and magnetic field, which radiate away at the velocity of light. The precision or ordering of the fields and frequencies is called their "coherence." In water and living systems, this can be very high and gives rise to a long range order. The fundamental question to be answered is whether a living system can behave as a macroscopic quantum system in its internal interactions and in those with its external environment. Possible examples of such interactions in water and living systems will be presented.

"Patients with Electromagnetic Sensitivities"

Dr. Jean Monro
Breakspear Hospital
Hertfordshire, England

Serendipity has been responsible for many advances in science and medicine. The observations made concerning patients with electrical sensitivities began in 1980, when patients exposed to neutralizing vaccines, who were thawing their vaccines in field vials, reacted symptomatically to the closed containers. Containers were sent to the National Physical Laboratories to ascertain the frequencies that could be transmitted through the vials, and it was discerned that these frequencies were in the region of radio-wave transmissions. It was clear, therefore, that the antigen within the vials was having an interactive effect with the patient through a frequency effect. Patients were exposed to vials that were screened from them by either solid plates or by meshes, and it is clear that where the mesh pore size was large enough, the vaccine could have an effect even though separated from the patient by a small amount of air as well as the vial itself. Hence, it is clear that the interactive effect is an electromagnetic one.

This effect was demonstrated by cutaneous application of vaccines to the skin of patients, and a video illustrating this was shown at the Dallas conference in 1982. It became apparent, therefore, that patients could react to electromagnetic frequencies. The more acutely sensitive the patients, often the more reactive they were. It also became apparent that other physical phenomena could affect patients, and that they could discern reactivity from other living creatures. This was discerned by patients reacting to another patient being tested in the same room or even in the same building. Observations, which are known to man, were then observed in these patients in that they were able to discern other phenomena that we would regard as homeopathic responses, healing responses, kinesiography and placebo responses to individuals involved in treatment. We have been able to ascertain the very basic responses of man's awareness of physical phenomena through these observations and can claim that these techniques have allowed us to have a window into the very essence of man's nature and appreciation of his surroundings.

We have had amongst our patients managed over the last 15 years, the first person regarded as having a severe disability and being paid a pension by the Norwegian government, individuals who have had electrical sensitivity and food and chemical sensitivities who have now been treated and restored to a complete and normal health, patients with extreme perspicacity whose talents will be described, and a range of measures taken by patients who have had to take special precautions because of their electrical sensitivity. Extreme sensitivity can be related to very weak dilutions of substances, and this has been noted in the function of the human vomeronasal organ, which has effects on steroid receptors and hypothalamic function.

"The Electromagnetic Basis of Neutralization Therapy"

Dr. Jean Monro

There are five methods available for suppression of allergic disease by immunological means:

1. Graded normal exposure
2. Incremental injections
3. Neutralizing therapy
4. Pulse steroid therapy
5. Enzyme-potentiated desensitization

In 1911, Noon¹ described a "low dose desensitization."

Neutralizing Therapy

When a series of dilutions is injected into patients, a bell-shaped dose response curve results, indicating histamine release in response to allergens. Histamine is released at the same site, and higher doses of allergens produce less response, while still higher doses provoke further histamine release.

Both provocation and neutralization of symptoms have been shown to occur sequentially. Rinkell reported that symptoms can be induced and stopped by a higher dose of allergen, and Lee suggested that a high dose of pollen can sometimes be used prophylactically to protect patients against normal exposure to allergens. A period of treatment with neutralizing injections has been shown to result in desensitization; if the vaccine titrated is used regularly, patients do not develop the same response to antigen provocation.

The mechanism in the allergic response is the reaction of the body to electromagnetic stimuli.

"Therapeutic Modalities Designed to Order Electro Disturbances"

William J. Rea, M.D., FACS, FAAEM
Environmental Health Center-Dallas

Once one understands that the extracellular matrix, and the rest of the ground regulation system, is an open-ended dynamic dissipative energy system that controls homeostasis and is part of every defense and inflammatory reaction, one can then devise numerous therapies to influence this environmental receptor system. The therapies fall in general categories to correct acidity, lack of oxygen, nutritional deficits or excesses, decrease or eliminate nonenzymatic glycolysis, by fasting or avoidance or pollutants, bacteria, viral, fungal, or parasitic load and to reorder the electrical aspects of the system directly.

These therapeutic modalities include therapies such as alkalization, electrolyte replacement, oxygen administration, nutritional supplementation (including herbs), fasting, pollutant avoidance, heat depuration and physical therapy, osteopathic manipulation (including cranial manipulation), acupuncture, homeopathic (injection therapy, foods, biological inhalants, chemicals, and scars), energy equalization.

It is clear from the therapeutic standpoint that in the very mild patient one of those modalities may work, but in the more severe patient many of these modalities may have to be used simultaneously or sequentially. It is clear that in order to obtain and maintain a healthy, lasting, energetic lifestyle, the general principles of environmental medicine must be constantly used and practiced.

