

SYMPOSIUM PURPOSE

Since 1981, American Environmental Health Foundation (AEHF) has sponsored twenty-eight International Symposiums. These conferences are recognized as one of the most advanced in medicine, forming the world, addressing the research and treatment of environmental effects on health and disease. The 2010 conference will focus on "The Chemical Mechanisms Leading to EMF Sensitivity". This Conference presents the most current information available while providing guidelines to identify, diagnose, treatment and to prevent environmentally triggered responses in the body.

GOALS OF THE MEETING

- To provide new insights into the mechanisms and the environmental causes behind many problems seen by the physician.
- To present new diagnostic and treatment modalities to help improve the quality of care for your complex patients.
- To provide concepts, tools that will enhance the physician's practice.

OBJECTIVES OF THE MEETING

- Provide a thorough understanding of EMF Sensitivity.
- Use new concepts and treatments related to EMF Sensitivity and to help better diagnose and manage patients.
- Apply the concepts of this conference to the physicians practice for the treatment of EMF Sensitivity.
- Use the information presented to enhance the effectiveness, cost-efficiency, and competitiveness in relation to EMF Sensitivity.

INTENDED AUDIENCE

M.D.=s, D.O.=s, D.D.S.'s medical students, nurses, nutritionists and other health professionals interested in the concepts and practice of Environmental Medicine, Occupational Medicine and Toxicology.

PHYSICIAN ACCREDITATION STATEMENT

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education through the joint sponsorship of The University of North Texas Health Science Center at Fort Worth Office of Professional and Continuing Education and the American Environmental Health Foundation. The University of North Texas Health Science Center at Fort Worth Office of Professional and Continuing Medical Education is accredited by the ACCME to provide continuing medical education for physicians.

PHYSICIAN CREDIT STATEMENT

The University of North Texas Health Science Center at Fort Worth designates this educational activity for a maximum of *24.5 AMA/PRA Category 1 Credits* .

The University of North Texas Health Science Center has requested that the AOA Council on Continuing Medical Education approve this program for 24.5 hours of AOA Category 2A CME credits. Approval is currently pending.

Physicians should only claim credit commensurate with the extent of their participation in the activity.

NURSING ACCREDITATION

The University of North Texas Health Science Center at Fort Worth Office of Professional and Continuing Medical Education is an approved provider of continuing nursing education by the Texas Nurses Association, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.

This activity provides 24.5 contact hours for the nurse.

SCHEDULED FACULTY

Devra L. Davis, Ph.D., MPH
Visiting Prof Prev Med, Mt. Sinai/NYC
Teton Village, WY
Founder Environmental Health Trust

Nancy A. Didriksen, Ph.D.
Private Practice
Richardson, TX,
Evaluating and treating patients with chemical/environmental sensitivities and related illnesses.

Magda Havas, Ph.D.
Environmental & Resource Studies, Trent University
Peterborough, ON Canada
Teacher and research

Kaye H. Kilburn, M.D.
President of Neuro-test, Inc
Pasadena, CA
Consultant

Colin H. Little, M.D.
Private Practice
Melbourne, Victoria, Australia
Physician & Allergist, Researcher

Andrew A. Marino, Ph.D., J.D.
LSU Health Sciences Center, Dept. Orthonopaedic Surgery
Shreveport, LA
Professor, Department of Orthopaedic Surgery

Stephanie McCarter, M.D.
Environmental Health Center-Dallas

Dallas TX
Physician

William J. Meggs, M.D., Ph.D.
Brody School of Medicine, East Carolina University
Greenville, NC
Chief of Toxicology, Professor of Emergency Medicine

Samuel Milham MD, MPH
University of Washington School of Public Health, Mt. Sinai Medical School
Olympia, WA
Retired

Jean A. Monro, M.D.
Breakspear Hospital, Hertfordshire House, Hemel Hempstead, Herts, England
Medical Director

Lisa Nagy, M.D.
Vineyard Haven, MA
President – The Preventive and Environmental Health Alliance Inc. & Founder of Comprehensive Medical

James L. Oschman, Ph.D.
Nature's Own Research Association
Dover, NH
Author and presenter of lectures and workshops on energy medicine internationally

Ron Overberg, Ph.D., C.C.N., R.D.
Environmental Health Center - Dallas
Dallas, TX
Nutritionist at Environmental Health Center - Dallas and Nutri Wellness

Martin Pall, Ph.D.
Washington State University
Portland, OR
Itinerant scientist

Kalpana D. Patel, M.D.
Allergy and Environmental Health Center - Buffalo
Buffalo, NY
Director/President of Allergy and Environmental Health Center Buffalo

Gilberto de Paula, M.D.
Alergia-Immunologia
N.S. Das Gracas, Manaus-Brazil
Medical Director of Clinic of Allergy Nutrition and Environmental Medicine In Manaus

William J. Rea, M.D.
Environmental Health Center - Dallas
Dallas, TX
Founder and President of the Environmental Health Center – Dallas and American Environmental Health Foundation

Kou Sakabe, M.D., Ph.D.
Tokai University School of Medicine
Isehara, Kanagawa, Japan
Clinical Ecologist, Environmental Toxicologist

Doug B. Seba, Ph.D.
Scientist
Alexandria, VA
Independent Marine Scientist

Theodore R. Simon, M.D.
North Texas Imaging Center
Dallas, TX
Physician

Deborah Singleton MA
Arasini Foundation/A Healing Place
Richardson, TX
President and Founder of the Arasini Foundation/A Healing Place

Cyril W. Smith, Ph.D.
Eccles, Manchester, U.K.
Retired Physicist and Author

Martha Stark, M.D.
Newton, MA
Teaching/lecture circuit and full-time Private Practice in psychiatric medicine and psychoanalysis

Arpad Szallasi, M.D.
 Monmouth Medical Center Pathology
 Long Branch, NJ
 Medical Director for the Transfusion Services

GIVEN IN COOPERATION

William J. Rea, M.D., F.A.C.S.
 Symposium Chairman,
 American Environmental Health Foundation,
 Environmental Health Center – Dallas,
 Dallas, TX

Kaye H. Kilburn, M.D.
 Consultant, President of Neuro-test, Inc.
 Pasadena, CA

William J. Meggs, M.D., Ph.D.
 Brody School of Medicine, East Carolina University
 Department of Emergency Medicine
 Greenville, NC

Doug B. Seba, Ph.D.
 Independent Marine Scientist
 Alexandria, VA

EDUCATIONAL FORMATS

- # Plenary
- # Panels Discussions
- # Case Studies
- # Question & Answer Sessions
- # Syllabus

CONFERENCE FORMAT

Speaker's presentations will last approximately 20 minutes and will be followed by a 10 minute question and answer session. (A brief outline of each speech and copies of PowerPoint presentations and/or handouts is included in this booklet.)

Each afternoon following the final presentation each faculty members that spoke during that day will be assembled for a general round table discussion. This round table session is designed for additional discussion and input from both faculty members and the conference attendees.

FINANCIAL CONSIDERATION

AEHF is a nonprofit organization that was founded in 1975 to provide education and research into Environmental Medicine. This year's Symposium is our 28th Annual International Symposium and is our major vehicle for educating the medical professional.

Funding for the symposium is provided by registration fees from physicians and exhibitors. Proceeds from the AEHF store cover the shortfall between registration fees and expenses for the conference. AEHF does not receive grants or any outside financial support for our education. Donations are accepted and used toward research into environmental medicine.

DISCLAIMER

AEHF has not altered or modified the contents of the information provided by the speakers. AEHF and the University of North Texas Health Science Center are not responsible for the contents of these presentations.

DISCLOSURE

This year's conference will be our twenty-eighth medical conferences dealing with Environmental Medicine. Each conference focuses on specific environmental factors that affect the human body. These conferences are designed to provide an open forum for discussion. It is our policy to ensure a fair and independent conference. We insist on objectivity and scientific rigor in each educational program.

This conference is jointly sponsored by the University of North Texas Health Science Center at Fort Worth. AEHF is therefore required to follow the rules and regulations of the Accreditation Council for Continuing Medical Education (ACCME). Planning committee members, faculty and employees of AEHF in control of the educational content of this CME activity must disclose all relevant financial relationships with any commercial interests within the past twelve months.

The information presented about clinical medicine must be recognized and accepted by the profession or based on evidence that is accepted within the profession as adequate justification. Each presentation must be free of commercial bias and any information regarding commercial products and/or services must be based on scientific methods generally accepted by the medical community. Faculty members must comply with the ACCME Standards for Commercial Support of CME. Speakers are required to disclose any financial interest or relationship with manufacturers or products/services discussed in their presentation(s) and on their Disclosure Information Sheet.

The following disclosure information was provided to AEHF by the individual faculty member:

Devra Davis, Ph.D., MPG, faculty member has no financial or affiliations to disclose.

Nancy A. Didriksen, Ph.D., faculty member has no financial or affiliations to disclose.

Magda Havas, Ph.D., faculty member has no financial or affiliations to disclose.

Kaye H. Kilburn, M.D., planning committee and faculty member has no financial or affiliations to disclose.

Colin H. Little, M.D., faculty member has no financial or affiliations to disclose.

Andrew A. Marino, Ph.D., J.D., faculty member has no financial or affiliations to disclose.

Stephanie McCarter, M.D., faculty member has no financial or affiliations to disclose.

William J. Meggs, M.D., Ph.D., planning committee and faculty member has no financial or affiliations to disclose.

Samuel Milham MD, MPH, faculty member has no financial or affiliations to disclose.

Jean A. Monro, M.D., faculty member has no financial or affiliations to disclose.

Lisa Nagy, M.D., faculty member, honorium from Mental Health Congress, travel expenses from CDC.

James L. Oschman, Ph.D., faculty member Honorarium from Ondamed Inc., research support from Barefoot sales and consultant from Nura HTC and InsideOut, LLC

Ron Overberg, Ph.D., C.C.N., R.D., faculty member has no financial or affiliations to disclose.

Martin Pall, Ph.D., faculty member has financial with Allergy Research Group.

Kalpana D. Patel, M.D., faculty member has no financial or affiliations to disclose.

Gilberto de Paula, M.D., faculty member has no financial or affiliations to disclose.

William J. Rea, M.D., President of the American Environmental Health Foundation, conference chairman, planning committee and faculty member, President and physician Environmental Health Center-Dallas.

Kou Sakabe, M.D., Ph.D., faculty member has no financial or affiliations to disclose.

Doug B. Seba, Ph.D., planning committee and faculty member has no financial or affiliations to disclose.

Theodore R. Simon, M.D., faculty member has no financial or affiliations to disclose.

Deborah Singleton MA, faculty member has no financial or affiliations to disclose.

Cyril W. Smith, Ph.D., faculty member, has commercial interest with Breakspear Medical Group, WETSUS and Nativis Inc.

Martha Stark, M.D., faculty member, has no financial or affiliations to disclose.

Arpad Szallasi, M.D., faculty member has no financial or affiliations to disclose.

Foundation Staff:

David Hicks, conference administrator and manager of the Foundation Store has no outside financial or affixations to disclose.

Erica Fuqua, employee of the Foundation Store has no outside financial or affixations to disclose.

Estella Skaggs, employee of the Environmental Health Center-Dallas and part time employee of the Foundation Store has no additional outside financial or affixations to disclose.

John Wiggins, employee of the Foundation Store has no outside financial or affixations to disclose.

Schedule of Proceedings, Table of Contents for Thursday and Friday

Thursday, June 3, 2010

Seba, Ph.D., Doug B., "Environmental Update 2010 With Some Cardiovascular Aspects"

James L. Oschman, Ph.D., "EMF Sensitivity: Biophysical Aspects"

Devra Davis, Ph.D., MPH, "The Secret History of the War on Cancer: What Do Tobacco, Asbestos, Vinyl Chloride and Cell Phones Have in Common?"

William J. Rea, M.D., "Chemicals As A Triggering Agent of Electromagnetic Sensitivity"

Devra Davis, Ph.D., MPH, "Comparative Assessment of Models of Electromagnetic Absorption of the Head for Children and Adults"

Colin H. Little, M.D., "Light Chains in Allergy and Sensitivity Disorders"

Andrew A. Marino, Ph.D., J.D., "Cellular Basis of EMF Sensitivity"

Lisa Nagy, M.D., "Presentation and Resolution of a Case Electrical and Chemical Sensitivity"

Deborah Singleton, MA, "The Definition of Energy Field"

Friday, June 4, 2010

Kaye H. Kilburn, M.D., "Electromagnetic Fields"

Magda Havas, Ph.D., "Dirty Electricity: the Missing Link."

Samuel Milham M.D., MPH, "Increased Cancer in School Teachers Caused by 'Dirty Electricity'"

Deborah Singleton, MA, "The Definition, Perception and Treatment of Abnormal Energy Fields in Electromagnetic Field Sensitivity"

Martha Stark, M.D., "EMFs and the Excitotoxic Cascade"

Gilberto de Paula M.D., "Intracellular Calcium / Magnesium Imbalance May Be Associated with Electromagnetic Sensitivity"

Cyril W. Smith, Ph.D., "Chemical Sensitivities in EMS Patients"

Kou Sakabe, M.D., Ph.D., "Sensitization Studies in Electromagnetic Intolerant Individuals"

William J. Meggs, M.D., Ph.D., "The Brain as a Target Organ for Allergic and Irritant Sensitivity"

James L. Oschman, Ph.D., "EMF Sensitivity: The Quantum Perspective"

Arpad Szallasi, M.D., "Thermo TRPs: of mice and men (or just mice?)"

Martin Pall, Ph.D., "Multiple Chemical Sensitivity: Toxicology and Chronic Mechanism"

Jean Monro, M.D., "DNA Adducts And Mitochondrial Function: Biochemical Studies Of ATP → ADP. Mitochondrial Translocator Function."

Saturday, June 5, 2010

Gilberto de Paula, M.D., "The Discovery of New Conceptual World: Finding a GP In The Amazon With Environmental Medicine"

Colin H. Little, M.D., "Are Immune Processes Implicated in Chemical Sensitivity?"

William J. Rea, M.D., "Treatment of Electromagnetic Sensitivity"

Kaye H. Kilburn, M.D., "Does An Electron Shunt Revive Neurons?"

Kalpana D. Patel, M.D., "Adverse Health Effects Of Low Level Ionizing Radiation"

Stephanie McCarter M.D., "EMF Sensitivity Field: How to Treat"

Ron Overberg, Ph.D., C.C.N., R.D., "Nutrition Considerations for Patients with EMF Sensitivity"

Martin Pall, Ph.D., "Therapy and Relation to EMF Sensitivity"

William J. Meggs, M.D., Ph.D., "Psychiatric Polypharmacy: Is More Better?"

Kalpana D. Patel, M.D., "Case Study Report of 20 Workers in Nuclear Facility"

Theodore R. Simon, M.D., "Functional Imaging In 2010"

Jean Monro, M.D., "Lymphocyte Sensitivity Tests, Both To Chemicals And Electromagnetic Fields"

Sunday, June 6, 2010

Arpad Szallasi, M.D., "TRPV1: Some Like It "Hot"

Magda Havas, Ph.D., "Empirical Evidence for Electrohypersensitivity"

Nancy A. Didriksen, Ph.D., "Assessment of Environmentally Ill Patients for Disability"

Samuel Milham M.D., MPH, "Electrification Caused the Diseases of Civilization"

Lisa Nagy, M.D., "What lies Ahead for Treatment in the Realm of Electrical Sensitivity"?

Cyril W. Smith, Ph.D., "Chemical Frequency Signatures, Frequencies and Fractals"

Richard Jaeckle, M.D., "The Role of ANS in EI"

THURSDAY, JUNE 3, 2010 ABSTRACTS

Objectives & Notes**Doug B. Seba, Ph.D.**

Date of talk: Thursday, June 3, 2010, 9:10 a.m.

Alexandria, VA 22314

Training:

Current Job Description:

Independent Marine Scientist

University Attended

University of Miami, Coral Gables, Florida – M.S./PhD

Other Information:

Over 50 years experience in ecology and chemicals

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: "Environmental Update 2010: EMF and Chemicals"

At the end of this Presentation, the participant should be able to:

1. Understanding that for 27 years, the essence of this conference has been to make the connection between environmental stressors (physical, chemical, biological) and adverse health effects, particularly cardiovascular.
2. Realize that environmental phenomenon such as electromagnetic radiation, atmospheric dust, or xenobiotics combined with fate and transport mechanisms, can have major impacts on cardiovascular function
3. Comprehend that adverse health effects on cardiovascular capabilities can occur at significant time and distance from their environmental loci.