"Bioelectricity and Environmental Medicine"

Cyril W. Smith, PhD
Salford University Business Services Ltd.
P.O. Box 50, Salford M6 6BY, England

Patients with existing chemical sensitivities may, in addition, acquire sensitivities (inappropriate responses) to their electromagnetic environment. In general, the same symptoms are triggered by either stimulus. The effects first appear as a malfunction of some part of the autonomic nervous system, hence the widely ranging symptoms encountered. Frequency is the prime factor. The intensity is of less importance once some patient specific threshold is exceeded. Diagnosis may be carried out by challenging the patient with frequencies in a controlled electromagnetic environment that is chemical and particle "clean." Alternatively, for patients who are too sensitive to tolerate this, the patient can imprint the body field into water by succussing a glass tube of water against a wooden surface. The frequencies can subsequently be measured in the absence of the patient. The method of treating chemical sensitivity by neutralization with an appropriate serial dilution of allergen has been adapted to electromagnetic sensitivity treatment with the appropriate frequency being imprinted into water by the process of succussion in a magnetic field oscillating at the frequency. The process of adaptation determines when an effect may become a hazard. This work, ongoing since 1982, points to factors and synergistics necessary for a healthy chemical and electrical environment.

"Towards Understanding Living Biomagnetophotoelectrochemical Systems"

William A. Tiller Stanford University

We all know what constitutes a chemical system and perhaps how thermodynamics and reaction kinetics govern both the types of changes that can take place and how rapidly they will occur. Some of us even know how to incorporate electric field effects in order to convert a chemical potential into an electrochemical potential but then things start to get fuzzy for us and it is difficult to grasp the "larger" picture to see how to incorporate

photonic and magnetic effects into a purely physical picture; to see how to expand the purely physical description in order to include the effects of emotion, mind, and spirit; and to see what differentiates a dead biosystem from a live biosystem. Since this larger perspective is important for us to appreciate, even though our cognitive systems presently limit most of us to an awareness of only the physical band of reality, I will sketch in this lecture how these higher bands of reality can produce forces that drive the physical processes in our bodies. I will show how the subtle energies of these higher dimensional domains produce correlates beyond today's purely physical medical model to one more appropriate for future medical therapeutics.

"Results of Dynamic Diagnostics Consequences for the Treatment of Chronic Diseases"

U.G. Randoll
Department of Traumatology
University of Erlangen/Nuremberg Krankenhausstrasse 12, 91054 Erlangen

A. Scheller
Leonardis Fachklinik, Albstrasse 9
70806 Kornwestheim

F.F. Hennig
Department of Traumatology
University of Erlangen/Nuremberg
Krankenhausstrasse 12, 91054 Erlangen

Supported by:

Society for Biological Cancer Defense, Heidelberg
Merz +Co.GmbH & Co. Frankfurt am Main
CMRT, Berlin

Corresponding to the insight gained from this viewpoint (Cell-Matrix and Cells Field and Rhythm-Structures of Life), the apt objective is to identify such bodily-intrinsic organizers and use them therapeutically. This therapeutic goal, therefore, is to regenerate and stabilize the basic autonomic rhythm of the organism and/or to change the amplitude and frequency values of the nutritional-flow density at the locality of the body's cells (the cell matrix) in such a manner as to exclude an existence of deterministic chaos.

Circulation of blood is sustained by the heart and the peripheral muscles. By microcirculation through terminal vessels, it feeds the connective tissue that is in close contact with the nervous and lymphatic system.

The metabolism of every cell of the human body runs via the connective tissue. That means the transport of oxygen and other nutrients as well as the products of metabolism.

This flowing equilibrium, which sustains cell life, must be able to adapt to the required extend of performance. In this, several control processes work together in a complex cybernetic system, for instance, the pH and temperature regulation. If backups in any direction in this supply and transport occur, unspecified functional or structural disorders will result, effecting the muscles, bones, vessels, and nerves.

Ultimately, all bodily structures that recognize electromagnetic, chemical, or mechanical rhythms are to be considered organizers of that organism.

On the example of the skeletal musculature, viewed as a neuromyogenous, rhythmic structure (and, with 40% of the entire bodily mass, the largest organ of the body as well), the mode of action of matrix-rhythm therapy is first theoretically developed, then introduced in actual application.

MRT is understood as the mechanical coupling of specific vibrations to the neuromuscular system under modulation of amplitude and frequency. Neighboring structures such as bones and inner organs are stimulated as well to equalize functional defects.

This new approach for matrix therapy has meanwhile found application in pro sports and in clinical therapy of the most varied diseases of the nervous, vessel, and motion system. Different clinical cases will be demonstrated.

"Cell-Matrix and Cells Field and Rhythm Structures of Life"

U.G. Randoll
Department of Traumatology
University of Erlangen/Nuremberg Krankenhausstrasse 12, 91054 Erlangen

A. Scheller
Leonardis Fachklinik, Albstrasse 9
70806 Kornwestheim

F.F. Hennig
Department of Traumatology
University of Erlangen/Nuremberg
Krankenhausstrasse 12, 91054 Erlangen

Supported by:

Society for Biological Cancer Defense,
Heidelberg Merz +Co.GmbH & Co.
Frankfurt am Main
CMRT, Berlin

This study applies recent concepts from the fields of cybernetics, synergetics, and nonlinear thermodynamics of irreversible processes to bioscientific problems in

medicine. These concepts proceed on the presumption of the existence of universal space-time structures.

Within the field of medicine, this above all allows previously neglected temporal structures to regain their original significance. Rhythmic, temporal processes in the realms of substance concentration and enzymatic activity influence the physiological events occurring within the body in an organizational manner. When such time-based sequences undergo chaotic mutation, they lose these organizing properties.

Each cell of a human body gains its vitality by its characteristic environment. This cell milieu is partly discernible through biochemical and biophysical parameters (osmolarity, acid-base content, dielectric properties, degree of ionization of particular ions, susceptibility, temperature). Stimuli, especially, change the pH of the environment and demonstrate threshold effects like reversible and nonreversible changes of intercellular and intracellular morphology. Microscopically normal cell growth, as well as cellular threshold reactions in response to and as a result of molecular biophysical and biochemical processes that proceed according to nonlinear dynamics, have been recorded on-line.

From a cybernetic, control-technical aspect, chronic illnesses are discussed as conditions of decompensated regulatory mechanisms that occur subsequent to threshold-value reactions at micro levels. They are the consequences of phasic transition due to processes of adaptation to a chronically altered milieu or function, the ultimate result of which is the loss of temporal-rhythmic organization, i.e., chaotic mutation of cellular dynamics. Thus, chronic diseases are "dynamic diseases."

The question is, if these artificial effects represent disregulations, or adaptations to a disturbed environment, we can really find in chronic diseases like tumor or osteoporosis.

"Environmental, Infection, and Heavy Metal Analysis in over 300 Patients"

Professor Dr. Med. D.G.S. Thilo-Korner
Euro-Med-Clinic

Goal/objectives:

Data from over 300 outpatients on environmental (PCP, PCB, HCB, HCH), infections (salmonella, shigella, yersinia, candida), and heavy metal (aluminum, selenium, copper, zinc, lead) analysis are presented in order to demonstrate the distributions of the multifactorial load on the basic regulation system.

Conclusions:

Standard blood analysis may induce misjudgment in the finding of the causes in chronic diseases. Reducing the multifactorial load to the basic regulation system with, for example, phytotherapeutics and other remedies, may reduce the progression into chronic

diseases.

"The Causes and Cures of Breast Cancer"

Sherry A. Rogers, M.D.
Northeast Center for Environmental Medicine

Breast cancer has reached epidemic proportions, affecting one in nine women, with 300,000 new cases each year. The causes are multi-factorial and can include anything a solo dose of a chemical, pesticides that mimic estrogens, genetic predisposition, nutrient status, dietary factors such as fat and vegetable content, and more. The current treatment consists of chemotherapy, radiation, surgery, and bone marrow transplants.

The problem is that all of these are expensive and serve to lower the already compromised nutrient status, and can initiate cancer themselves. For example, tamoxifen, used in thousands of women in over 133 random trials over the world, has been declared a carcinogen by the World Health Organization. There is no guaranteed cure.

Prevention has included phytochemicals, diet, environmental controls, and nutrients. Redifferentiation or regression of cancers has been accomplished with nutrients, diets, environmental controls, a dedicated spirituality, detoxification procedures, and phytochemicals, as well as compounds synthesized by the body. The interesting thing is that many of these modalities also play a role in aiding the functions of the xenobiotic detoxification pathways. Many autobiographies detail success with these modalities (Frahm, Austin, Greenfield, Nussbaum, Faid, Day) and case reports in the scientific literature (Carter, Folkers).

It seems logical to collate all of this information in order to orchestrate a nontoxic treatment plan for those who would like to explore this route.

References:

Over 1,000 references on various aspects of the program can be found by contacting Sand Key Publishing, Box 40101, Sarasota, FL 34242 (1-800-846-6687) and obtaining the following works:

Rogers, S.A. *The Cure Is in the Kitchen*. Sarasota, FL: Sand Key Publishing.
Rogers, S.A. *Depression Cured at Last*. Sarasota, FL: Sand Key Publishing.
Rogers, S.A. *Health Letter*. Sarasota, FL: Sand Key Publishing.
Rogers, S.A. *Wellness against All Odds*. Sarasota, FL: Sand Key Publishing.

"Brain SPECT and Neurotoxicity"

Theodore R. Simon
Advanced Metabolic Imaging, North Dallas

Cynthia Fincher, PhD
Regent University

E.H. Harrell, PhD
University of North Texas

William J. Rea, M.D.
Environmental Health Center-Dallas

Alfred Johnson, D.O.
Environmental Health Center-Dallas

Gerald Ross, M.D.
Environmental Health Center-Dallas

David C. Hickey, M.D.
Advanced Metabolic Imaging, North Texas

Objective measures were tested for the pattern of neurotoxicity seen in single photon emission computed tomography (SPECT) of the brain using HMPaO as a functional tracer. Blind analysis of 56 examinations of normal control subjects and patients with toxic reactions were performed. The patients included Gulf War Veterans and those specifically exposed to organic solvents, pesticides, or petroleum. These findings addressed the four cardinal signs of the neurotoxic pattern: mismatch between the early and late phase images, redistribution to the soft tissues, salt-and-pepper appearing inhomogeneity of tracer distribution in the cerebral cortex, and temporal asymmetry. In addition to accuracy, sensitivity, and specificity, the analysis used receiver operator characteristic curves to gauge the certainty and relative contributions of the pattern components. Objective lobar tracer activity data were also used to establish indices nearly independent of operator intervention. These measures are also useful in systematizing a longitudinal evaluation of a patient through therapeutic regimens.