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Environmental Update 2010: EMF and Chemicals**Douglas B. Seba****Objectives**

1. Realize that the primary concept of these continuing symposia is to illuminate the direct relationship between environmental stressors (physical, chemical, biological) and adverse health effects, both acute and chronic.
2. Comprehend that for this particular symposium, phenomenon such as electromagnetic radiation and chemical stimulation combined with fate and transport mechanisms, can have major impacts on health.
3. Understand that the evolution of persistent illnesses in patients may occur at a significant time and/or distance from their environmental origins.

Abstract

The elucidation of potential chemical mechanisms leading to EMF sensitivity is a quintessential example of the focus these symposia on root causes of environmental illness. Simply put, in almost all cases of environmental illness, whether from physical, chemical, or biological sources, or a combination of them, sensitivity symptoms are a keystone in both diagnosis and treatment of the patient. This Conference rightly acknowledges this relationship and draws focus to environmental pollutants, a theme of 28 years, as a singular cause of environmental illness and unfortunately, pollution endures. This particular Conference will examine the effects of environmental pollutants, reflecting a principle interest of the AEHF, with a special emphasis on one of the most insidious physical pollutants,

electromagnetism.

Sometimes called electronic smog in contemporary literature, mankind is being exposed to far more electromagnetic pollution than at any time in our planet's history. The world is also a geomagnetic water planet under constant solar/cosmic radiation. There is no doubt that a great deal of man-made items (chemical, physical, biological) is being impressed on these epochal geologic events. There also appears to be an increase in the man-made moieties in indoor environments as humans spend ever more time in enclosed structures with electronic devices. Like chemicals, electromagnetism appears to have two sides. On one hand, a study shows two-fold risk increase of acoustic neuromas from cell phone use, while another study shows repetitive transcranial magnetic stimulation to improve mental focus. This presentation will briefly explore new and/or novel methods of EMF exposure from cloud computing to electronic clothing or eye chip inserts. This will be followed by an exploration of a number of newly discovered chemical/electromagnetic/quantum mechanisms that may help to explain how subtle EMF exposures can result in sensitivity phenomenon. Outside of living in a Faraday cage, a patient may be exposed to electromagnetic smog from things as close as their toaster and as distant as sun spots.

It is the Presenter's experience that the environmental scientists and physicians at this EMF Symposium are probable the most qualified to help sensitive patients cope with daily exposures to hidden EMF stressors. With that perspective, this is a very limited review to set the stage for this EMF Symposium. Highly selected examples of the above natural and man-made processes are taken from a mix of media, websites, and scientific publications relevant to the current timeline (within the last year) including some of the Presenter's own environmental research of interest to attendees.

References

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Objectives & Notes**James L. Oschman, Ph.D.**

Date of talk: Thursday, June 3, 2010, 9:45 am

Nature's Own Research Association
 P.O. Box 1935
 Dover, NH 03821

Training:

Current Job Description:	Author and presenter of lectures and workshops on energy medicine internationally
University Attended:	University of Pittsburgh
Current faculty Appointments:	Akamai University; Energy Medicine University
Other Information:	Energy Medicine: the scientific basis, Churchill Livingstone/Harcourt Brace, Edinburgh, 2000. Energy Medicine in Therapeutics and Human Performance, Butterworth Heinemann, Edinburgh, 2003 About 30 papers in leading scientific journals, and about an equal number in complementary medicine journals.
Disclosure Statement:	Ondamed Inc.-Honorium, Barefoot Sales-Research support, Nura HTC-Consultant, InsideOut, LLC-Consultant

SPEECH TITLE: "EMF Sensitivity: Biophysical Aspects"

At the end of this Presentation, the participant should be able to:

1. List three aspects of cell and tissue chemistry that impart EMF sensitivity.
2. List three aspects of cell membrane chemistry that impact EMF sensitivity.
3. List three molecular constituents of cells and tissues that act as antennas.

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EMF Sensitivity: Biophysical Aspects**James L. Oschman, Ph.D.****Nature's Own Research Association****Dover, New Hampshire, USA****Objectives of the presentation**

To understand the biophysical aspects of EMF sensitivity it is helpful to take a close look at the human body as an electronic system (this presentation) and as an electromagnetic system (second presentation). Classical descriptions of the movement of charges within the organism are based on the simplifying assumption that the body as a whole and the individual cells within it are "volume conductors" with dissolved ions acting as the charge carriers. This over-simplistic picture was developed a century ago following the discovery of the electrocardiogram. A question arose as to precisely how the electrical fields produced during the beating of the heart travel to the surface of the body, where they can be detected with appropriate instruments. In 1913, Einthoven and colleagues made the convenient simplifying assumption that the human body is a homogeneous "volume conductor" with the heart's electricity conducted through tissues, with dissolved electrolytes serving as the charge carriers. ^[i] This approximation was useful in the early stages of research on the electrocardiogram. Unfortunately the volume conductor assumption continues to dominate electrophysiology. For example, a treatise on electromagnetic field effects summarizes "electrical transport within tissues" as follows:

The fundamental bioengineering perspective is that the human body is considered to be a compartmentalized (or lumped element) conducting dielectric. It consists of about 60% of water by weight, in which 33% is intracellular and 27% is extracellular. Body fluid in both the intracellular and the extracellular compartments is highly electrolytic, and these two compartments are separated by a relatively impermeable, highly resistive plasma membrane. Current within the body is carried by mobile ions in the body fluid. ^[ii]

Hence when scientists think of charge transfer they immediately think of ions migrating within a volume conductor. The various organs and layers of tissue are "lumped" together, essentially disregarding anatomical, histological and cellular structure. This is a classic example of "meaning invariance," a problem that occurs again and again in science when tentative assumptions, convenient for the early stages of an investigation, gradually come to be taken as facts. ^[iii] Reliance on the volume conductor assumption has encouraged the use of approximations that affect virtually every aspect of physiology and medicine, and that pose barriers to a more sophisticated appreciation of the mechanisms involved in electromagnetic sensitivity. Diffusing hydrated ions and molecular charge transfer complexes are simply too large to diffuse fast enough through crowded tissues and cells to explain the speed and subtlety of living processes. Nor can they account for EMF sensitivity.

Albert Szent-Györgyi researched the insoluble scaffoldings that other biochemists routinely discarded when studying solution biochemistry. He and his colleagues found that the dominant protein of connective tissue, collagen, is a semiconductor.^[iv] Further research revealed that the entire fabric of the body, which I refer to as the living matrix^[v] and that Pischinger^[vi] and Heine^[vii] refer to as the ground regulation system is a semiconducting electronic network that extends throughout the body.

These aspects of biological electronics have helped us understand how walking barefoot on the earth or connecting the body to the earth with various conductive systems reduces the influence of ambient electrical fields. One of our first studies showed that grounding or earthing the human body at night improved sleep by normalizing the day-night rhythm of cortisol, the “stress hormone.” The effect is brought about in part by reducing the electrical fields induced on the body from household wiring and appliances.^[viii] Disturbed cortisol rhythms and induced electrical fields are related to each other and have been shown by others to stress the body. Further research showed that grounding the body allows the earth to act as a sort of buffer or shield that prevents electrical fields from being induced on the body by household electricity. It is as though the body is surrounded by a grounded Faraday cage. When ungrounded, the electrical potential on the body swings back and forth 50 or 60 times per second. When grounded, the potential on the body remains virtually constant, at the same potential as the surface of the earth.^[ix] Further work demonstrated that grounding the body resulted in rapid reduction in inflammation^[x] and in pain^[xi] and normalizes the autonomic nervous system by causing a shift from sympathetic to parasympathetic activation^[xii] and increases heart rate variability.^[xiii]

To explain these findings it is helpful to visualize the body as a semiconducting electronic network. On the basis of its system-wide distribution and its capacity for charge movement and charge storage, the living matrix or ground regulation system is ideally suited to provide electrons that can prevent “collateral damage” to healthy cells and tissues when the oxidative burst delivers free radicals to a site of injury. This conclusion arises from the observation that connecting the body to the earth immediately after an injury seems to reduce or prevent the classic signs of inflammation (pain, heat, redness, swelling, and loss of range of motion) and from the observation that inflammation in any part of the body can be affected. In other words, inflammation is not, as is widely believed, an inevitable and essential part of the response to injury. Continuity of the extracellular matrix with the cellular and nuclear ground substances enables the protective effects of grounding to extend to the cell interior and nuclear matrix, including the DNA. A dominant theory suggests that aging results from cumulative damage caused by free radicals that are produced during normal metabolism, by exposure to environmental toxins and by inflammatory responses to injury.^[xiv] The main source of free radical damage is inflammation, which has been associated with a wide variety of chronic diseases including virtually all of the diseases of aging.

The earth is a rich source of free or mobile electrons^[xv] and most people are deficient in free electrons because of infrequent barefoot contact with the earth. The plastic or rubber shoe sole has dramatically altered our relationship with our planet. This shoe design began in the late 20th century, and since then chronic degenerative diseases have overcome infectious diseases as the major causes of death. An overall improvement in human public health and longevity therefore depends on finding interventions that prevent or slow the development of chronic disease.^[xvi] Grounding the human body appears to be such an intervention because grounding can provide anti-oxidant free electrons that can neutralize free radicals wherever they may form for any reason.

One description of the charge transfer process in the matrix is “highly vectoral electron transport along biopolymer pathways.”^[xvii] In other words, the living matrix provides a direct pathway from the skin surface to any part of the body that contains free radicals. Still other mechanisms involve the body-wide clouds of negative charge created around the proteoglycans, as described by Pischinger and Heine, as mentioned above. Taken together, the insoluble semiconducting fabric of the body, the soluble and mobile charge transfer complexes in cells and tissues^[xviii] and the protein-carbohydrate ground substance provide multiple opportunities and pathways for the movement of charge between the skin surface and the free radicals involved in the inflammatory response. The mobile electron is the ultimate anti-oxidant, and semiconduction enables anti-oxidant electrons to cross the collagen-rich inflammatory barricade originally described by Hans Selye.^[xix]

Conclusions

Studies of grounding are providing new insights into the ways the body responds to injury and protects itself from both free radical damage and from EMF exposure. It is proposed that electrons from the surface of the earth can quickly produce antioxidant effects for any part of the body that is injured, without exception, and that the field of the earth can stabilize body voltage in the presence of an alternating electrical field. This is possible because of the ubiquity of the ground substances, which are a part of every living structure, including connective tissue, cytoplasm and the nuclear matrix.^[xx] In other words, the very structure of the body is an electronic medium capable of delivering anti-oxidant electrons to any place where free radicals form. These concepts also explain how we can restore our reserves of antioxidant electrons in order to maintain “inflammatory preparedness.” Reference 12 explains how a point on the ball of the foot, known as Kidney 1, acts as a low resistance entry point so that earth electrons can traverse the skin surface and be distributed throughout the body via the acupuncture meridian system.

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Objectives & Notes

Devra L. Davis, Ph.D., MPH

Date of talk: Thursday, June 3, 2010, 10:45 am

Environmental Health Trust
P.O. Box 58
Teton Village, WY 83025

Training:

Current Job Description:
Current Faculty Appointments:
Medical School/ University Attended
Board Certifications:
Other Information:

Visiting Prof Prev Med, Mt. Sinai/ NYC, and founder Environmental Health Trust
Mt. Sinai Medical Center, New York

Fellow, American College of Epidemiology, Fellow American College of Toxicology
Designated a National Book Award Finalist for *When Smoke Ran Like Water* (2002, Basic Books),
Devra Davis founded Environmental Health Trust in 2007 in Teton County, Wyoming to provide
basic research and education about environmental health hazards locally, nationally and
internationally. Dr. Davis is currently Professor of Preventive Medicine at Mt. Sinai Medical center
in New York and was the Founding Director of the world's first Center for Environmental Oncology
at the University of Pittsburgh Cancer Institute and Professor of Epidemiology at the University of
Pittsburgh's Graduate School of Public Health (2004-2009). Her recent book, *The Secret History of
the War on Cancer*, was a top pick by Newsweek and is forming the basis for national cancer policy
revisions by the South African Cancer Society and is being used at major schools of public health,

including Harvard, Emory, and Tulane University. Her new book, *Disconnect: the truth about cell phone radiation and your health, what industry has done to hide it and what you can do to protect your family*, will be published by E.F. Dutton, September, 2010.

Dr. Davis also was the founding director of the Board on Environmental Studies and Toxicology of the U.S. National Research Council, National Academy of Sciences and Scholar in Residence, 1983-1993 and served as Distinguished Visiting Professor at Yeshiva University and the London School of Hygiene and Tropical Medicine.

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: "The Secret History of the War on Cancer: what do tobacco, asbestos, vinyl chloride and cell phones have in common?"

At the end of this Presentation, the participant should be able to:

1. Learn the relative role of toxicology and epidemiology in identifying the cancer-causing properties of toxic agents and tobacco
2. Understand the power limits of epidemiological research in determining public health impacts of radiofrequency radiation from cell phones
3. Determine the validity and latest findings of tests used to characterize the DNA impacts of radiofrequency radiation
4. Acquire information appropriate for patients and health professionals that explains the biology and epidemiology of radiofrequency radiation, asbestos, and diagnostic radiation.

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Dr. Davis abstract was not available at time of printing.

Objectives & Notes**William J. Rea, M.D.**

Date of talk: Thursday, June 3, 2010, 11:25 am

Environmental Health Center - Dallas
 8345 Walnut Hill Lane, Ste. 220
 Dallas, TX 75231

Training:

Current Job Description:	President of the Environmental Health Center – Dallas, President American Environmental Health Foundation
Medical School:	Ohio State University College of Medicine, Columbus, OH
Internship:	Parkland Memorial Hospital, Dallas, TX
Residency:	University of Texas Southwestern Medical School; Parkland Memorial Hospital, Baylor, Veteran’s Hospital, Children’s Medical Center
Board Certifications:	American Board of Surgery, American Board of Thoracic Surgery, American Board of Environmental Medicine
Other Information:	Author of “Chemical Sensitivity I-IV”, “Optimum Environments for Optimum Health”
Disclosure Statement:	Financial, President and physician with Environmental Health Center-Dallas

SPEECH TITLE: “Chemicals As A Triggering Agent of Electromagnetic Sensitivity”

At the end of this Presentation, the participant should be able to:

1. Know that chemical exposure can trigger EMF.
2. Know that membrane damage will tend toward EMF.
3. Know that EMF can further cause membrane damage.

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Chemicals As A Triggering Agent of Electromagnetic Sensitivity

William J. Rea, M.D., F.A.C.S., F.A.A.E.M.
Yaqin Pan, M.D.

ABSTRACT: More patients are complaining of EMF sensitivity. These sensitivities include computers, television, fluorescent lighting, or any electrical motors. The sources of these problems appear to occur from excess exposure to pesticides (80%) [organochlorines, carbamates, organophosphates, pyrethroids, and herbicides]. The other source appears to come de novo from high level Wi Fi and electrical magnetic exposure. Most patients appear to be metal sensitive (85%) with 90% having food and chemical sensitivity.

CONCLUSION: EMF appears to be a growing problem in the 21st century America.

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Objectives & Notes**Devra L. Davis, Ph.D., MPH**

Date of talk: Thursday, June 3, 2010, 1:30 pm

Environmental Health Trust
P.O. Box 58
Teton Village, WY 83025**Training:**Current Job Description:
Current Faculty Appointments:
Medical School/ University Attended
Board Certifications:
Other Information:Visiting Prof Prev Med, Mt. Sinai/NYC, and founder Environmental Health Trust
Mt. Sinai Medical Center, New York

Fellow, American College of Epidemiology, Fellow American College of Toxicology
Designated a National Book Award Finalist for *When Smoke Ran Like Water* (2002, Basic Books),
Devra Davis founded Environmental Health Trust in 2007 in Teton County, Wyoming to provide
basic research and education about environmental health hazards locally, nationally and
internationally. Dr. Davis is currently Professor of Preventive Medicine at Mt. Sinai Medical center
in New York and was the Founding Director of the world's first Center for Environmental Oncology
at the University of Pittsburgh Cancer Institute and Professor of Epidemiology at the University of
Pittsburgh's Graduate School of Public Health (2004-2009). Her recent book, *The Secret History of
the War on Cancer*, was a top pick by Newsweek and is forming the basis for national cancer policy
revisions by the South African Cancer Society and is being used at major schools of public health,
including Harvard, Emory, and Tulane University. Her new book, *Disconnect: the truth about cell
phone radiation and your health, what industry has done to hide it and what you can do to protect
your family*, will be published by E.F. Dutton, September, 2010.

Dr. Davis also was the founding director of the Board on Environmental Studies and
Toxicology of the U.S. National Research Council, National Academy of Sciences and
Scholar in Residence, 1983-1993 and served as Distinguished Visiting Professor at Yeshiva
University and the London School of Hygiene and Tropical Medicine.

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: "Comparative Assessment of Models of Electromagnetic Absorption of the Head for Children and Adults"

At the end of this Presentation, the participant should be able to:

1. Understand the in vivo and in vitro biological evidence that radiofrequency radiation affects cell-cycle, repair, apoptosis
2. Understand limits of current homogenous models for calculating the Specific Absorption Ratio of various compartments of the brain in children and adults
3. Understand the strengths and limits of epidemiologic evidence on cell phones and health and the rationales of foreign governments for advising precautionary policies

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

Comparative Assessment of Models of Electromagnetic Absorption of the Head for Children and AdultsYueh-Ying Han*, Om P. Gandhi[†], Alvaro DeSalles[‡], Ronald B. Herberman[§], and Lloyd Morgan Devra L. Davis***Abstract**

Globally more than four billion phones are in use, with more than half of all users believed to be under the age of 30. Over the past two decades, models of the human head have been devised based on imaging studies and used to estimate extent of brain absorption, potential biological impacts of electromagnetic radio-frequency (RF) signals, and serve as an empirical foundation for exposure limits (Specific Absorption Rate, SAR). Current IEEE and ICNIRP SAR recommendations rest solely on avoiding thermal effects on the adult male head under conditions of a six minute long call and do not take into account the surge in cell phone use, the length of average calls, non-thermal biological effects and the smaller size, greater physiological vulnerability and absorption potential of the heads of the young and females, including their relatively greater dielectric permittivity and electrical conductivity and the development of hotspots). Currently recommended approaches by the IEEE calculate peak spatial-average SAR for safety compliance testing of cell phones based on a physical model of an adult male head with an added 10 mm plastic spacer to model the "ear" or pinna. By incorporating such a spacer, the IEEE model assumes that the pinna is directly comparable in RF absorption to extremities of the body such as the legs and the arms that are not proximate to the brain, and effectively results in 2 to 4 times higher exposures to the head than under older

recommendations. Recent epidemiologic studies of adults from those few nations where cell phone use has been extensive for a decade or longer indicate significantly increased risk of a variety of brain tumors. These findings, together with the limitations of current head models and the growing use of phones by the young and females, indicate a clear and compelling need for improved, anatomically and biologically-based models of the head in order to better estimate population-wide exposures of children and women to cell phones and provide the grounds for improved policies to reduce those exposures.

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Objectives & Notes**Colin H. Little, M.D.**

Date of talk: Thursday, June 3, 2010, 2:10 pm

324 Stephensons Road
Mt. Waverly
Melbourne, Victoria 3149
Australia

Training:

Current Job Description:
Medical School/ University Attended
Internship:
Residency:
Board Certifications:
Other Information:

Physician & Allergist, Researcher
Melbourne University
Western General Hospital
Queen Victoria Hospital
M B B S MRCP(UK) FRACP FACA
Clin Vaccine Immunol 2006 Vol 13:467-74, Exp Biol Med 2002 Vol 227:438-444, Current Trends in Immunology 2000 Vol 3:131-144, A sensitive ELISA to measure antigen-specific kappa and lambda immunoglobulin free light chains in human serum(Submitted for publication)

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: "Light Chains in Allergy and Sensitivity Disorders"

At the end of this Presentation, the participant should be able to:

1. Understand the basic immunobiology of light chains.
2. Be familiar with the role of light chains in allergy and other immune disorders.
3. Understand the significance of assays measuring antigen-specific light chains in non-IgE allergies.

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

Light chains in allergy and sensitivity disorders**Colin H. Little, M.D.**

There is growing interest in the role of light chains in clinical disorders where allergy like reactions are thought to be important. In particular light chains are suspected to be implicated in non-IgE reactions. Laboratory tests are available to measure total concentrations of Kappa and Lambda light chains in body fluids. Such assays have been helpful in the management of disorders where light chains are elevated, for example multiple myeloma. Studies have shown elevated concentrations of light chains in conditions such as asthma but it is evident that assays to measure antigen-specific light chains would be of great value in the diagnosis and management of non-IgE allergies.

Light chains are components of immunoglobulins. They have constant and antigen binding ends. The molecular weight of light chains is about 20,000 dalton. There are both Kappa and Lambda types. Light chains are produced by B cells in excess of heavy chains, the other component of intact immunoglobulin. Typically around 500 mg of free light chains are produced per day. They can be detected in serum at a concentration of 5 - 25 µg/ml, but are also present in urine, cerebrospinal fluid and synovial fluid. The serum concentration ratio between IgG and light chains is about 1000:1. The concentration of light chains in serum is a hundredfold that of IgE.

In some respects light chains are thought to be analogues of IgE antibody. They bind to mast cells, basophils and sensory neurons. To date the specific receptors for light chains on these cells have not been identified. Consistent with the analogue model, the cross-linking of light chains on mast cells by antigen releases mediators which include histamine and leukotrienes. The physiological role of this process is thought to be the initiation of the delayed hypersensitivity response. The release of mediators increases vascular permeability, among other effects, which enhances the entry of T cells to where antigen is localised. This suggests that light chains are associated with TH1 immune responses. More recently it has also been shown that the binding of antigen to light chains on neurons activates them.

Elevated levels of light chains have been detected in diseases where TH1 responses are thought to be important. Examples are multiple sclerosis, rheumatoid arthritis and lupus. Indeed, light chains have been visualised in multiple sclerosis lesions. Also, elevated levels of light chains have been found in eczema, inflammatory bowel disease and non-atopic asthma. In animal models light chains can produce bronchial hyperactivity. The presence of light chains has been demonstrated in tissue samples: the gut lamina propria of patients with inflammatory bowel disease, and the nasal mucosa of patients with non-allergic rhinitis. In the tissue samples light chains have been demonstrated on mast cells.

To evaluate the relevance of light chains it is important to develop antigen-specific assays. If light chains are important in some clinical disorders then identifying specific allergens to which they bind may be valuable in clinical management. In cooperation with a Dutch group we have recently developed an antigen-specific assay for cow's milk antigens. Numerous difficulties were encountered in this work, which is still incomplete. Because light chains are present at low concentrations in the serum it has proven difficult to develop a sensitive assay. As mentioned above, the ratio of IgG to light chains is of the order of 1000 to 1. Clearly intact IgG outcompetes light chains in binding to antigen. These problems have been largely addressed through trial and error.

There is widespread interest in the basophil activation test in the diagnosis of allergies. This test has been useful to demonstrate IgE based reactions and some studies suggest it is diagnostic in non-IgE reactions too. Early studies also raised the possibility of using the test to identify adverse reactions to food additives. Originally the test measured histamine release from basophils on the addition of antigen but the current activation tests detect the upregulation of markers (CD63, CD203) on basophils. Simply described, basophils are separated from whole blood, primed with IL-3, and then antigen is added. After an incubation period of 45-60 minutes, the upregulation of the markers is measured using flow cytometry.

In 2007 a study was published which measured the release of histamine from basophils on the addition of perfume extract. Subjects reporting sensitivity to perfume were compared with controls. There was enhanced release of histamine in the patient group, an intriguing finding. Although the authors did not invoke an immune process, we wondered whether an immune reaction was involved, perhaps mediated by light chains. To determine whether the binding of light chains may release histamine from basophils, antibody to light chains was added to purified basophils. A dose dependent release of histamine was demonstrated for both anti-Kappa and anti-Lambda antibodies. This suggests that a) light chains are present on basophils and b) their cross-linking may release histamine. Work will be carried out shortly to determine if anti-light chain antibodies also up regulate markers such as CD63, which is required for histamine release.

There are commercial basophil activation tests now available. A recent study on patients with the irritable bowel syndrome suggests the potential value of this type of test. An Italian group studied patients with diarrhoea on the ingestion of wheat or cow's milk. This association was demonstrated in a double-blind manner. IgE specific to wheat and milk was measured in patients and controls, and also basophil activation on the addition of wheat and milk extracts. The basophil activation test was markedly superior to the measurement of specific IgE antibody. The test is being used to detect reactions to food additives, drugs and even chemicals such as formaldehyde. Although there is concern as to whether the assays are validated for such antigens, work to date suggests potential for the basophil activation test.

Does the basophil activation test detect light chain responses to antigens as well as IgE based responses? Certainly it appears to be picking up non-IgE responses too. One advantage of the test may be that the antigen does not need to be extensively purified. With drugs and chemicals, it is possible that the cells metabolise them to a suitable form for detection. In addition, the "status" of the basophils may depend on earlier cytokine influences. Cytokines may be pro- or anti-inflammatory. In tolerant individuals, basophils may be more resistant to activation. Accordingly the test may, to some degree, reflect the balance between effector and regulatory immune responses. Does this mean the test provides a more sensitive index of sensitivity?

Conclusion

Our group plans to study a number of perfume sensitive patients to determine whether the addition of perfume extract causes the up regulation of CD63 on basophils. If so, there is a possibility of determining whether light chains are implicated by using agents which could inhibit their action. Hopefully some of this data will be available in time for the meeting.

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Objectives & Notes**Andrew A. Marino, Ph.D., J.D.**

Date of talk: Thursday, June 3, 2010, 2:40 pm

LSU Health Sciences Center, Dept. Orthopaedic
Surgery
1501 Kings Highway
PO Box 33932
Shreveport, LA 71130

Training:

Current Job Description:

Professor, Department of Orthopaedic Surgery, LSUHSC-S

Current Faculty Appointments:

Professor, Department of Orthopaedic Surgery, LSUHSC-S

Medical School/ University Attended

Syracuse University: Ph.D., 1968; J.D., 1974

Other Information:

Approximately 150 publications dealing with EMF sensitivity. Web site:

<http://www.andrewamarino.com>

Disclosure Statement:

No financial or affiliations to disclose

SPEECH TITLE: "Cellular Basis of EMF Sensitivity"

At the end of this Presentation, the participant should be able to:

1. Name and describe the process by which the body detects EMFs.
2. List the anatomic areas where the detecting cell may be located.
3. Discuss possible processes for linking EMF detection and clinical symptoms.

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CELLULAR BASIS OF EMF SENSITIVITY**Andrew A. Marino, Ph.D., J.D.****Abstract**

Electromagnetic fields (EMFs) interact with all living and nonliving material bodies, but EMF-induced bioeffects necessarily involve detection processes unique to living systems. Sensory transduction is an example of a process that occurs only in metabolizing organisms.

We reviewed the entire EMF bioeffects literature (1) and concluded that most laboratory phenomena, clinical symptoms and disease were caused indirectly by the field, and that actual EMF detection was a form of sensory transduction. Unlike ordinary sensory modalities, however, detection of EMFs was governed by nonlinear laws.

To establish the occurrence of EMF transduction, we developed a new form of data analysis that allowed observation of any kind of EMF-induced effect, whether linear or nonlinear (2), and then performed human and animal experiments aimed at obtaining evidence supporting our nonlinear transduction hypothesis.

Our work was based on the principle that all known sensory stimuli produce both onset and offset evoked potentials that are measurable in the electroencephalogram. We reasoned that if evoked potentials were also produced by EMFs, they must be sensory stimuli and therefore detectable by the body via sensory transduction (the flow of ions through ion channels in the membrane of a specialized detecting cell).

In a study involving 22 volunteers, we reported that every subject exhibited an onset and/or offset evoked potential triggered by 1–2 G, 60 Hz ($p < 0.05$ for each volunteer) (3), thus establishing the existence of a human magnetic sense. In follow-up studies we showed explicitly that EMF-induced evoked potentials were consistent nonlinear phenomena (4), and could also be produced using high-frequency EMFs (5). In the latter study we concluded that each of the 217 pulses produced per second in a typical cell phone was capable of producing an evoked potential.

Electromagnetic fields consist of electric and/or magnetic fields that are fixed in space or propagating. We addressed the important question of which aspect of the EMF was actually detected by the body. In a series of studies on human volunteers we established that the electric field alone was sufficient to explain all known effects of EMFs on human brain-wave electrical activity (6).

In electrophysiological experiments on rabbits we showed that the electroreceptor cell (the specialized cell that interacts with the EMF, akin to the retina cell for detecting light and the hair cell for detecting sound) was located in the head (7). In positron emission tomography studies on rats we showed that the electroreceptor cells were probably located in the cerebellum (8).

To estimate the sensitivity of the human electroreceptor cell we studied the electroreceptor cell in the glass catfish, which is one of the few examples in nature where the complete neuroanatomy of an EMF-sensing system is known. On the basis of measurements and theoretical calculations we determined that catfish electroreceptor cells were capable of detecting an electric field of 1 $\mu\text{V}/\text{m}$ (well within the fields created in the human brain by environmental EMFs) (9). We constructed a theoretical model of an electroreceptor-cell membrane protein that was capable of detecting such a weak field. We expect that a similar protein will ultimately be found in human electroreceptor cells.

We developed antibodies against the membrane proteins of the catfish electroreceptor cell, and showed that the antibodies were capable of blocking the ability of the fish to detect an electric field (9). It is reasonable to expect that similar antibodies may be developed for human use, thereby forming an effective therapy for human sensitivity to EMFs.

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Objectives & Notes**Lisa Nagy, M.D.**

Date of talk: Thursday, June 3, 2010, 3:45 pm

P.O. Box 2472
Vineyard Haven, MA 02568**Training:**

Current Job Description:	President – The Preventive and Environmental Health Alliance Inc. and Founder of Comprehensive Medical Care of Martha's Vineyard
Medical School:	Cornell Medical College
Internship:	Surgery: Catholic Medical Center, Queens, New York
Residency:	Emergency Medicine: Metropolitan Hospital, NY, NY
Board Certifications:	Emergency Medicine thru 2006
Other Information:	Board Eligible Environmental Medicine
Disclosure Statement:	No financial or affiliations to disclose.

SPEECH TITLE: "Presentation and Resolution of a Case Electrical and Chemical Sensitivity"

At the end of this Presentation, the participant should be able to:

1. Recognize mild to severe symptoms of Electrical Sensitivity.
2. Make simple suggestions for patients to cope with the problem.
3. Determine the potential etiology of ES in order to ameliorate the condition.

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Presentation and Resolution of a Case Electrical and Chemical Sensitivity.**Lisa Nagy MD**

President of The Preventive and Environmental Health Alliance Inc., a 501 c3
34 Averill Lane, Vineyard Haven, MA 02568
508 696 6998, lisa@nagy1.com, www.environmentalmedicineinfo.com or www.lisanagy.com

Lisa Nagy is an activist in environmental health, a delegate to the Massachusetts Medical Society and was appointed to the CDC-ASTDR's work group called –The National Conversation on Chemicals and Public Health. She returns to the practice of medicine in June 2010 on Martha's Vineyard in environmental medicine, at 'Vineyard Personalized Medicine' which will model therapy after the Environmental Health Center of Dallas.

A 43 yo female presents with masked chemical sensitivity as she is wearing substantial perfume and using scented laundry products. On her way to Dallas for treatment she uses the cell phone in the airport and develops stroke-like symptoms repeatedly when it is turned on. She has no knowledge of EMF sensitivity and little understanding of Chemical Sensitivity. Other symptoms that occur are intolerance of the centrifuge in the laboratory with arm and leg weakness ipsilateral to the machine. Apparently a direct effect on the muscle. MRI gave difficulty with the ease of ventilation and led to gasping to breath though CT had no untoward effect.

Intolerance of the air filters in the allergy room required that they be turned off before chest tightening occurs like someone is wring the heart. When a cell phone is turned on without her knowledge increasingly severe dysautonomia occurs – with a desire to sit or lie down due to increased venous pooling in the legs and concomitant tachycardia of 140 to 180. These symptoms abate after the phone is turned off by her 'friend'. Flourescent lights are intolerable and incandescent lighting is tolerated at in her room only at 25 watts – she unscrews bulbs in doctor's offices before coming to Dallas as she could not sit next to them at all – without knowing why.

Later the patient places a land line telephone on her chest in her hotel room while in this ill and fragile state calling her family. She, lying down, watched her arms turn dark blue and then the world dimmed and field of vision darkened apparently due to the effect of the telephone which was placed directly over the heart. After arriving in the emergency room following this 'near death' episode she is intolerant of monitors, lighting. Finding hypokalemia due to Florinef -- IV potassium is administered with resolution of the EMF symptoms.

The patient undergoes two intensive months of therapy at the EHCD and responds immediately to IV nutrients, oxygen therapy for two hours per day, and P and N testing. Sauna initially exacerbated her symptoms as she was so ill. This was demonstrated by a VBG – PO2 of 75 prior to treatment – one of the highest seen to date.