"The Emerging Digital Biology"

Jacques Benveniste
Digital Biology Laboratory
32 rue des Carnets
F-92140 Clamart

Our current research is the sequel to earlier investigations that circumscribed what has been dubbed "the memory of water." In the first phase of our work, we observed, in

collaboration with a team from the French state scientific research organization, the CNRS, that activities associated with high dilutions but not the original molecules could be destroyed by an alternating magnetic field. This result indicated that molecular information was probably electromagnetic in nature. We therefore attempted successfully in some hundreds of experiments the transmission (by means of an amplifier) of specific molecular activity to water in sealed vials. We, thus, "transmitted" more than thirty substances, including acetylcholine, histamine, serotonin, paf-acether, bacterial endotoxins, ovalbumin, the antigenic activity of BCG, potassium cyanide, etc. We also transmitted, directly, without using water as the intermediate carrier, the activities of adrenalin, forskolin, and PMA to leukocytes and cell-lines. These results reveal not only the existence but the electromagnetic nature of the hitherto ignored molecular message. This message is then "memorized" by polarized water, probably a universal physiological phenomenon that facilitates the in vivo transmission of the molecular signal. Homeopathic practice is based upon the empirical observation of this fact. For 18 months we have been recording these specific biological activities on computer discs. When replayed to water, this digitized molecular signal has the same effect as digitization, modification, and transmission via telephone links. These results could transform biology and medicine and, more generally, permit the real-time detection and electromagnetic fields on living matter, thus permitting preventive and reparative legislation in this controversial domain.

"Chronic Diseases Induced by Toxins"

William J. Meggs, M.D., PhD
East Carolina University

A number of diseases are increasing in prevalence and incidence in contemporary societies, and chronic diseases can develop after exposure to a toxin and persist after removal from the toxin. It is of vital importance to the public health to understand and identify those diseases that may result from environmental toxins, in order to prevent the development of these diseases. Categories of chronic diseases that can be induced by toxins include: (1) inflammatory conditions, including atopy, collagen vascular diseases, urticaria, asthma, and rhinitis; (2) psychiatric diseases, including depression and schizophrenia; (3) neurological diseases, including neuropsychiatric disability, Parkinson's syndrome, peripheral neuropathy, and paralysis; (4) cancer, including lung cancer, nasal cancer, leukemia, and lymphoma; (5) cardiovascular diseases; and (6) birth defects. Epidemiology of contemporary disease epidemics related to toxins will be discussed, as well as mechanisms by which toxic exposures can produce chronic inflammatory diseases.

"Mitochondrial Function, Cellular Energetics, and Ascorbate Salvage: Common Links in Chronic Autoimmune Disease between Detoxication Competence, Respiratory Quotient, Energy Production, and Electron Flow"

Russell M. Jaffe, Fellow
Health Studies Collegium
Reston, VA
Director, Serammune Physicians Lab
Reston, VA

Mitochondria manufacture ATP and similar energetic chemicals necessary for cellular function by transducing hydrogen ions and energetic electrons. Concomitantly, certain families of toxins are rendered less lethal and more soluble for easier, safe removal by the kidneys. This marvel of bioengineering invaded eukaryotic cells eons ago. Mitochondrial proliferation is controlled by its own DNA complement. Thus, environmental toxins (xenobiotics) may selectively inhibit mitochondrial DNA enzymes or selectively oxidize or modify the basic purines and pyrimidines used to make new mitochondrial DNA. Similarly, such toxicants may competitively or noncompetitively uncouple the delicate cytochrome-ubiquinone (coenzyme Q10) electron transport shuttle.

In this presentation, the following classes of xenobiotics will be reviewed for their toxic and immunotoxic effects:

1. Toxic minerals: lead, mercury, cadmium, arsenic, nickel, etc.
2. Halogenated aliphatics: chloroform, trichloroethylene, methylene chloride, biocides, etc.
3. Cyclic and heterocyclic compounds: benzene, toluene, xylene, saponins, sterols, etc.
4. Oxidants and related preservatives: sulfite, benzoate, nitrite, bromates, etc.
5. Pharmaceuticals: active medication and collateral ingredients (colorants, binders, etc.)

Possibly synergies of toxicants will be presented. Therapeutic insights and treatment guidelines in restoring, maintaining, and salvaging mitochondria will be included. Electron donors that can "by-pass" or circumvent a "short circuit" in the mitochondrial electron transport chain can salvage or sustain these energy power plants during toxic times. Ascorbate, above 5 mg/dl, in plasma appears able to preserve mitochondria while enhancing, first, electron flow and ATP formation and, subsequently, helping restore mitochondrial order and function. This work is consistent with the recent model of self-organizing systems by Kaufman et al. of Sante Fe Institute. Case studies will be presented to illustrate the application of this work in clinical practice.

"Long-Term Follow-up on Electromagnetically Sensitive Patients"

Gerald H. Ross, M.D.
Environmental Health Center-Dallas

While investigations continue on the prevalence and the initiating factors for electromagnetic field sensitivity, several kinds of treatment modalities have been developed that appear to be of help for these patients. Often the frequencies of the field fluctuations appear to be more important in the triggering of symptoms than the strength of those fields themselves.

These therapies represent the philosophical approaches of a wide spectrum of health disciplines, from conventional medicine to acupuncture, homeopathy, naturopathy, physical therapy, mind-body or energy medicine and many others. Some of those modalities that have been used to try to help patients at the Environmental Health Center-Dallas (EHC-D) will be reviewed and information presented on the long-term follow-up of selected EHC-D patients who have been identified as being EMF sensitive.