Partially recovered the patient took her antigens and moved to an island and slowly improved. She would swim in the saline based pool and experience electric shocks through her hands and body as she swam past the underwater lights! At it's worst the EMF from running water in the sink was intolerable!

Her husband drove her around in the car in the back seat only below 35 mph as she could not tolerate faster speeds and felt immediate 'torque' on the heart as if it was being twisted. Land line phones could not be held to the head or gave head pain, chest discomfort and severe (dripping) from the axillae. As usual the cell phone would heat up in her hand if held or ear bud burned the ear. The blue tubing headset was well tolerated from www.lessemf.com on both types of phones. Lying on the ground made phone calls more tolerable initially. Cortef, midodrine, trisalts, Epsom salts bathes, oxygen, potassium seemed to help as well as avoidance of chemical, mold and EMF exposure. Radial nerve showed (conduction) damage from just three days of touching a mouse on lap top and still a glove impregnated with protective material needs to be used to touch computer – 8 years later!

Dramatic resolution of all three medical problems of CS, EMF sensitivity and Dysautonomia occurs when the local holistic dentist removes her crown with a high voltage because of gold touching amalgam -- —the phenomenon of oral galvanism. Within an hour of coming home the patient could use the phone, the computer without developing symptoms of dysautonomia which would normally require her to pretzel her legs while on the device. At once Midodrine – the alpha agonist used in high doses to counteract the dysautonomia was no longer necessary at all. Chemicals were no longer perceived as offensive for the most part and the EMF intolerance was dramatically improved as well. The patient has remained relatively well, has traveled monthly around the country and lectured extensively at psychiatric, autoimmune and traditional medical meetings on her recovery and gives hope to others for resolution of symptoms by getting to the cause and using the principals of environmental medicine and holistic dentistry combined. She suggests the use of the oral potential meter in all environmental practices to identify patients who need immediate crown replacement or metal removal if high voltage is found.

In this case it was apparent that the combination of toxigenic mold in the home with the placement of mixed metals in the mouth in 2002 led to an abrupt worsening of symptoms causing the patient to seek treatment emergently. In many patients the toxic load is not as easily reduced as in the case – by a dentist as well as via traditional use of sauna and nutrients, hormone replacement, and P and N and Autogenous Lymphocyte Factor.

What is needed are intermediate temporizing treatments that can alleviate symptoms more immediately while the work of treatment is done over time to heal the damage done – to be discussed in my next talk on what lies ahead in treatment.

Symptom Checklist for EMF Sensitivity:

Cell phone heats up in your hand

Flourescent lights give headache or other symptoms like fatigue

Pt does not like to sit near refridgerator or fans or anything that spins like VCR rewinding, can opener, as well as bedside alarm clock which has high EMF.

Driving car gives discomfort from steel belted radials spinning or spark plugs firing etc.

Cell phone gives headaches, spacey feeling, near syncope, stroke symptoms

Land line phones make pt uncomfortable, cordless phone triggers urge to urinate/defacate

Neon lighting is offensive, light bulbs create painful response

MRI leads to weakness

Far away saws, drills, lawn mowers are perceived as hard to tolerate even if a mile away!

Wi-fi leads to symptoms in hotels, air planes and is not recommended.

Television difficult to sit near. smaller and flatter screen better tolerated.

Computer is best tolerated on long cables with hard drive no where near patient.

Shields, gloves, make computer use possibly briefly - even iron frying pan can help patient to tolerate driving as passenger.

Patient can sense electric cables in the wall in commercial buildings.

Severely affected may feel EMF from running tap water with its low field.

Flying causes leg swelling due to dysautonomia from electric cables running down center of plane. Prop planes are difficult to sit closer to the wing.

Sitting above the hot water heater pumping water is difficult – pt cannot find safe place in house away from appliances.

Objectives & Notes**Deborah Singleton MA**

Arasini Foundation/A Healing Place
2011 N. Collins Blvd. #709
Richardson, TX 75080

Date of talk: Thursday, June 3, 2010, 4:15 pm

Phone: 972.437.5332
Fax: 972.437.5332
Email: deborah@ah healingplace.org

Training:

Current Job Description:

University Attended

Other Information:

Director, A Healing Place; President & Founder of Arasini Foundation

Northern Arizona University

Over 25 years of experience practicing energy medicine with individuals from around the world.

Author of educational materials on "The Human Energy System" and "Conscious Healing."

Founded Arasini Foundation in 1985, a non-profit organization committed to educating individuals about wellness and healing.

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: "The Definition of Energy Field"

At the end of this Presentation, the participant should be able to:

1. Have an introductory understanding of the human energy system.
2. Conceptualize the contrast between homeostasis and abnormality in energy fields.
3. Understand the process of correction of an abnormal energy system through case study.

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THE DEFINITION OF ENERGY FIELD

**Deborah Singleton, MA
Arasini Foundation/A Healing Place
Dallas, Texas**

Energy fields have been shown to emanate from each living human. The energy fields of individuals may have many planes of homeostasis. There appears to be a range of normal energy that allows an individual to function both adequately and optimally. Also, this range is difficult to define but a perceptive and highly trained individual can perceive and ascertain this range of energy. Abnormal energy fields can be determined and correction can be accomplished. A case report will be presented in order to illustrate these points.

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FRIDAY, JUNE 4, 2010 ABSTRACTS

Objectives & Notes

Kaye H. Kilburn, M.D.

Date of talk: Friday, June 4, 2010, 8:05 am

P.O. Box 5374
Pasadena, CA 91107

Current Job Description:
Current Faculty Appointments:
Medical School:
Internship:
Residency:
Board Certifications:
Other Information:

Consultant, President of Neuro-test, Inc.
USC retired 2006
University of Utah 1954
Western Reserve Hospitals – Cleveland
University of Utah: Medicine and pathology, Duke: cardiopulmonary, London: cardiology
Am Board Internal Medicine, Am Board Preventive Medicine, occupational Health
“Chemical Brain Injury,” NY: John Wiley 1998; “Mold and Mycotoxins,” editor Washington DC:
Heldref 2004; “Endangered Brains” Princeton Scientific Press 2004, “Mold and Mycotoxins:
Toward Healthy Homes,” Toxicology and Industrial Health, Oct/Nov 2009, Vol. 25
No financial or affiliations to disclose

Disclosure Statement:

SPEECH TITLE: “**Electromagnetic Fields**”

At the end of this Presentation, the participant should be able to:

1. Understand the role of electricity in cell and organ function from DNA to depression.
2. Be able to recognize sources and properties of electromagnetic fields (EMF) that may be harmful.
3. How to correlate symptoms and impairments with electromagnetic fields.
4. Understand the overlaps of EMF and chemical sensitivity.

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Electromagnetic Fields (EMF) Abstract Outline – Dallas 2010

Kaye H. Kilburn, M.D.

Purpose-To critically examine evidence for adverse biological health effects of propagated microwaves and electromagnetic fields.

Definitions – technical side

- Microwaves below infrared 100 cm to a millimeter
- Radar aims microwave pulses at a target and they bounce back to measure distance
- S-waves – shorter wave 10 cm, X band, K band, K/2 band
- Transformers
- Diathermy
- Cautery –
- Roentgen – energy delivered in a cubic centimeter of air
- RAD – Radiation Absorbed Dose – ionizing radiation – gamma ray

Safe level of EMF

- 10 milligauss/cm² U.S. OSHA Standard based Electrical Engineer, Herman P. Schwan's guess to avoid deep heating
- 3.0 mc
- 1.0 mc
- 0.5 mc

Unsafe

- Taser gun, batteries 50,000 to 200,000 volts shoots barbed needles – many deaths, 60 lawsuits – Taser won 60, sued Medical Examiner
- Electro convulsive (shock/convulsive) therapy for depression

History of electricity and health

- Paul Brodeur - The Zapping of America: Microwaves, their Deadly Risk, and the Cover Up
- Galvani and Volta – sunspots
- Weisskopf – Energy waves – perspective
- Radar operators – cataracts
- Dairy cattle – milk production Russ Allen
- Diathermy (heat load HL Schwan) recommended a theoretical tissue heating basis for a maximum exposure standard 1953
- Leukocytes (1954) Barron 13 milliwatts/cm² decreased counts

High Points

- 1864 - Jame Clerk Maxwell
- 1888 - Hendrich Rudolph Hertz
- 1891 – Edison – electric light – direct current
- 1892 - Sir William Crookes suggested wireless telegraph
- 1893 - Nikola Tesla – alternating current
- 1893 - Chicago World's Fair
- 1894 - Sir Oliver Joseph Lodge
- 1895 - Niagara Falls
- Gugliulmo Marconi – wireless telegraphy – ship to shore – Cornwall to St. Johns, Newfoundland
- 1895 - Wilhelm Conrad Roetgen – x-rays
- 1905 - Marconi – radio telegraph transmitter by wireless
- 1915 - Lee DeForest, radio telephone
- Tesla through earth

Medical Application

- 1786 - Luigi Galvani – electro chemical
- 1790 - Alessandro Volta – battery – generate current
- 1880 - Max Planck – gamma rays, one billionth of a meter angstrom 0.1 millimicron
- 1890 - Nikola Tesla – suggested treating of tissue with heat and an aircraft death ray
- 1895 - Jacques D'Arsonal – diathermy

- 1895 - Roentgen – x-ray
- 1896 - Edison – fluoroscopy
(Clarence Dally – x-ray induced cancer)
- 1905 - Albert Einstein – quanta – radiation at speed of light

Mysteries to explain for the 20th Century diseases

1. Urban – rural difference in cancer and cardiovascular diseases (CVO)
2. Electric power use moved into most rural areas of USA – Amish exception
3. Electric power generators became thermal, soft coal burning
4. Cigarette smoking decreased in 1960, but lung cancer and CVD increased
5. Cardiovascular disease spectrum change from congenital and rheumatic to coronary – hypersensitive
6. Diabetes, type II, increased greatly
7. Renal failure increased, needing dialysis and transplantation
8. Children developed leukemia, non-Hodgkin's lymphoma and other cancers
9. Chemical brain damage, Alzheimer's disease, amyotrophic lateral sclerosis, suicide
10. Autism spectral disorder – prevalence now 1/100 children

Causal Factors

Burning of carbon fuel, gasoline and diesel greatly increased U.S. population, tripled by gaining 200,000,000 from 1930 to 2000. Chemical use indoors and in homes greatly increased (pesticides, formaldehyde, solvents, odorants, etc.). Chemical brain damage impairment and hypersensitivity increased from 1950 to 2010 (Dr. Theron Randolph). Cell phone use jumped after 1980, surged to 100s of millions of users. Mold-infested homes – mycotoxins. Food supply added preservatives and value-added corn products, fructose, corn oil and corn fed meat: hogs, cattle and chicken. Non-ionizing radiation – from visible to infrared, Hertzian, radio, very long radio.

Mechanisms Proposed

1. Induction
 - a. Bone growth – Becker
 - b. Salamanders: regeneration of tail and other body parts
2. Heating – thermal damage, a whipping boy, no thermal damage – actually no heating, no biological effect
3. Resonance of membranes – cell size
4. Calcium flow across membranes
5. Energy mobile phone exposure of human endothelial cells – cancer and blood-brain barrier (Lexzezynski D. et al)
6. DNA dipole-graphite analog (cancer induction) > RNA > protein
7. Protein vibrational receptions – “not self” receptors, repel invaders, close cell membranes
8. Trap free radicals –OH, O³ and protein waste products
9. Messenger RNA passes onto daughter cells
10. Postulate worse effects if immune system immature or damages more cells that remain in an undifferentiated proliferative states – Friend erythroleukemia (Chen et al 2000)
11. Brainwave frequencies in monkeys – and behavior low intensively electric fields 7,45,60 and 75 hertz.
12. Spanish chick embryo study – malformations, Henhouse project 1986 – 6 labs in U.S. and Canada-Sweden increase in abnormal chicks; pregnant mice – Karolinska fetal abnormalities; Kaiser Healthcare found in VDT operators 80% more early and late miscarriage – children had increased birth defects.
13. Bone growth with pulses signal Drs. A.L. Bassett orthopedic Columbia University, Dr. R. Goodman and A. Henderson, 60-72 Hertz on fruit fly, salivating gland cells increased total protein production. In *Drosophila*, 60 hertz electromagnetic signals enhanced expression of oncogenic genes, also happens in human leukemia cells. Patients who have chemical sensitivity have electrical sensitivity, but this is thought to be uncommon.

Criticisms

- Assurances based on bad data
- inadequate measurement
- faults in interpretation
- following analogies – with in the sun
- conflict of interest

- focus on a know cause that explains all, not the new
- focus on an irrelevant cause – red herring
- cannot occur without mechanism being known and accepted
(wrong for asbestos fibers and mesothelia)
- Psychomatic – it's all in your head
- Defacto policy is to expose human beings to a long term experiment for which consequences are unknown

Conclusions

- a. Correlations of electromagnetic fields, power lines, video display terminal with serious health problems, childhood cancers, cardiovascular disease coronary artery occlusion, brain tumors and fetal abnormalities suggest causal links
- b. Electric utility companies via Electric Power Research Institute and the U.S. Department of Energy by 1990 praised the recent studies that linked biological effects and electromagnetic field exposure
- c. Samuel Milham, taking the idea a big step further. He suggests that the 20th Century epidemic of diseases of civilization are caused by electrification
- d. But I recommend that electrification is a temporal trend or a co-factor with carbon fuel burning, chemical saturation of cells and systems. Adding magnetic fluxes could affect redox election flows to disorder enzymes and cell recognition, messengers and mediators.

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Objectives & Notes**Magda Havas, Ph.D.**

Date of talk: Friday, June 4, 2010, 8:35 am

Environmental & Resource Studies, Trent University
 Peterborough, ON
 Canada K9J 7B8

Training:

Current Job Description:

Teach and do research on the health and environmental effects of chemical contaminants and electromagnetic pollution

Current Faculty Appointments:

Associate Professor, Trent University

Medical School/ University Attended

B.Sc. and Ph.D. at University of Toronto (Institute for Environmental Studies and Department of Botany)

Internship:

Post Doctoral Fellow at Cornell University

Other Information:

1. Public Health SOS: the shadow side of the wireless revolution. Co-authored with Camilla Rees.

2. see articles and videos at www.magdahavas.com

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: "Dirty Electricity: The Missing Link."

At the end of this Presentation, the participant should be able to:

1. Recognize that in addition to the potentially harmful effects of extremely low frequency (ELF) and microwave frequency (MW) radiation, there is another range called intermediate frequencies (IF) that are biologically active and ubiquitous.
2. Learn how to measure and remediate these intermediate frequencies.
3. Understand that dirty electricity affects diabetes, people with multiple sclerosis and has been associated with the symptoms of electrohypersensitivity (EHS) in home, work and school settings.

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Dirty Electricity: The Missing Link**Magda Havas, B.Sc., Ph.D.**Environmental and Resource Studies, Trent University, Peterborough, ON, Canada, mhavas@trentu.ca, www.magdahavas.com**Abstract**

Objectives: The objective of this presentation is to bring attention to part of the electromagnetic spectrum that is biological active but has largely been ignored by the scientific community. Poor power quality or dirty electricity includes high frequency transients on electrical wires within the frequency range of 4 to 100 kHz. This portion of the spectrum, which the World Health Organization refers to as intermediate frequencies (IF), lies between extremely low frequency (ELF) and broadcast radio frequencies. These frequencies are generated by loose wires, arcing, on/off switching, variable speed motors, computers, dimmer switches, some types of energy efficiently light bulbs, and plasma television. Dirty electricity can be reduced with specially tuned capacitors. Industrial capacitors and power line capacitors (filters) have been in use for decades primarily to improve power quality so that sensitive electronic equipment is protected. Surge suppressors perform this function to a limited degree. Recent studies are showing associations with poor power quality and cancer risk in schools. Experimental studies are showing improve health, energy, mood among teachers and improved behavior among students especially at the elementary level. Exposure to dirty electricity contributes to elevated blood sugar among some diabetics, increased tremors among those with multiple sclerosis, and a multitude of symptoms collectively referred to as electrohypersensitivity.

Conclusions: Intermediate frequencies in the kHz range have been shown to adversely affect health and have been associated with cancers

References:

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Milham, S. and L.L. Morgan. 2008. A new electromagnetic exposure metric: High frequency voltage transients associated with increased cancer incidence in teachers in a California school. *Am. J. Ind. Med.* 51:579-586.

Objectives & Notes

Samuel Milham MD, MPH

2318 Gravelly Beach Loop NW
Olympia, WA 98502

Training:

Current Job Description:	Retired
Current Faculty Appointments:	U of Washington School of Public Health, Mt. Sinai Medical School
Medical School	Albany Medical College, Johns Hopkins School of Public Health
Internship:	USPHS Hospital Boston (Brighton Marine)
Residency:	New York State Health Dept
Board Certifications:	Public Health
Other Information:	Type Milham s in pub med
Disclosure Statement:	No financial or affiliations to disclose.

SPEECH TITLE: "Increased Cancer in School Teachers Caused by 'Dirty Electricity'"

At the end of this Presentation, the participant should be able to:

1. Understand that EMF causes most modern disease.
2. Advise patients on exposure mitigation.

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Objectives & Notes**Deborah Singleton MA**

Date of talk: Friday, June 4, 2010, 9:35 am

Arasini Foundation/A Healing Place
 2011 N. Collins Blvd. #709
 Richardson, TX 75080

Training:

Current Job Description:

Director, A Healing Place; President & Founder of Arasini Foundation

University Attended

Northern Arizona University

Other Information:

Over 25 years of experience practicing energy medicine with individuals from around the world.
 Author of educational materials on "The Human Energy System" and "Conscious Healing."
 Founded Arasini Foundation in 1985, a non-profit organization committed to educating individuals about wellness and healing.

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: "The Definition, Perception and Treatment of Abnormal Energy Fields in Electromagnetic Field Sensitivity"

At the end of this Presentation, the participant should be able to:

1. Gain an understanding of how the abnormal energy fields in an EMF sensitive patient relate directly to the nervous system.
2. Enumerate treatment modalities appropriate for EMF sensitive patients.
3. Understand the process of correction of an abnormal energy system through case study.

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

THE DEFINITION, PERCEPTION AND TREATMENT OF ABNORMAL ENERGY FIELDS IN ELECTROMAGNETIC FIELDSENSITIVITY

**Deborah Singleton, MA
 ArasiniFoundation/A Healing Place
 Dallas, Texas**

Abnormal energy fields in theelectromagnetic field (EMF) sensitive patient vary considerably from thehomeostatic range. One can usually distinguish these from not only homeostaticfields but also from patients with chemical sensitivity. Though EMF sensitivepatients may have energy fields similar to the chemically sensitive patient,they also have their own unique characteristics. These include variations of abnormality in the first four layers of the energy field that relate directly tothe nervous system.

One needs to treat thesepatients with energy manipulation until equalization of energy is in thehomeostatic range. Once this is acheived the patient can be worked up for food, chemical, and mold sensitivity.

To restore the body's energyto its own natural rhythm, therapeutic combinations are developed for eachindividual, according to the patient's specific needs. The treatment modalitiescan include touch therapy, polarity therapy, acupressure, visualization,massage, and specific movement exercises to reprogram the energy fields in orderto develop homeostasis. Also, the teaching method includes showing theindividual how to work with their personal energy field in relation to theelectromagnetic environment. An illustrative case report will bediscussed.

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Objectives & Notes**Martha Stark, M.D.**

Date of talk: Friday, June 4, 2010, 10:30 am

Harvard Medical School
 3 Ripley Street
 Newton, MA 02459

Training:

Current Job Description:

Teaching/lecture circuit and full-time private practice in psychiatric medicine and psychoanalysis
 The Center for Psychoanalytic Studies, Massachusetts General Hospital, Harvard Medical School;
 Beth Israel Deaconess Medical Center, Harvard Medical School; Massachusetts Institute for
 Psychoanalysis

Current Faculty Appointments:

Medical School/ University Attended
 Residency:

Harvard Medical School
 Adult Psychiatry Residency – The Cambridge Hospital, Cambridge, MA; Child Psychiatry
 Fellowship – Massachusetts Mental Health Center, Boston, MA; Psychoanalytic Training – Boston
 Psychoanalytic Institute, Boston, MA

Board Certifications:

American Association of Psychiatric Medicine

Other Information:

Stark M (1994). Working with Resistance. Northvale, NJ: Jason Aronson; Stark M (1994). A Primer
 on Working with Resistance. Northvale, NJ: Jason Aronson; Stark M (1999). Modes of Therapeutic
 Action: Enhancement of Knowledge, Provision of Experience, and Engagement in Relationship.
 Northvale, NJ: Jason Aronson

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: “EMFs and the Excitotoxic Cascade ”

At the end of this Presentation, the participant should be able to:

- to recognize the elements of an upregulated excitotoxic cascade
- to appreciate the self-perpetuating nature of the vicious excitotoxic cycle
- to describe the impact of electromagnetic fields on cell membranes
- to explain the role of calcium influx into the cytosol of the cell on the
 initiation and perpetuation of the excitotoxic cycle

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EMFs and the Excitotoxic Cascade

Martha Stark, MD | June 4, 2010

ABSTRACT

In my presentation, I will be drawing heavily on the groundbreaking ideas of Martin Pall and Russell Blaylock.

My presentation is about the stressful impact of electromagnetic fields on the initiation and perpetuation of the complex vicious excitotoxic cycle. At the center of the drama that gets played out in the brain are calcium-dependent endogenous excitotoxins, like the amino acids glutamate and aspartate. Also implicated in upregulation of the excitotoxic cascade are the following: activation of the brain's immune system (microglia and astrocytes), outpouring of excitotoxins, release of free radicals, oxidative stress, increased sensitivity of NMDA and vanilloid receptors to being stimulated by glutamate and other excitotoxins, excess influx of calcium into the postsynaptic cell, release of intracellular calcium stores, disruption of calcium homeostasis, increased activity of NF-kappa B (a "transcription factor"), increased production of proinflammatory cytokines, activation of genes responsible for encoding the inducible nitric oxide synthase (iNOS), increased production of endothelial nitric oxide synthase (eNOS) and neural nitric oxide synthase (nNOS), mitochondrial dysfunction, ATP depletion, and apoptotic cell death.

When mitochondrial DNA is oxidized, cellular energy is decreased and the cell's vulnerability to excitotoxic injury is greatly increased so that even normally occurring levels of excitotoxic neurotransmitters can trigger apoptotic cell death. As the process gains speed, the cell's P53 gene is activated to destroy itself, thereby prompting even more havoc within the brain.

At physiologic doses, these excitatory neurotransmitters play an important role in synaptic plasticity and are responsible for stimulating nerve cells to higher levels of activity (thus their involvement in cognitive functions like learning and memory). But at pathologic doses, these same excitatory neurotransmitters can excite nerve cells to death.

Marshall has suggested that "the process of neurodegeneration begins at the cellular level in which two main processes – oxidative stress and excitotoxicity – act relentlessly to inflict the majority of cell damage and death."

Pall's theory about the biochemical mechanisms underlying the development of such chronic "unexplained illnesses" as chronic fatigue syndrome (CFS), fibromyalgia (FM), chemical sensitivity (CS), and post-traumatic stress disorder (PTSD) is that specific short-term stressors are responsible for the initiation of the illness – more specifically, that bacterial and viral infections can initiate CFS and FM; exposure to pesticides and organic solvents can sensitize to the development of CS; physical trauma can initiate FM and PTSD; and severe psychological trauma can precipitate PTSD.

Pall goes on to suggest that, once the complex vicious cycle involving nitric oxide, superoxide, and peroxynitrite has been initiated, it has a life of its own – it is a positive feedback, self-perpetuating, amplifying cycle that Pall believes provides a conceptual framework for understanding most currently unexplained chronic illnesses. Others have suggested similar mechanisms for the self-perpetuating nature of these chronic illnesses, like neural (central) sensitization, the kindling effect, and peripheral sensitization.

More generally, the synergistic impact of the myriad of environmental stressors to which the brain is being continuously exposed can trigger a series of biochemical reactions that involve, ultimately, activation of the excitotoxic cascade. In addition to triggers such as chronic infections, severe physical and psychological traumas, and toxic exposures to pesticides and organic solvents, ischemia (decreased perfusion) can serve to stress the brain by causing the accumulation of glutamate and aspartate in the synaptic junctions.

Furthermore, there is some thought that chronic exposure to certain kinds of electromagnetic fields can contribute to the "stress" experienced by the brain. Pall has suggested that exposure to EMFs increases nitric oxide synthesis, which will add fuel to an already burning fire. There is also some thought that EMFs lead to increased sensitivity of NMDA receptor sites, that is, upregulation of the NMDA receptors – in addition to increased release of excitatory neurotransmitters.

Studies have demonstrated that chronic exposure to EMFs can increase the production of amyloid-beta protein in the brain – a powerful inflammatory compound that further increases excitotoxicity. More generally, EMFs can increase free radical production, activate the stress response, and alter various enzyme reactions. In addition, EMFs can induce DNA damage (both single- and double-strand breaks). MacArthur (2000) has suggested that "the mechanism by which an external EMF interacts with an internal biological process is thought to be through the action of free radicals" (highly reactive atoms and ions whose unpaired electrons initiate chemical chain reactions that damage cells).

Finally, chronic exposure to EMFs can "jostle" the calcium ions that are bound to the nerve cell's membrane, such that there can develop increased "leakiness" of the membrane, leading to excess influx of calcium into the postsynaptic cell and disruption of the cell's calcium homeostasis. The result will be a fueling of the vicious excitotoxic cycle and exacerbation of the chronic illness.

My claim: That toxic exposures to EMFs can trigger electromagnetic sensitivity – which will be perpetuated by upregulation of the NO / ONOO- cycle. About 3% of the population are electrosensitive. Symptoms include skin rashes, paresthesias, dizziness, tinnitus, headaches, cardiac arrhythmias, confused thoughts, and fatigue – all of which symptoms are thought to arise from "spurious action potentials" and "false stimulation" secondary to unregulated influx of calcium ions into the cytosol through membranes rendered leaky by exposure to EMFs. Electrosensitivity, then, is an excitotoxic illness.

Non-ionizing (non-thermal) electromagnetic radiation is a stressor that destabilizes membranes, thereby allowing unregulated calcium influx into the nerve cell. Radiation-induced leakage of deoxyribonuclease through the damaged membranes of lysosomes also contributes to the increased concentration of intracellular calcium. These increased levels of calcium will accelerate the transmission of action potentials but will also generate spurious ones, leading to brain hyperactivity and further fueling of the excitotoxic cascade.

Radiation hormesis – low-doses promote healing and tissue repair, but higher doses are toxic and give rise to excitotoxicity.

From this it follows that treatment of electromagnetic sensitivity must involve downregulation of the vicious excitotoxic cycle. Vitamin B12, vitamin D, and bioactive folate all serve to decrease the levels of nitric oxide. Glutathione, the most important antioxidant in the body, protects brain cells from

nitric-oxide peroxynitrite damage. Glutathione also reduces excess NMDA. Substances that improve glutathione function include vitamin C, selenium, alpha lipoic acid, and vitamin B2.

OBJECTIVES

to recognize the elements of an upregulated excitotoxic cascade

to appreciate the self-perpetuating nature of the vicious excitotoxic cycle

to describe the impact of electromagnetic fields on cell membranes
to explain the role of calcium influx into the cytosol of the cell on the
initiation and perpetuation of the excitotoxic cycle

to understand the importance of therapeutic interventions that serve to downregulate the cycle

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Objectives & Notes**Gilberto de Paula, M.D.**

Date of talk: Friday, June 4, 2010, 11:00 am

Alergia-Immunologia CRM 2018
 Rua Acre, No. 12 3rd Andar, Sala 301
 N.S. Das Gracias, 69053-130
 Manaus-Brazil

Training:

Current Job Description:

Current Faculty Appointments:

Medical School:

Internship:

Residency:

Board Certifications:

Other Information:

Disclosure Statement:

Medical Director of Clinic of Allergy Nutrition and Environmental Medicine In Manaus

President of First of Meeting of Environmental Medicine In Brazil, Researcher of Historic Museum

of Amazon, Director of Environmental medicine of Pierre Gehano-ENT-Institute of Amazon

College of Health science-University of Amazon

Getulio Vargas Hospital-University of State of Amazon

Air Force Hospital 7th COMAR of Amazon

Homeopathy and Clinical Nutrition by Federal Board Certification In Brazil

The Practice of Environmental Medicine in I International Meeting of Environmental Medicine in

Brazil-September 2009 Annals, The scope of Environmental medicine in I International Meeting of

Environmental medicine in Brazil-September 2009 Annals

No financial or affiliations to disclose.

SPEECH TITLE: "Intracellular Calcium/Magnesium Imbalance May Be Associated With EHS"

At the end of this Presentation, the participant should be able to:

1. To analyse the possibility of cells to act as electric receptors.
2. To recognise how the cells would act as channels of radio "frequency windows" and how they would change with accordance to their state of health or disease/s.
3. To recognise the mechanism by which weak electromagnetic fields could act as "first messenger" activating ionic channels such as calcium⁺⁺ and to start enzymatic cascade of specific events within cells, and also their relationship with the nutritional status.

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Is the Imbalance of Intracellular Calcium /Magnesium May Be Associated With EHS?

Gilberto de Paula MD
Director of SINA in Manaus AM-Brazil
Center of Allergy, Clinical Nutrition and Environmental Medicine
Gilbertoambiental@gmail.com

"All the symptoms, the reflected image to the exterior of the internal character of the disease i.e. the disturbance of VITAL FORCE (electric biology?)

Must be the first method by which the disease allows the clinician to know the most appropriate remedy."
 Samuel Hahnemann Article Seven in The Organon of Healing Arts 1796

Electric Body

'I sing the body electric the arm of those I love engirth me I engirth them.
 ...and discurrup then and charge then full with the soul.(electricity)
 ...and if the body does not do as much soul?
 ...and if the body were not the soul what is the soul?

Walt Whitman -Leaves of Grass 1855

Recently the literature has described a new category of clamming relates to the human exposure to electromagnetic field .In Sweden Electrohypersensitivity (EHS) is an officially fully recognized functional impairment.

In a study conducted by Olle Johansson (2006) in EHS suffers found in biopsy of skin :

- 1-An Increase of mast cell by bio markers-Histamine, chymase, triptase
 - 2-An Increased number of mast cell in the upper dermis
 - 3-The disappearance of the normally empty zone between the dermoepidermal junction and mid-to-upper dermis (high density of Mast cell was found)
 - 4-The mast cell migrating towards the epidermis (=epidermiotrofy)
 - 5-Many of them emptied their granular content (=degranulation in the dermal papillary layer).
 - 6-The cytoplasmic granules were more density distributed in the study group and they had more strongly stained than in the control group.
 - 7-It was found that the size of the infiltrating mast cells was generally larger in the electro hypersensitive group.(1)
- This work indicates the possibility of a constitution or acquired condition that can collaborated to development the EHS, as the one seen in atopic patients.

To think about EHS is necessary first to consider the body as an electric field system or yet loaded with an electric charge with electromagnetic field around .This electric magnetic field can influence other bodies or objects through electric charges.If it implies the same measure it can suffer the same influence.2

In wild nature some kind of fishes (Amazon) that use the electroreceptivity to realize their prey an their enemy are a good example of it that is the puraquê (amazon eletric eel).(3)

In many studies investigating the deficiency or depletion of magnesium and the improvement of the suffers using magnesium reposition, it was found that many symptoms appear very similar to the symptoms related to the musculoskeletal syndrome such as Chronic fatigue Syndrome(CFS),Fibromyalgia(FM),Late Tetanie Syndrome(LTS),Chemical Sensitive(CS)(4,5,6,7)

This presentation discusses the possibility of patients with electromagnetic sensitivity may suffer from deficiency or depletion of magnesium .Perhaps they can also suffer other kind of disease that may benefit itself from magnesium supplementation. Another possibility is that such disease just receives benefit from pharmacological properties of magnesium .Such as patients with severe asthma,arritmic heart disease,Diabetes and eclampsia show that has absolutely no doubt that this procedure is clinically or complementary effective.(8)

The relationship between magnesium/calcium into the neuromuscular connection and inside of mitochondria results in a morphological phenomena that may be associated with the electroconduct disturbance. It would be based on electrobiochemical importance of magnesium supplementation (in vitro).(9) Clinical manifestation of magnesium deficiency is largely confined to the neuromuscular system due to the low serum or intracellular magnesium level and secondarily to the changes in potassium and calcium metabolism.(10)Low magnesium serum is very danger and consists an emergency situation (11).Low intracellular magnesium diagnose is a challenge to doctors.(12)

The simple co existence of universality of dirty electromagnetic exposure and ubiquitous magnesium deficiency in populations of developed countries raises the question of possible cross cutting study.(13,14)

The Risk of electromagnetic devices are considerable concern.The Eletrohypersensitive (EHS) person attribute can be a variety of rather unspecific symptoms to exposure to electromagnetic field.The pathophysiology of EHS is unknown and the therapy remains a challenge.Some electro sensitivity individuals are suffering from somatic health problems.Clinically its recommended to check for signs of treatable somatic conditions when caring for individuals suffering from self-proclaimed EHS.(15)

The underlying causes of EHS are still subject of much debate. One hypothesis is that biophysical factors might affect minority of people particularly sensitive to EMF. A Pilot study about increased concentration of certain persistent organic pollutants in subjects with self-reported electromagnetic hypersensitivity shows that in EHS the POPS concentrations was higher than in the control group (16).