Some important interventions that have been helpful include the following:

1. The general lowering of the patient's total load, by appropriate investigations of food and chemical and other sensitivities, with appropriate environmental and dietary changes.
2. Nutritional investigation and support (for example, many EMF-sensitive patients are found to be magnesium depleted and feel less reactive when treated with Mg).
3. Reasonable avoidance of major sources of EMF fields, like computers, power lines, motorized equipment.
4. Assessment of the strength and orientation of the static and electromagnetic fields in the patient's home and place of work.
5. Sleep with the head of the patient to magnetic north or south, not east or west.
6. Patients often feel better near a large body of water, like a lake or the ocean, or near running water like a swiftly moving river or a fountain.
7. Patients should try to ground themselves each day by means of direct contact with the earth with their bare feet where possible.
8. Patients may be evaluated for the best EM frequencies that appear to be stabilizing, and carry water with them that has been imprinted with these frequencies. Personal battery-powered EMF generators operating at specific frequencies may also help.
9. Body field normalization and enhancement of energy flow with (1) therapeutic touch, (2) acupuncture, or (3) homeopathy.

"Heightened Sensitivity"

Roy A. Fox, M.D., FRCPC NS
Environmental Health Centre
Dalhousie University

A uniform approach to intradermal testing for all patients referred to the NSEHC has been operative for the last year. Inhalants, including dust, animal danders, pollens, and mold mixes, have been tested by Serial Dilution End Point Titration. Because of the controversy surrounding testing for chemicals and foods, a double-blind, placebo-controlled approach to provocation neutralization (PN) testing has been adopted. A panel of 26 items, which are randomly allocated and includes four saline controls, thirteen

foods, and nine chemicals, has been used throughout the last year. The results thus far have led to the formulation of hypotheses concerning the etiology of chemical sensitivity and have led to the development of an algorithmic approach to testing. Further study will reveal whether this is a more accurate, time-saving, and cost-effective approach. It is recognized that each patient is unique and that there are manifest differences in biotransformation, immunological responsiveness and other physiological processes. Nevertheless, it appears likely that many patients share certain characteristics, and it is postulated that three major groups can be identified.

1. Allergy

These patients appear to be accurate in their wheal formation and provocation of symptoms. Because whealing provides an accurate end point, fractionation to determine a neutralization point appears to be unnecessary. Allergy may be long-standing problem for these patients with recent exacerbation, often secondary to chemical exposure. They appear to respond well to desensitization techniques. The clinical picture is not dominated by chemical sensitivity.

2. Chemical Sensitivity

This is the largest group, and chemical sensitivity dominates the clinical picture. Some of these patients also have classic allergies. The clinical features include upper airways dysfunction, laryngeal dysfunction, reactive airways, gastrointestinal dysfunction, interstitial cystitis, skin irritation, urticaria, and vasomotor instability. The most severe cases appear to have chemically induced (nonimmunological) anaphylaxis. Although many of these patients have some of the features of Toxic Brain syndrome, the environmentally induced dysfunction of the other organ systems dominates the clinical picture. Patients in this group respond to a wide variety of environmental triggers, but the immune dysfunction appears to be chemically mediated and nonimmunological. It appears likely that there is a lowered threshold for neurogenic inflammation.

3. Heightened Sensitivity

PN is not a valid technique for these patients, and we can identify a group that appears to be in a state of heightened sensitivity. Symptoms of dysfunction can be provoked by control or test items. The dysfunction most commonly observed is nervous system with the features of environmental encephalopathy (toxic brain syndrome) and vasomotor instability. A small group, the universal reactors, also react by wheal formation to control injections. The patients in this group appear to be in a state of arousal or of lowered threshold to sensory excitation, and the universal reactors have lowered thresholds for neurogenic inflammation. Furthermore, the threshold for neuronal excitation appears to fluctuate, and we postulate that many factors contribute to this (Total Load). This fluctuation gives the appearance of random or chance response to whatever is being tested at the time, thus invalidating P/N as a testing technique. If this is the case, then it appears that exhaustive testing might aggravate the symptoms. Clinical experience has revealed a small group of individuals who claim to have been made worse by testing and attempted neutralization.

The nervous system abnormalities that dominate the clinical picture of those with heightened sensitivity are likely to be important in the pathogenesis of all of these types of environmental illness. The separation into groups appears to be important for purposes of testing with accuracy. A simple screening procedure with controls and test items that is appropriately blinded will allow the early recognition of those with heightened sensitivity. In the patients with classical allergies, standard immunological tests are likely to be most useful, and in the remainder where chemical sensitivity dominates, P/N can be used most effectively.

The state of heightened sensitivity seems to affect all levels of the nervous system and all aspects of an individual's make-up. It is unlikely that there is a single lesion that will account for such a change, and these observations lead to the suggestion that there are widespread changes within the nervous system. Aldous Huxley proposed that the main function of the brain is to act as a reducing valve, allowing consciousness to focus on limited data essential for survival. He explored the loss of the reducing valve effect by the use of psychoactive substances, usually at very low concentrations. It is likely that in chemical sensitivity there are major changes in the nervous system, including the loss of the reducing valve effect. There is increased input from the special senses and from the peripheral receptors of the sensory nervous system with their lowered thresholds. This constant excitation leads to an overloaded situation, a state of arousal or imbalance of the excitatory and inhibitory neurotransmitters. If this is so, then early identification would limit further testing, which might aggravate the condition and would allow therapy to be more appropriately directed. It is clear why the environmental medical approach with environmental clean up, clean water, clean, whole food, and avoidance of all stressors has helped so many. A clearer identification of the heightened sensitivity group should allow a further improvement in therapy and an avoidance of approaches that are costly and in the long run ineffective. Protecting the unshielded consciousness by limiting the excitation of the nervous system appears to be an important consideration in the holistic treatment of these patients.