Rea et al reported the EHS patients from the Environmental Control Unit showed signs and symptoms similar to those seen with food or chemical sensitivity. Some of them included neurologics, musculoskeletal, cardiovascular, respiratory, gastrointestinal, dermal and ocular changes, where the neurologic symptoms were more common. Rea also report that 40% of patients with chemical sensitivity improve after magnesium challenge. (17,18)

Conclusion

The universality of dirt electromagnetic exposure, ubiquitous magnesium deficiency both in all over the world. Make we ask the possibility that the patients with electromagnetic sensitivity may suffer deficiency or depletion of magnesium.

Many clinical and laboratory studies have shown the effectiveness of the diagnostic (19,20) of deficiency and the treatment of replacing Mg in syndromes like CS, FM, CFS, LTS. Several studies have also demonstrate the role of replacing Mg in other specific diseases, like asthma, diabetes, eclampsia, arrhythmic heart disease. (21,22,23,24,25,26,27,28,29) We wonder whether same methodology would be appropriate to treat patients with symptoms of EHS.

It is necessary to design a clinical trial to verify if this hypothesis could be reliable in the clinical practice as it seems in theory.

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Objectives & Notes**Cyril W. Smith, Ph.D.**

Date of talk: Friday, June 4, 2010, 11:30 am

36 Westminster Road
 Ellesmere Park
 Eccles, Manchester M30-9EA
 U.K.

Training:

Current Job Description:
 Current Faculty Appointments:
 Medical School/ University Attended
 Other Information:

Retired Physicist and Author
 N/A
 Exeter University and Imperial College, London
 Smith CW (2008) GUEST EDITORIAL: The electrical properties of high dilutions. Homeopathy 97 pp. 111-112.
 Smith CW (2008) Homeopathy - How It Works and How It Is Done. Chapters 1-7, January-July 2008 April 2009 www.hpathy.com
 Smith CW (2008) Fröhlich's Interpretation of Biology through Theoretical Physics. In: Hyland GJ and Rowlands P (Eds.) Herbert Fröhlich FRS: A physicist ahead of his time. Liverpool: University of Liverpool, 2nd edition, pp 107-154.
 Smith CW (2009) Can Homeopathy Ameliorate Ongoing Sickness? The Journal of Alternative and Complementary Medicine (May 2009), Vol. 15, No. 5: 465-467
 Disclosure Statement: Breakspear Medical-Fees and travel expense, WETSUS- travel expenses, Nativis Inc. consultant

SPEECH TITLE: "Chemical Sensitivities in EMS Patients"

At the end of this Presentation, the participant should be able to:

1. Appreciate the interaction between chemical sensitivities and electrical frequencies.
2. Understand the importance of frequency coherence in living systems.
3. Estimate the effect of chemical body-load in EMS patients.

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

**28th ANNUAL INTERNATIONAL SYMPOSIUM
on Man and His Environment in Health and Disease
"The Chemical Mechanisms Leading to EMF Sensitivity"**
June 3-6, 2010 Dallas, Texas

ABSTRACT

Cyril W. Smith, Ph.D.

#1. "Chemical Sensitivities in EMS Patients"

The Interaction between Chemical Sensitivities and Electrical Frequencies.

In 1982, Dr. Jean Monro, Medical Director of the Breakspear Hospital in England, asked me for help with electrically sensitive patients. 'Electromagnetic Sensitivity' is found in patients who already have an on-going chemical sensitivity. This requires an environmental frequency or pattern of frequencies which matches that of some chemical in the body which is toxic to it. It needs to be able to H-bond to water to develop a frequency signature. In the patient, the electrically and chemically triggered symptoms are identical. Once some patient specific field or intensity threshold has been exceeded, frequency becomes the relevant parameter. The symptoms can be neutralised by a frequency or an allergen potency but, de-toxification from the chemical causing the problem is essential for a permanent cure.

Electromagnetic Hypersensitivity has an objective existence and can be elicited under environmentally controlled double-blind conditions with 100% reactions to an active frequency and 0% to the placebos (Rea et al., 1991). The first body system to become compromised in chemical and electrical hypersensitivities is the autonomic nervous system (ANS). In health, the body will be aware of but, not incapacitated by environmental chemicals and electromagnetic fields and frequencies.

Living systems use chemical and electrical pathways to avoid the positive feedback instability characteristic of electronic amplification. For example, to trigger a nerve impulse from light of threshold intensity in the eye requires an amplification of a billion and one billionth of the output reaching the input could cause the whole visual system to go into oscillation. Alternating between electrical and chemical transmission methods avoids this problem. A billionth is about the reverse thermally activated reaction rate for an enzyme catalysed reaction.

Chemicals carry both chemical and frequency information in their trace or vicinal water. Biological cells in general can both emit a chemical in response to an electrical stimulus and give an electrical response to a chemical stimulus; some cells are specialised towards one of these processes.

Homeopathic potencies carry frequency information in water with little or no chemical information. Their frequency patterns are related to the chemical frequency signature of their 'Mother Tincture' the potensations and the dilution ratios, with certain exceptions such as in the case of *Electricitas*, *Magnetis* and *X-Ray* potencies.

Chemicals and frequencies in the body can affect proteins and enzymes, DNA translation, cell progression, compromise the immune system and destabilise the autonomic nervous system. Frequencies can effect isomeric transitions between L- and D- isomers and hence affect enzyme reactions.

If a body's endogenous frequencies are weak or missing, the body may seek its bio-information from frequencies and/or the frequency signatures of chemicals in its environment. Thus, exogenous frequency patterns can mimic the frequency patterns of toxic chemicals already in the body thereby triggering panic reactions as the body considers itself to be under imminent chemical attack.

If there was no duality between frequency and the chemical bond, spectroscopic analysis would be impossible.

The Importance of Frequency Coherence in Living Systems.

The theoretical physicist Herbert Fröhlich (1905-1991) showed the importance of *coherence* in biological systems. He had already considered biological problems in relation to theoretical physics in the 1930's. War intervened and he could not develop these ideas until in 1967, at a conference in Versailles, he considered long-range phase correlations in respect of biological order. He combined the ideas of high frequencies and collective or cooperative behaviour with ideas of long-range phase correlation and coherence and applied them to biological systems. The subsequent development of his ideas and the work of his world-wide circle of collaborators are contained in the two "*Green Books*" which he edited: "Coherent Excitations in Biological Systems" in 1983 and "Biological Coherence and Response to External Stimuli" in 1988 (Fröhlich, 1983 & 1988).

Preparata and Del Giudice and co-workers (Arani et al., 1995) showed theoretically that water consists partly of *incoherent* water molecules oscillating at random as in steam but more densely packed, and partly of water in *domains of coherence* where all water molecules oscillate in-phase as in the laser but without needing 'pumping'. Predictions from their theory are in good agreement with experimentally determined values for physical constants of liquid water.

Rowlands (Diaz & Rowlands, 2004; Rowlands, 2007) have described a universal computational 're-write' system leading to a simpler quantum mechanics applicable to large-scale structures and introduced the concept of '*nilpotency*' whereby two 'numbers' multiplied together can give a zero result. This allows for the removal of unwanted data in a computer system which can write its own program. This somehow reminds one of the living systems. The writer has shown that it is possible to demonstrate with arrangements of water ampoules that all the basic arithmetic and reversible logic operations can be performed in water and would be possible in the water of living cells 'clocked' and triggered by the voltages of nerve trains and impulses (Smith, 2005, 2007, 2009a).

The imprinting of information as phase modulation of coherent frequencies offers the possibility of a 'quantum-holographic' memory which is capable of representing objects correctly in both space and time, essential if one is to play ball-games..

The "Classical Electromagnetic Field" is the basis of electronics and radio; it describes oscillations whose phase is well defined (coherent) but for which the number of particles (quanta, photons) carrying the energy is so large as to be undefined.

The "Quantum Field" has uncertainty in both its phase and the number of particles involved and this uncertainty is determined by the Heisenberg Relation. The more

the uncertainty is taken up by fluctuation in the number of particles, the more perfect is the electromagnetic coherence.

The Effect of Chemical Body-Load in EMS Patients.

If endogenous frequencies are weak or missing, the body may seek bio-information from frequencies in the environment to control the ANS. Exogenous frequency patterns can mimic the frequency patterns of toxic chemicals in the body thereby triggering panic reactions in the ANS.

- A chaotic state may exist between stable states of health and disease which is not susceptible to repeat trials but, within which homeopathy, acupuncture and other modalities may be able to operate to restore the patient to a stable condition of health.

Do you want to have to say to your patients? – “Wait until your illness reaches a recognisable and stable disease state when I could use a remedy which can be successfully tested in double-blind trials, or I could use a “proven” homeopathic or other CAM remedy immediately to help you recover health from chaos before a stable disease state takes hold?”.

Thus, correcting body stress frequencies involves dealing with patients in an unstable region of mathematical chaos between health and disease (Smith, 2009b). Patients within this regime will not respond in the same way to a repetition of same stimulus or other conditions.

For therapy, the techniques of CAM are applicable including Homeopathy, Acupuncture and Allergy Therapies (Miller Technique). Water imprinted with stimulatory frequencies will encourage the body to ignore stress frequencies.

Using a patient’s body stress frequency imprinted into water it is possible to find a frequency using a Caduceus coil which will have the property of ‘nilpotency’ with regard to the imprint and with this one can erase all body stress frequencies. This will then expose the next layer of stress frequencies so it is necessary to get a new imprint from the patient, measure it, and repeat ‘nilpotency’ on the new stress frequencies and so on until no more appear. I tell the patients it is like peeling an onion, there are many layers and each one makes you cry!

With a very sensitive patient and particularly one who has become addicted to the frequency of the power supply this could amount to ‘cold-turkey’.

However, permanent results will not be obtained until stressful chemicals with any remaining frequency imprints or signatures have been detoxified.

-

Conclusions

The conclusion is that:

“If you do not want to get electrically sensitive - Do not get chemically sensitive!

“If you are electrically sensitive - Get rid of the chemicals!”

There are fundamental difficulties in getting the idea of frequency sensitivity accepted in the scientific community. It has long been the accepted wisdom that the only biological effects of electromagnetic fields are due to heating. It means that any frequency can be put out into the environment with causing harm. The whole of the technically useful and accessible frequency spectrum is already in use in some way and the limits are being continually pushed upwards. All this is very convenient from the legal and administrative viewpoint and regulations concerning environmental power radiation levels reflect this.

There is no chemistry in “Classical Physics” so, once it can be convincingly demonstrated that environmental frequencies can cause chemical stress problems it will have to be admitted that we are dealing with systems operating in the domain of large-scale “Quantum Physics” where uncertainty is a fundamental property. The removal of the certainty of the ‘thermal effects’ theory would cause major administrative and legal problems but health-giving for “Man and His Environment”. Regulation would have to be replaced by risk-benefit analysis. I presented evidence that a living system is a macroscopic quantum system in 1997 (Smith, 1998).

Objectives & Notes**Kou Sakabe, M.D., Ph.D.**

Date of talk: Friday, June 4, 2010, 1:30 pm

Tokai University School of Medicine
 Division of Environmental Toxicology, Department of
 Human Structure and Function
 143 Shimokasuya
 Isehara, Kanagawa 259-1193 Japan

Training:

Current Job Description:	Professor of Clinical and Molecular Toxicology
Current Faculty Appointments:	Professor, Tokai University School of Medicine
Medical School:	Tokai University School of Medicine
Internship:	Tokai University Hospital
Residency:	Tokai University Hospital
Board Certifications:	The Japanese Society of Clinical Ecology; The Japanese Society of Balneology, Climatology and Physical Medicine
Other Information:	Environ. Health Prev. Med. 14(5):267-275,2009., FEBS lett. 583:1127-1131, 2009., Int.J. Hyg. Environ. Health. 211:682-689, 2008., Am.J. Physiol. Gastrointest. Physiol. 294:877-884, 2008., J. Pharmacol. Exp. Med. 320(2):475-484, 2007., Bull. Environ. Contam. Toxicol. 77(5):779-784, 2006., Toxicol. Indust. Health. 21:113-124,2005.
Disclosure Statement:	No financial or affiliations to disclose.

SPEECH TITLE: "Sensitization Studies in Electromagnetic Intolerant Individuals"

At the end of this Presentation, the participant should be able to:

1. Goal and objectives:
Establishment of diagnosis in patients with electromagnetic field sensitivity (EMFS) using objective methods.
2. Outline of talk/abstract:
Discuss the new concept of EMFS, with special reference to detailed criteria.
Brief review of the EMF challenge test and neurological examinations.
3. Conclusion of what is to be learned:
At the end of this Presentation, the participant should be able to :
Understand the new concept of EMFS which we proposed.
EMF causes alterations in brain functions.
Understand the role of neuro-ophthalmological examinations in EMF-sensitive patients.
The results support the hypothesis that repeated exposure of EMF promotes EMFS.

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

Sensitization Studies in Electromagnetic Intolerant Individuals

Kou Sakabe, M.D., Ph.D.

Department of Molecular Toxicology and Clinical Ecology,
Tokai University School of Medicine, Kanagawa
Professor, Graduate School of Medical Sciences, Tokai University
143 Shimokasuya, Isehara, Kanagawa 259-1193, Japan
E-mail: sakabek@tokai-u.jp

Electromagnetic intolerance (EI) is the subjective experience of polysymptomatic illness from daily levels of electromagnetic fields (EMF). EI is the core symptom of chemical sensitivity (CS), but it is also a prominent feature in subsets of several other controversial conditions, for example, anxiety neurosis, panic disorder, depression, allergies and solvent induced encephalopathy.

These symptoms are based on the disorder of the neurological function, mainly affecting the central nervous system/autonomic nervous system, caused by a sensitivity reaction induced by exposure to low levels of deleterious EMF present in the living environment. It is a complicated syndrome observed to cause other functional disorders such as in the immune system and/or endocrine system. Diagnosis is not easy because pathophysiological understanding of the syndrome is not sufficiently complete. Therefore, there are many difficult cases. However, it is possible to establish a linear connection between the development of various indefinite complaints and exposure to EMF by taking sufficient time to interview patients in detail regarding the activity and conditions of daily life, such as the surrounding environment and goods normally used on a daily basis. However, it is quite important to obtain objective examination results in order to prove that a patient's complaint is not merely "all in their head."

The EMF Challenge Test is very useful for specifically identifying causative frequency/ wavelength. We evaluate the condition of the patient before, during, and after exposure to the EMF, conduct neurological testing before and after the load, determine pupil light reaction rate before and after the load, as well as change in the amount of cerebral blood flow.

In this syndrome, functional assessment of neurological function is especially relevant. For example, the electronic iriscorder is useful as one of the tests of autonomic nerve functioning in this syndrome. Here are many cases of this syndrome in which some abnormality and/or instability of papillary light reaction, that is primarily caused by functional abnormality of autonomic nerve function, has been observed. Furthermore, evaluation of eye movement by Electro-Oculograph is also very useful, as many patients have some disorder of smooth pursuit movement. Modulation Transfer Function, which evaluates the higher optical center (visual cortex) is also useful, and a decrease in Visual Contrast Sensitivity is often observed.

I have presented the items considered to be of future importance in a clinical environmental medicine regarding CS/EMFS. The progress of research over the last few years regarding the understanding, diagnosis, and treatment of this syndrome is amazing. Within the next few years, the latest research techniques using gene expression, such as a toxicogenomics, and proteomics will be applied to clinical research of this syndrome. If this applied, basic clinical data will be obtained for approaching an understanding of the syndrome and it is expected that an index for evaluation of this illness will be established.

Keywords: EMFS, CS, nervous system, challenge test, neuro-ophthalmology

Objectives & Notes**William J. Meggs, M.D., Ph.D.**

Date of talk: Friday, June 4, 2010, 2:00 pm

Brody School of Medicine, East Carolina University
 600 Moyer Blvd., Room 3ED311.
 PCMH, 3ED-311, Department of Emergency Medicine
 Greenville, NC 27834-4354

Training:

Current Job Description:

Chief of Toxicology, Professor of Emergency Medicine

Current Faculty Appointments:

Professor, Brody School of Medicine

Medical School/ University Attended

University of Miami, Miami, Florida

Internship:

Rochester General Hospital

Residency:

Rochester General Hospital, Fellowships at NIH and NYU

Board Certifications:

Medical Toxicology, Allergy and Immunology, Internal Medicine, Emergency Medicine

Other Information:

Author of "The Inflammation Cure", over 50 research publications, Co-editor of "Health and Safety in Farming, Forestry, & Fisheries"; Co-author of "Biomarkers of Immunotoxicology"

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: "The Brain as a Target Organ for Allergic and Irritant Sensitivity"

At the end of this Presentation, the participant should be able to:

1. To know the data associating cerebral reactions with allergen and chemical exposures.
2. To know the types of reactions that occur with allergen and irritant exposures.
3. To understand possible mechanisms for the brain as a target organ for allergens and chemical irritants.
4. To know techniques for monitoring the brain as a target organ for reactions.

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

The Brain as Target Organ for Allergic & Irritant Sensitivity

William J. Meggs, M.D., Ph.D.

Objective: This lecture reviews clinical descriptions of some of the behavioral and neurological manifestations of allergy and irritant sensitivity. Literature on the role of chemical irritants in inducing and exacerbating airway inflammation are also reviewed as irritant sensitivity; that is, chemical sensitivity limited to the respiratory system.

Data Sources: MedLine searches of articles combining the terms allergy, asthma, rhinitis, irritant rhinitis, irritant asthma, chemical sensitivity, and multiple chemical sensitivity syndrome were combined with searches on fatigue, chronic fatigue syndrome, depression, anxiety, and insomnia. Textbooks of allergy and books on chemical sensitivity were reviewed.

Data Extraction and Synthesis: Quantitative evidence on the neurological and psychiatric manifestations of asthma and chemical sensitivity is limited, though a few controlled studies exist. Chemical sensitivity is generally self-reported in studies, though objective parameters exist for diagnosis of allergy. Clinical descriptions and controlled studies are analyzed for their support for the hypothesis that the brain is a target organ for allergic and irritant sensitivity.

Conclusions: Clinical descriptions and limited controlled studies support the hypothesis that the brain is a target organ for allergic and irritant reactions with neurological and psychiatric manifestations. No studies were found that refute such an association. Evidence is sufficient to justify controlled challenge studies using real time monitoring of cerebral function with state of the art imaging modalities, correlating symptom scores and serum biomarkers. The impact of this research could have implications for treatment and prevention of some forms of neurological and psychiatric illnesses.

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Objectives & Notes**James L. Oschman, Ph.D.**

Date of talk: Friday, June 4, 2010, 2:30 pm

Nature's Own Research Association
 P.O. Box 1935
 Dover, NH 03821

Training:

Current Job Description:

Author and presenter of lectures and workshops on energy medicine internationally

University Attended

University of Pittsburgh

Current Faculty Appointments:

Akamai University; Energy Medicine University

Other Information:

Energy Medicine: the scientific basis, Churchill Livingstone/Harcourt Brace, Edinburgh, 2000.
 Energy Medicine in Therapeutics and Human Performance, Butterworth Heinemann, Edinburgh, 2003
 About 30 papers in leading scientific journals, and about an equal number in complementary medicine journals.

Disclosure Statement:

Ondamed Inc.-Honorium, Barefoot Sales-Research support, Nura HTC-Consultant, InsideOut, LLC-Consultant

SPEECH TITLE: "EMF Sensitivity: The Quantum Perspective"

At the end of this Presentation, the participant should be able to:

1. List 3 quantum aspects of cell and tissue chemistry that impact EMF sensitivity.
2. List 3 quantum phenomena that contribute to EMF sensitivity.
3. List 3 properties of electromagnetic fields that interact with cells and tissues.

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

EMF Sensitivity: Quantum Aspects**James L. Oschman, Ph.D.**

Nature's Own Research Association

Dover, New Hampshire, USA

Objectives of the presentation

Two models of energy and information flow dominate modern physiology, biochemistry and regulatory biology. One model derives from the out-dated simplifying assumption that the body as a whole and the individual cells within it are "volume conductors" with ions acting as charge carriers, as was discussed in the first presentation. The second model is the "lock and key" or structural matching scheme in which regulatory molecules such as hormones, neurotransmitters, neurohormones, growth factors, antigens and second messengers (e.g. calcium and cyclic AMP) diffuse more or less randomly from place to place until they more or less accidentally encounter receptors on or in a cell. When the signal molecule meets the receptor the receptor is activated, altering some aspect of cell behavior. A comparable model dominates enzymology: substrates diffuse to and bind with appropriate sites on or in enzyme molecules and become structurally altered. The product of the reaction then diffuses to the next enzyme in the sequence. We are taught that this is the basis for the metabolic processes that make life possible.

Since everyone has put a key into a lock and opened a door, the simplistic structural matching model is easy to grasp, but is it the whole story? Albert Szent-Györgyi was certain that the random bumping about of molecules and accidental encounters with receptors or enzymes, as envisioned in hormonal regulations and solution biochemistry, was far too slow to explain the speed and subtlety of life. Szent-Györgyi pointed out that the billiard-ball model of atomic and molecular interactions dates to Lucretius (ca. 99 BC- ca. 55 BC) and Epicurus (341 BCE - 270 BCE). Szent-Györgyi therefore looked for carriers of energy and information that can move about much more rapidly within the organism, and concluded that electrons, protons and electromagnetic fields could serve this purpose. Of course there was and continues to be little interest in electronic models of life because of the dominance of the volume conductor model. Since nerve conduction, muscle contraction, excitation-secretion coupling and many other living processes can be explained by the movements of dissolved ions, the free or mobile electron was relegated to a back seat. Hence Szent-Györgyi's discovery that proteins are semiconductors attracted relatively little attention among biologists. In contrast, however, the burgeoning molecular and nano-electronics industries have capitalized on protein semiconductors and have acknowledged Szent-Györgyi's work as one of the foundations for the entire field (Hush 2003).

There are serious problems with the structural matching or "shapist" model of interactions between signal molecules and receptors. Guenther Albrecht-Buehler stated the issue very clearly:

Consider the space around a cell. The volume is such that a hormone with a concentration of 1 pM (6×10^{11} molecules/liter) will have a concentration of 8 molecules in the space. In the region around the receptor the hormone concentration is essentially zero. This poses problems for our usual concepts of concentration and hormone-receptor interactions.

This problem is made even more acute when one considers how most cells in the body are packed closely together. Szent-Györgyi pointed out that molecules do not actually have to touch to interact. They can communicate via electromagnetic fields. Resonant electromagnetic interactions between molecules can therefore provide the basis for a web-work of electromagnetic regulatory networks within the human body. I illustrate this with the cytokine network that regulates the responses of the cells of the immune system after infection or injury and during wound repair.

The first presentation at this conference discussed the possible role of mobile electrons in relation to inflammatory responses. Now we look at electromagnetic regulations by viewing molecules as resonant antennas. Resonance is defined as the tendency of any object to oscillate or vibrate at maximum amplitude at certain frequencies, known as a system's resonant or natural frequencies. Each tissue, each cell, each molecule, each atom, each sub-atomic particle and space itself both emits and responds to specific frequencies. Any conducting material will work as an antenna. Each member of a perfectly coupled pair of transmitting and receiving antennas has the same geometry. Specifically they have the same wavelength or some multiple or fraction of that wavelength, and are separated by some multiple or fraction of that wavelength. It is well-documented that a signal molecule and its receptor have complementary structures, and this means that they will also tend to resonate.

Because of resonance, very weak electromagnetic fields emitted by molecules or by electronic devices in one's environment can produce specific beneficial or harmful effects within an organism. The body is transparent to some parts of the electromagnetic spectrum, and is opaque to others. The molecules producing electromagnetic fields that readily enter the body do not have to be taken internally to have effects – they can influence receptors or enzymes from a distance away from the body. Signals that do not readily cross the skin may still have biological effects by interacting with structures close to the skin surface, such as acupuncture points and/or meridians.

More and more physicians are learning to use therapeutic devices that produce frequencies that have been identified as safe and effective for reducing inflammation, counteracting diseases, speeding injury repair and enhancing longevity. Other physicians are recognizing that signals generated by electronic devices or toxins in our environment can produce chaos in living systems by disturbing delicate regulatory processes or enzymatic pathways. As an example, I show the Spectrum of light from a fluorescent lamp, with its prominent mercury peaks.

When looking at molecules as antennas that can broadcast and receive electromagnetic signals it is helpful to utilize antenna theory. The resonant frequency of an antenna depends on length, such as full wave, half wave, quarter wave, etc, antenna shape, and environment. Music theory is similar to antenna theory in that dividing a wavelength by 2 increases the resonant frequency by a single octave. Boehm (2007) has described methods for determining resonant frequencies of molecules to identify therapeutic frequencies. The functioning of specific types of genomic materials, including DNA and/or RNA, genes, and gene sections can be altered by specific frequencies. Boehm's methods can be used in relation to various human and animal diseases and conditions and open up a new perspective on the mechanisms of chemical toxicity.

An important example cited by Boehm is *Borrelia burgdorferi*, the spirochete that causes Lyme disease and that has also been linked to non-Hodgkin lymphomas. The *B. burgdorferi* (B31 strain) contains 910,725 base pairs and 853 genes. When the 910,724 base pairs are multiplied by the base pair spacing, one obtains the total length of the genome. The in-vivo resonant frequency of the genome, taking into consideration the velocity of electromagnetic radiation *in vivo*, is in the infrared range of the electromagnetic spectrum. A sub-harmonic in the audio range can be found by dividing this frequency by the number 2 as many times as necessary, to reach a sound frequency. In musical terms these frequency steps are known as octaves. In the example of the *in-vivo Borrelia burgdorferi* genome, a multi-octave shift can be achieved by dividing the primary molecular resonant frequency by two 29 times to yield an audio resonant frequency of about 636 Hz. An octave-shifted resonant frequency will have a precise correlation with a therapeutic or a toxic resonant frequency. These considerations have profound implications for toxicology and therapeutics.

To take a deeper look at these interactions we turn to quantum physics. We can ask for the source of energy that powers the continuous emissions of electromagnetic fields from molecules. Molecules are composed of atoms, and atoms contain electrons that continually move about, radiating energy. Quantum physics poses the question of what maintains the motions of electrons in atoms. In classical physics and electrodynamics, the electron should quickly radiate its energy into the environment and fall into the nucleus, causing the atom to collapse within approximately a hundred-millionth of a second. There must be something missing in the classical descriptions and quantum physics was devised to solve the problem.

There are many perspectives on quantum physics, and new ideas are being introduced at a rate that is challenging to keep up with. One of the most lucid explanations comes from the work of H. E. Puthoff. The quantum rule is that atoms can only emit or absorb energy in discrete packets or quanta with wavelengths that exactly match the differences in energy levels predicted by quantum theory. The quantum model works extremely well, but does not explain where the energy comes from that sustains electron motions. In his publications, Puthoff summarizes the concept that so-called empty space, or the quantum vacuum, is not empty at all but contains a vast sea of fluctuating energy. This is referred to as the Dirac sea, the quantum foam, zero point energy (because the motions of electrons are still present at absolute zero temperature), the quantum plenum, and so on. Accordingly space has a constant source of energy that can sustain electron motions and therefore maintain the structure of atoms.

Universal agreement among physicists is an illusion, and there are many who would argue that these ideas are too fantastic to be true. There are others who see this as a satisfying picture, and perform experiments every day that can best be explained this way. For technical descriptions of these arguments, see Puthoff's publications; for an easily readable account see Part 1, Chapter 2 in *The Field* by Lynne McTaggart.

The point for our purposes is that there is a logical explanation for a source of energy for the vibrations and electromagnetic emissions from environmental

toxins or therapeutic molecules that enables them to continually broadcast their presence into the human body; likewise there is a source of energy that can enable the receptors or enzymes within the body to act as extremely sensitive antennas that are already vibrating and that can therefore respond to very subtle influences from a distance. In sensory physiology these vibrations are referred to as *self-tuned critical oscillations*, a phenomenon that permits sensory systems to be highly non-linear in their responses to stimulation (Camalet et al., 2000).

Conclusions

Biophysical considerations lead to precise explanations of how molecules in the environment can interfere with or augment physiological regulatory processes and enzymatic pathways within the human body. Antenna theory provides a logical mechanism to explain these interactions. The background energy from space can provide unlimited energy for these interactions.

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Objectives & Notes**Arpad Szallasi, M.D.**

Date of talk: Friday, June 4, 2010, 3:30 pm

Monmouth Medical CenterPathology
300-2nd Ave.
Long Branch, NJ 07740

Training:

Current Job Description:	Medical Director for the Transfusion Services
Current Faculty Appointments:	Monmouth Medical Center, Longbranch, NJ, Drexel University College of Medicine, Philadelphia, PA
Medical School	University Medical School Debrecen Hungary
Internship:	St. Louis University School of Medicine, St. Louis MO
Residency:	Washington University Medical School, St. Louis MO
Board Certifications:	Anatomical & Clinical Pathology; Hematopathology
Other Information:	Over 100 papers on the roles of
Disclosure Statement:	No financial or affiliations to disclose.

SPEECH TITLE: “Thermo TRPs: of mice and men (or just mice?)”

At the end of this Presentation, the participant should be able to:

1. Recognize temperature-sensitive transient receptor potential (TRP) channels, the so-called “thermoTRPs”, as a distinct functional group within the superfamily of TRP ion channels
2. Describe the rising role of TRPA1 in airway protection and asthma
3. Understand species-related differences in the tissue distribution of thermoTRPs

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ThermoTRPs: of mice and men (or just mice?)**Arpad Szallasi**

The first TRP (Transient Receptor Potential) channel was identified in 1977 by Baruch Minke in *Drosophila* in a screen for vision mutants [1]. Flies with a mutant *trp* gene had a “transient receptor potential”; in other words, in response to prolonged blue light exposure their photoreceptors did not show the sustained depolarization one observes in wild-type animals (slide 1). Mammalian homologues subsequently emerged over the next three decades [2] but it was not until 1997, when the capsaicin receptor VR1 was identified as the founding member of the vanilloid family of TRP channels (TRPV1) [3], that the superfamily of TRP channels became universally recognized and a unified nomenclature was created (slide 2 and 3).

TRP channels are exceptionally diverse (slide 4) and they have been implicated in a broad range of physiological processes including nociception [4, 5], kidney function [6], taste [7], iron transport [8], anxiety [9], and responses to environmental irritants [4, 10]. Given this diversity, it is hardly surprising that mutations in TRP channels (so-called “TRP channelopathies”) have been linked to various human disease states ranging from polycystic kidney disease through mucopolipidosis to Alzheimer disease (slide 5) [2].

Unlike most families of ion channels that have been grouped together based on function, the 28 mammalian members of the TRP receptor superfamily are subdivided into six families based on primary amino acid structures (slide 3). These are the TRPC (Classic or canonical), TRPV (vanilloid), TRPA (ankyrin), TRPM (melastatin-like), TRPP (polycystin), and TRPML (mucolipin) families [2, 11]. Two members of the TRP channel superfamily may be less than 20% identical to one another, so there is considerable diversity among family members.

Consistent with the diversity in primary structure is the diversity observed in functional properties. The TRPs are commonly referred to as calcium permeable non-selective cation channels, but TRPM4 and TRPM5 are sodium selective channels whereas TRPV5 and TRPV6 are inwardly rectifying calcium selective channels [12]. TRP channels also vary in their tissue expression patterns. For example, TRPM7 is ubiquitously expressed [13] whereas the expression of TRPA1 is highly restricted [14]. Even the sub-cellular localization of the proteins varies with family members such as TRPML1 being hypothesized to be intracellular channels [8]. A number of TRP channels are being re-shuffled among intracellular depots [2]. As such, few generalities can be made about TRP channels.

A unifying feature of TRP channels relevant to chemosensation is their sensitivity to temperature (slide 6), hence the term “thermoTRPs” [15]. Of the currently known 28 TRP channels seven sense hot and warm temperatures (TRPV1 to TRPV4, TRPM2, TRPM4, and TRPM5) whereas two (TRPA1 and TRPM8)

are activated by cold [4, 15]. Combined, these channels cover a wide temperature range, with extremes falling between 10 °C (TRPA1) and 53 °C (TRPV2). Another shared feature of these channels is their sensitivity to a variety of natural products, many irritant (slide 6). In fact, the TRPV1 channel (the subject of my second presentation) was originally termed as the capsaicin receptor [4]. Not unexpectedly, TRPV1 turned out to be a shared target for various, structurally unrelated compounds that cause irritation and burning sensation in man, ranging from low pH (acids) through spices such as capsaicin (the pungent principle in hot chili peppers), piperine (responsible for the piquancy of black pepper), and gingerol (the active ingredient in ginger) to snake venoms and jellyfish toxins [4]. It is a mystery why the same feeling (capsaicin-evoked “hot” sensation in the tongue) that repels animals (a phenomenon taken advantage of in creating pepper-flavored “squirrel-free” bird seeds) is perceived as pleasurable by so many connoisseurs of hot, spicy food, including the humble author of this abstract.