"Effects of Electromagnetic Waves on Mice Lens"

Mikio Miyata, M.D., Toshiya Tomioka, M.D., Nagafumi Hatono, M.D.,
Hiroyuki Nishimoto, M.D., Tatsuto Namba, M.D., Satoshi Ishikawa, M.D.
Department of Ophthalmology
School of Medicine, Kitasato University
1-15-1 Kitasato Sagamihara, Kanagawa 228
Japan

Shigekazu Uga, PhD
Department of Orthoptics and Visual Science
School of Allied Health Sciences, Kitasato University
1-15-1 Kitasato Sagamihara, Kanagawa 228
Japan

Introduction

We proposed previously that the electromagnetic waves (EMW) induced the corneal epithelial injury. To examine the effects of EMW on eyes in detail, we have investigated the contents of various substances in lens from mice after the long-term exposure to low frequency EMW.

Methods

Male BALB/c mice were exposed to 100 kHz of EMW for 1, 2, 3, and 6 months. After exposure lens were surgically removed from the eye balls and the contents of sodium, potassium, and calcium were measured with atomic absorption analyzer. According to Saxena's protocol, the content of glutathione was also measured.

Results

Two months' exposure increased the contents of sodium, but six months' exposure did not. The content of potassium did not change after exposure. The level of calcium decreased after one to two months' exposure, but it increased after three to six months' exposure. Glutathione was reduced significantly after six months' exposure. Histologically, the Bow structure was disorganized. In the anterior cortex, the degenerating and swelling fibers were observed.

Discussion

These results suggest that EMW affects the metabolism of lens. The alteration of the metabolic state may lead to cataract development. Protecting the eyes from EMW may become a form of preventing eye disease in the future.

"Application of Magnetic Field (MF) in Medicine in Russia"

G. Markarov Hospital 83, P.O.B. 53
Moscow 115598, Russia

Introduction

Millions of patients had undergone MF-therapy in Russia during long time.

Objective

To review the clinical application of MF in Russia, to discuss the mechanisms of MF effects and the sanitary and hygienic aspects of using MF.

Materials/Methods

Ten years of experience in application of MF-therapy in Russia were presented. Special attention was allotted to biotropic parameters of MF(1). The optimizing MF doses in the treatment of different diseases were shown. The dependence of choosing MF parameters were stated (intensity, gradient, vector, wave form, exposure) upon stage and activity of diseases of patients with different pathology (cardiac, rheumatic, vessel disorders, etc.). Much of magneto- and manetolaser-therapy devices were used in the treatment: Magnetizer, Bimp, Mag-30, Lama, and Isel-Victoria.

Results/Discussions

The use of MF in the treatment complexes showed the decrease of activity of pathology processes in different patients. The high effectiveness for MF therapy was noted in sport, extremal medicine. The dependence of MF dosing upon nosology, stage, activity of disease was established. It was shown that the effectiveness of low intensity MF application (1-10 mT1) in subacute processes (19-40 mT1) in chronic processes of illness. The positive haemodynamic, rheologic changes were stated under the MF-therapy. Free radical, biochemical reactions regulation were noted under MF effect in patients. The using vortical MF in cancer patients showed the regulation of lipid peroxidation under the MF effect.

Conclusion

MF-therapy is used widely in Russia and increases the effectiveness of drug therapy of the treatment complex inpatients. The use of MF in oncology patients is studied.

Reference

Jukov, B. Nonionization radiation in flebology. Russia, 1985. 14-34.

"Neurocognitive Relationships between a Comprehensive Neuropsychological Battery and a Neuropsychological Test Developed on Chemically Sensitive Patients"

Nancy A. Didriksen, PhD
Health Psychology/Behavioral Medicine Associates
Richardson, TX

Ernest H. Harrell, PhD
University of North Texas
Denton, TX

Joel R. Butler, PhD
Environmental Health Psychologists
Dewey, OK

The purpose of this study was to determine the utility of a brief but comprehensive neuropsychological screening instrument to be used in identifying and defining deficits and problems in brain function particularly those which interfere with daily living or treatment progress. An extended purpose was to measure the accuracy of test results by correlational technique that would show the extent of agreement between the screening instrument and a widely used comprehensive neuropsychological test battery with high reliability and validity.

The subjects were sixteen individuals with a confirmed diagnosis of multiple chemical sensitivity. The procedure was to administer the Halstead-Reitan Batter (HRB) and the Harrell-Butler Comprehensive Neuropsychological Screen (H-B CNS) to all subjects

under standardized conditions. The General Neuropsychological Deficit Scale (GNDS), the global measure of brain dysfunction, of the HRB was correlated with the Harrell-Butler CNS global score. This statistical analysis demonstrated high and consistent agreement between the findings of the Halstead-Reitan Battery and the Harrell-Butler Screen.

The H-B CNS was developed and standardized on a population of chemically sensitive patients. Since these patients typically show some neurocognitive deficits, it appears useful to identify the extent of such deficits and problem behaviors, as well as to define the specific content or kind of neurocognitive dysfunction. Therefore, a reliable screening instrument should be helpful in the treatment of patients, as well as determining the necessity of a referral for a more comprehensive neuropsychological assessment or for neurological studies.

"Electromagnetic Field Interactions with Living Tissue: Mechanisms and Applications"

Kenneth J. McLeod, PhD
Musculo-Skeletal Research Laboratory
Dept. Of Orthopaedics, Physiology & Biophysics
State University of New York at Sony Brook

The living organism is a self-assembled entity that relies on electro-chemical processes to direct its organization and maintenance. As such, it should be expected that electric fields, either arising endogenously or induced exogenously, will alter the characteristics of tissue development, adaptation, and healing. Indeed, there is abundant *in vivo* and *in vitro* evidence to support this presumption. Perhaps the best established and most consistent examples of low-level, low-frequency electromagnetic field effects on biological tissues are their influence on bone fracture healing, bone adaptation, and bone cell activity.

Over the last decade much of our research effort has been directed toward understanding how low frequency EMFs are capable of such profound influences on bone tissue. Our work has led to the principal observation that the response of bone tissue to EMF is actually to the electric field that is induced within the tissue and not to the imposed magnetic fields. Nonetheless, the magnitude of induced electric fields capable of significantly affecting bone tissue is remarkably small. Field intensities of only one microvolt per centimeter, 100 times smaller than the fields generated by the contracting heart (EKG) and at least ten times smaller than fields associated with the electrical activity of the brain (EEG), can inhibit bone resorption (osteoporosis) as well as stimulate new bone formation. Importantly, *in vitro* studies confirm this remarkable sensitivity of skeletal cells to their electrical environment and suggest that the mechanism of electric field interaction with the cells is through the cell adhesion process.

By elucidating the physical mechanisms through which electric field effects occur in biological tissues, the specific tissues and conditions where these effects will be most pronounced can be identified. In so doing, the beneficial effects can be productively utilized, and any potentially detrimental effects mitigated.

"Chemical Sensitivity: Enhancement of Diagnostic Criteria By Multivariate-Cluster Analysis"

Susan F. Franks, PhD
University of North Texas Health Science Center
Fort Worth, TX

Ernest H. Harrell, PhD
University of North Texas
Denton, TX

Joel R. Butler, PhD
Environmental Health Psychologists
Dewey, OK

The goal of this study was to enhance the diagnostic criteria for defining environmental illness as a unique syndrome. A group of 250 patients of various diagnostic groups (systemic lupus erythematosus, multiple sclerosis, psychiatric illness, and presumptive environmental illness) were assessed using an objective assessment technique Clinical/Environmental Differentials Analysis (CEDA) for self-reported symptoms. Data from the CEDA were analyzed using multivariate statistical techniques to group subjects based on distinct clusters of symptoms. Base-rates of the defining symptom cluster for environmental illness was compared to a matched cohort of normative subjects to establish its distinctiveness as a unique syndrome within the population.

The ability of this symptom cluster to discriminate environmental illness from other diagnostic groups was validated using discriminant analysis techniques.

Results suggest the application of similar statistical techniques for analyzing other objective (e.g., laboratory) data obtained on these patients to provide more comprehensive diagnostic criteria for defining environmental illness.

"Some Physical Domain Correlates of Subtle Energy Actions"

William A. Tiller
Stanford University

This lecture is mainly a slide-show providing robust correlates of subtle energy events manifesting in the physical band of reality. Three experiments will be briefly touched upon the time available:

1. The first experiment utilized a man who exhibited the remarkable ability to "sensitize" a standard Kodak camera so that regular film and regular processing would reveal totally unexpected phenomena, e.g., a dual camera experiment (one unsensitized and one sensitized), with both cameras fastened to a single tripod and with a single shutter release, showed partially transparent humans through which one could see objects on the wall behind them, etc.
2. The second experiment involved a special gas discharge device, about the size of a regular sandwich, that was responsive to subtle energies emitted by humans. These energies were revealed by gas in the device. It was found that, with an identical experimental protocol, except for the intentionality of the subject the energy could be mentally directed either into the device to cause an increase in counting rate or away from the device so that no change in counting rate occurred. No weak signal statistics were needed.
3. Monitoring the ear potential of a healer during a 30-minute simulated healing session in a special experimental environment revealed sixteen anomalously large recorded voltage surges (30-200 volts with 0.1-10 second relaxation times). Via theoretical modeling, it was found that these voltage surges were physical level correlates associated with subtle energy bursts, largely from the abdominal region of the healer. It was further found that the body can readily deliver the electric currents needed to manifest such large voltage surges.

"The Autonomic Assessment Report"

Rollin McCraty, MA
HeartMath Research Center, Institute of HeartMath

Alan Watkins, M.D.
Dept. Of University of Medicine
Southampton General Hospital

The HeartMath Research Center, based at the institute of HeartMath (IHM) in Boulder Creek, CA, has developed a sophisticated tool for quantifying autonomic function called the Autonomic Assessment Report (AAR). The aims of the AAR are (1) to provide physicians with a new, powerful, noninvasive test that quantifies autonomic function and balance and aids in risk stratification, (2) to offer researchers a test that can validate the effects of their interventions on autonomic function, and (3) to generate data that will allow the autonomic profiles in a number of pathological conditions to be more fully characterized. The AAR is derived from 24-hour ambulatory ECG (Holter) recordings and is based on analysis of heart rate variability (HRV), which provides a unique window into the interactions of sympathetic and parasympathetic control of the heart. The report includes time domain, frequency domain, and circadian rhythm analysis, which together constitute a comprehensive analysis of autonomic activity, balance, and rhythms. Time domain measures include the mean normal-to-normal (NN) intervals during a 24-hour

recording and statistical measures of the variance between NN intervals. Power spectral density analysis is used to assess how power is distributed as a function of frequency, providing a means to quantify autonomic balance at any given point in the 24-hour period, as well as to chart the circadian rhythms of the different branches of the autonomic nervous system.

Autonomic imbalances have been implicated in a wide variety of pathologies, including depression, fatigue, premenstrual syndrome, hypertension, diabetes mellitus, ischemic heart disease, coronary heart disease, and environmental sensitivity. Stress and emotional states have been shown to affect autonomic function dramatically. Self-management techniques, which enable individuals to gain greater control of their mental and emotional stress and improve their sympathovagal balance, can significantly impact a wide variety of disorders in which autonomic imbalance plays a role. Clinical examples of HRV measures from patients with various symptoms are presented and several examples of patients, who were able to improve significantly their autonomic balance, symptomatology, and psychological well-being through training and practice in emotional management are discussed.

"The Importance of the Integrative Medicine' (IM) in Daily Patient Care and in Chronic Disease Development"

D.G.S. Thilo-Korner, Professor Dr. med.
EURO-MED-CLINIC

Goal/objectives

Because we do not know of alternative disease, we do not need a so-called "alternative" or "complementary medicine" in opposition to "university medicine." We need only medicine in which available knowledge from traditional and modern scientific medicine is integrated without dogmatic borders in the daily patient care. Therefore, I developed the concept of IM in which the daily integration is practiced.

The analysis of the ground and basic regulation system with, for example, biophysical methods, will be demonstrated and integrated in the diagnosis. It will be combined with the results from various blood analysis (environmental, infections, heavy metals).

Conclusion

Medical care and treatment consists of the integrated combination of the analysis of the biophysical, biochemical, psychological, and morphological alterations in patients. Regulation blockades of the ground regulation system have to be released in order to prevent progression, especially into chronic diseases.

"The Effect of Varied Chemicals and Electromagnetic Fields on the Cell Cycle"

Bertie B. Griffiths, PhD

Environmental Health Center-Dallas

Director of the EHC-Dallas Analytical Laboratory

Ongoing research indicates that human peripheral lymphocytes will respond in vitro to multiple incitants. In the present study, peripheral lymphocytes are cultured and challenged with varied organo-chemicals and electromagnetic fields. Results will be presented as to the blastogenic flow cytometrically.

"The Clinical Presentation of Patients with EMF Hypersensitivity"

Gerald H. Ross, MD

Environmental Health Center-Dallas

Dallas, TX

Increasing attention is being focused on the issue of electromagnetic influences on health. For the first time in the natural history of mankind, we are surrounding ourselves with artificial, manmade EM fields, the long-term effects of which we still know very little. Indeed, the last 100 years have produced a sudden explosion of scientific breakthroughs, followed by inventions and processes that have led to a significant change in our "electromagnetic milieu."

In parallel with the rise of chemical sensitivity and classical allergy, increasing numbers of patients are reporting that they suffer adverse effects from exposures to commonly encountered electromagnetic fields. Previous work about the investigation of this phenomenon has been reported by the Environmental Health Center-Dallas (EHC-D).¹

A computerized search of the diagnostic records of the EHC-D for the three years ending November 1996 was undertaken to find the records of patients who were diagnosed by the EHC-D physicians as suffering from Electromagnetic Field (EMF) sensitivity. This diagnosis was based on a combination of the patient history, physical examination, electrodiagnostic testing, autonomic neurological function, and other modalities.

There were 47 patients who were identified in this manner who were chosen for chart review. Four patients were found to have inadequate data or were lost to follow up, leaving 43 patients in the study group. There were 7 men and 36 women, with an average of 43.4 years (16% males, 84% females).

Symptom frequencies were examined and will be presented for the categories of (1) headache, (2) fatigue, (3) numbness or tingling, (4) palpitations, (5) muscle pain or spasm, (6) confusion or change of level of consciousness, (7) asthma or shortness of breath, and (8) dizziness or postural imbalance among these patients.

In addition, data was collected about the findings on several investigations, including postural testing, EMF challenge testing, intracellular minerals, hair mineral analysis, pupillography, the presence and number of amalgam dental fillings, brain metabolic SPECT scanning, the presence of chemicals in the classes of PCBs, chlorinated pesticides, volatile aromatic, chlorinated, and aliphatic solvents. Finally, data will also be presented about the electromagnetic exposure history of these patients (for example, power lines, etc.), and the types of exposure that they identify as usually triggering symptoms.

In our experience, there is a close connection between the phenomenon of EMF sensitivity and heightened reactivity to other factors of the patient's environment, especially chemical sensitivity. Rarely do we see a patient who has EMF sensitivity, who does not also report some features of chemical sensitivity or complex food or inhalant sensitivities. In the overwhelming number of patients, neurological symptoms seem to predominate.