Of thermoTRPs, TRPV1 and TRPA1 have attracted the most attention (slide 7). Of note, TRPV1 and TRPA1 are co-expressed in the same sensory neurons (slide 8) which is surprising given the opposite heat sensitivity of these channels (TRPV1 senses noxious hot whereas TRPA1 is activated by noxious cold). Potent, small molecule TRPV1 antagonists are currently undergoing clinical trials for various clinical indications, including chronic neuropathic pain, migraine, chronic cough, irritable colon syndrome and overactive bladder [16]. Small molecule TRPA1 antagonists are still in the preclinical stage [17, 18]. Animal experiments imply a therapeutic potential for TRPA1 antagonists in the medical management of pain [17], as well as airway diseases such as chronic cough, COPD, and asthma [18].

As already indicated, TRPA1 is an irritant-sensing cation channel expressed in TRPV1-bearing, capsaicin-sensitive chemosensory neurons which distribute to various organs, including the skin and airways. TRPA1 is unique in its ligand recognition properties. Unlike TRPV1 that displays the classic “key-to-lock” mechanism of ligand recognition, TRPA1 is activated by irritant via reversible covalent modification [19], the so-called Michaelis adduct formation (slide 9). Interestingly, TRPA1 is also activated by cold and mechanical (shear) forces [20]. Various exogenous noxious chemicals have been described to activate TRPA1, including agents recognized to trigger and/or worsen asthma such as diisocyanates, cigarette smoke, acrolein, chlorine (slides 10-13) [21-22]. During oxidative stress, a condition associated with asthma, various chemical species capable of activating TRPA1 are generated in the lungs, including reactive oxygen species (ROS), reactive nitrogen species (RNS), and several by-products of lipid peroxidation including nitrooleic acid and 4-hydroxynonenal (slide 14) [23]. All these agents act on the same molecular residues in TRPA1 (slide 15). Cigarette smoke contains a number of important constituents responsible for the deleterious effects of smoking that acts through TRPA1 (slide 16) [24]. Indeed, chemical ablation by neonatal capsaicin treatment of TRPA1-expressing innervation of the rat airways prevents irritation to smoke as visualized by cigarette smoke-induced Evan’s blue extravasation (slide 17) [25]. Importantly, these findings were replicated in mice whose TRPA1 receptor had been deleted by genetic recombination (slide 18) [26].

Many noxious agents that are now known to act through TRPA1 are characterized by a bi-phasic pain reaction, that is, an initial sharp and transient pain response followed by a second and more lasting pain. Recent findings provide a mechanistic explanation for this phenomenon. Endogenous aldehydes (e.g. 4-hydroxy-2-nonenal) generated during inflammation and tissue damage stimulate TRPA1 directly [27] and are believed to be responsible for the early pain response (slides 19 and 20). At the same time, TRPA1 becomes sensitized indirectly by arachidonic acid metabolites, creating the stage for the lasting pain response (slide 20).

Asthma is an inflammatory condition of the airways initiated by exposure to allergens and/or irritants. Recently, a potential role of TRPA1 in mediating allergen-induced asthmatic responses has been described in ovalbumin-sensitized mice, in which genetic deletion of TRPA1 or pre-treatment with a selective TRPA1 antagonist reduced leukocyte infiltration, decreased cytokine and mucus production and almost completely abolished airway hyperreactivity without affecting the immune response driven by the allergen (slides 21-23) [28]. Moreover, recent studies have provided strong pharmacological evidence that inhalation of TRPA1 receptor stimulants, like acrolein or cinnamaldehyde, elicits cough reflex in guinea-pigs and human volunteers (slide 24) [29]. Taken together, these findings imply a pivotal role for thermoTRP channels, in particular TRPA1 and TRPV1, in the pathogenesis of chronic cough, airway hyperreactivity and asthma (slide 25).

Although TRPA1 is highly enriched in sensory neurons, it is also expressed in keratinocytes where it was postulated to play an essential role in skin irritation (slide 26) [30]. Indeed, TRPA1 was shown to mediate the irritation and burning sensation that develops in some patients who use the topical antimycotic agent clotrimazole (slide 27) [31].

As to the possibility that TRP channels may play a direct role in the development and maintenance of EMF sensitivity, the literature is almost non-existent. My Medline search has indentified only one (somewhat) relevant paper: in neutrophil granulocytes, TRPC1 was reported to be activated electromagnetic fields [32]. However, it has to be kept in mind that thermoTRP channels are important down-stream mediators of chemosensation and irritation where several molecular pathways converge, so it is not unfeasible that they also mediate EMF sensitivity [4].

In conclusion, recent findings highlight thermoTRP channels (in particular, TRPA1 and TRPV1) as important molecular targets for a wide variety of known exogenous and endogenous inflammatory and irritant chemical agents, and suggests that TRPV1 and TRPA1 antagonists might be taken into consideration as a novel pharmacological treatment of asthma, chronic cough and possibly other inflammatory conditions of the airways. In fact, potent small molecule TRPV1 antagonists are already undergoing clinical trials to relieve chronic cough. Many TRPA1 antagonists have been developed by pharmaceutical companies (representative examples are shown in slide 28), some of which are expected to be promoted into clinical trials from the preclinical studies in the foreseeable future [33]. Animal experiments are promising. However, it remains to be seen if these compounds prove beneficial in the clinics. Past experiences (for example, the disappointing clinical results with tachykinin receptor NK1 antagonists) caution us to subdue our expectations.

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Objectives & Notes

Martin Pall, Ph.D.

Date of talk: Friday, June 4, 2010, 4:00 pm

Washington State University
638 NE 41st Ave.
Portland, OR 97232

Training:

Current Job Description:
Medical School/ University Attended
Internship:

Itinerant scientist and general trouble maker
B.A., Johns Hopkins University; Ph.D., Caltech
Professor Emeritus of Biochemistry and Basic Medical Sciences, Washington State University and
Research Director, the Tenth Paradigm Research Group
Explaining "Unexplained Illnesses": Disease Paradigm for Chronic Fatigue Syndrome, Multiple
Chemical Sensitivity, Fibromyalgia, Post-Traumatic Stress Disorder, Gulf War Syndrome and
Others, Harrington Park Press, 2007.
Pall ML, 2009 Multiple Chemical Sensitivity: Toxicological Questions and Mechanisms. Chapter
XX in General and Applied Toxicology, 3rd Edition, Bryan Ballantyne, Timothy C. Marrs, Tore
Syversen, Eds. John Wiley & Sons, London.
Other information and relevant citations on the author's web site: thetenthparadigm.org
Financial Allergy Research Group

Disclosure Statement:

SPEECH TITLE: "Multiple Chemical Sensitivity: Toxicology and Chronic Mechanism"

At the end of this Presentation, the participant should be able to:

1. Outline how various classes of chemicals implicated in chemical sensitivity all produce increases in NMDA activity.
2. Outline how excessive NMDA activity can initiate the NO/ONOO- cycle and the interaction of this cycle with such other mechanisms as neural sensitization and neurogenic inflammation can explain the properties of multiple chemical sensitivity.
3. Outline how the primary local nature of the NO/ONOO- cycle explains the stunning variation in symptoms seen in different MCS patients.

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Objectives & Notes**Jean A. Monro, M.D.**

Date of talk: Friday, June 4, 2010, 4:30 pm

Breakspear Hospital
Hertfordshire House
Wood Lane, Paradise Estate
Hemel Hempstead, Herts HP2 4FD
England

Training:

Current Job Description:
Current Faculty Appointments:
Medical School/ University Attended
Residency:
Board Certifications:
Disclosure Statement:

Medical Director of The Breakspear Medical Group Ltd., England
Medical Director of The Breakspear Medical Group Ltd., England
London Hospital Medical School, England
London Hospital
MB BS, MRCS, LRCP, FAAEM, DipIBEM, MACOEM
No financial or affiliations to disclose.

SPEECH TITLE: "DNA Adducts And Mitochondrial Function: Biochemical Studies Of ATP → ADP. Mitochondrial Translocator Function."

At the end of this Presentation, the participant should be able to:

1. Understand mitochondril function tests.
2. ATP conversion to ADP and back.
3. Translocator function and impediments – DNA adducts
4. The evidence that there are these acquired abnormalities in many/autistic children.

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

Dr. Monro's abstract not available at time of printing.

SATURDAY, JUNE 5, 2010 ABSTRACTS

Objectives & Notes**Gilberto de Paula, M.D.**

Date of talk: Saturday, June 5, 2010, 8:05 am

Alergia-Immunologia CRM 2018
Rua Acre, No. 12 3rd Andar, Sala 301
N.S. Das Gracias, 69053-130
Manaus-Brazil

Training:

Current Job Description:
Current Faculty Appointments:

Medical School/ University Attended
Internship:
Residency:

Medical Director of Clinic of Allergy Nutrition and Environmental Medicine In Manaus
President of First of Meeting of Environmental Medicine In Brazil, Researcher of Historic Museum of Amazon, Director of Environmental medicine of Pierre Gehano-ENT-Institute of Amazon
College of Health science-University of Amazon
Getulio Vargas Hospital-University of State of Amazon
Air Force Hospital 7th COMAR of Amazon

Board Certifications:
Other Information:

Homeopathy and Clinical Nutrition by Federal Board Certification In Brazil
The Practice of Environmental Medicine in I International Meeting of Environmental Medicine in Brazil-September 2009 Annals, The scope of Environmental medicine in I International Meeting of Environmental medicine in Brazil-September 2009 Annals
No financial or affiliations to disclose.

Disclosure Statement:

SPEECH TITLE: "The Discovery Of New Conceptual World: Finding a GP In The Amazon With Environmental Medicine"

At the end of this Presentation, the participant should be able to:

1. Understand the process of discovery the model of Environmental Medicine in the Brazilian Amazon.
2. Experience how an epidemic of atypical pneumonitis, never before seen, facilitate this process.
3. Share the starting the appreciation of the study of molds on human health at Amazon, far beyond the Ige-mediated Allergy.

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The Discovery of New Conceptual World: Finding a GP In The Amazon With Environmental Medicine

Gilberto de Paula MD

**Director of SINA
Center of Allergy, Clinical Nutrition and Environmental Medicine.
Manaus-Amazonas Brazil.
Gilbertoambiental@gmail.com**

What is to ask?
It is to find an answer.
What is to answer?
Is it to find a question?

Laura Riding in Mindscapes 1922.

In the first years of my clinical practice in the city of Manaus, many people came to me with respiratory allergy. Based upon the literature that I had access it was believed that mites were the main and virtually the only one cause of respiratory allergy in the Amazon.

However, in my practice the test used to diagnose causes in allergic patients-Prick and Rast test- were 30-40% negatives for molds, dust mite and animals.

But if in fact they were allergic and answer to anti-allergic drugs which agents were causing their allergies?

- 1-The methods used were flawed or not sensitive?
- 2-There were other causes that the methods used could not detect?

These question were repeated in my mind every time when I read the Prick and Rast test and found negative results in patients with allergy symptoms.

When I discovered the concept that the allergy is a disease related to environment and the every doctors who studies allergies are essentially an environmentalist, a little light shone in the darkness of the forest.

Within this perspective it is necessary to make some questions?

Which environment we live?

Which is our biome?

Certainly it was not the same biome of Sao Paulo, the most important developed state in Brazil where come from every major medical research?

Following this reasoning, what would be the hidden cause associated with Prick test and Rast test negative allergies in Amazon Forest?

It was necessary to study the environmental but how to do it, if not being a member of a research institution?

And being just only GP a question in the mind?

It was the fate blew the opportunity to get an answer.

For five years running from 2001 to 2005 a micro epidemic of atypical pneumonia (eosinofilic) reached in the city of Manaus as never seen before.

Research conducted by health authorities tried to answer some question, because there was no secretions(dry cough), or bacteria, virus or parasites that could explain the cough, chest pain, difficult of breathing and peripheric eosinophylie and clinical response to corticosteroids only and unusual finds of radiology.

- 1-It was an allergic pneumonia?
- 2-What agent could trigger epidemic allergic pneumonia with this feature seasonal?
- 3-Man made or natural phenomenon?

I looked for the health authorities and make me available to participate in the search for the cause of the atypical pneumonia, believing it is a Hypersensitivity Pneumonia. Thinking of the most likely agent of this disease could be Mold but considering the possibility that macro climatic or micro environmental factor could be conditioning the epidemic seasonal disease. Between the two lines of reasoning I could only try to respond the first one.

Seeking from friends in other states, I found that there was a great master of allergy in Sao Paulo, scholar of Allergy to molds Julio Croce MD PhD a retired teacher from the University of Sao Paulo. He could teach me the enormous complexity of studying molds and their relation with allergic disease and how the mechanism of production allergic reaction was different from other allergies causes. Being that the most appropriate test to establish the reaction was - Intradermal reaction ID.

After have learning the technique I suggesting the health authorities administering the -ID test in convalescent patients with good general state of health to whether they were sensitized to molds compared with a control group. After having had this experience with ID .After that experience I started to include it as a diagnose method in allergic patients in conjunction with the Prick test and Rast test. In present times 85% of my patients show us is sensitive to molds .No more 30-40% negative allergic patients .We live in Amazon wet rain forest average temperature 34C were moisture is a role 92%.

This presentation aims to present the experience starting to value the molds to cause allergic disease in people living in the climate of the Amazon forest. Notice that some times the gold standard method for diagnosing causes in certain disease may prove blind to other causes that have biologically diverse and complex nature. This report signal the need for developing a line of research that consider molds not only cause of infection and allergy Ige mediated, but disturbing agents of human health by affecting broadly the immune system trough of others mechanism not only Ige Path

Awakening patients and doctors (living on Amazon) about the importance of hygiene care and avoidance of mold growth inside homes an workplaces.

Report the beginning of clinical practice that seek to environmental causes of diseases that were previous handled only trough symptomatic medication in the city in Amazon.

My first step to discover of another conceptual world of the environmental perspective of health it was mold for it complex, diverse and paradoxical nature to produce disease Gel&CoombsI,II,III,and IV and by Mvocs and MICotoxins.

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- 25-Dale W. Griffin.Can The Sahara Storms Affect The Amazon State Health.
I International Congress of Environmental Medicine-5-7 Set.2009-Manaus-Amazonas-Brazil ANNAIS.

Objectives & Notes**Colin H. Little, M.D.**

Date of talk: Saturday, June 5, 2010, 8:40 am

324 Stephensons Road
 Mt. Waverly
 Melbourne, Victoria 3149
 Australia

Training:

Current Job Description:

Physician & Allergist, Researcher

Current Faculty Appointments:

Medical School/ University Attended

Melbourne University

Internship:

Western General Hospital

Residency:

Queen Victoria Hospital

Board Certifications:

M B B S MRCP(UK) FRACP FACA

Other Information:

Clin Vaccine Immunol 2006 Vol 13:467-74, Exp Biol Med 2002 Vol 227:438-444, Current Trends
 in Immunology 2000 Vol 3:131-144, A sensitive ELISA to measure antigen-specific kappa and
 lambda immunoglobulin free light chains in human serum(Submitted for publication)

Disclosure Statement:

No financial or affiliations to disclose

SPEECH TITLE: "Are Immune Processes Implicated in Chemical Sensitivity?"

At the end of this Presentation, the participant should be able to:

1. Understand current views of mechanisms underlying chemical sensitivity.
2. Understand immune responses to low molecular weight chemicals and assays to measure them.
3. Appreciate how immune and psychological processes may interact in chemical sensitivity.

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Are immune processes implicated in chemical sensitivity?

Colin H. Little, M.D.

It is more than 50 years since Theron Randolph reported adverse reactions to chemicals in his patients. Although the issue has received increasing attention in the last two decades, it remains a controversial subject. A major reason for this is the lack of a marker that can be readily measured to confirm the diagnosis. In my view this reflects our limited understanding of the disorder. The current situation not only hampers diagnosis and treatment, but has major applications for patients, affecting medical treatment, their financial situation, and acceptance of their predicament both within the family and in society. If immunological processes contribute to the problem then perhaps specific diagnostic tests can be developed.

Certainly among patients, and sometimes in the medical profession, there is confusion as to what is implied by chemical sensitivity. It refers to adverse reactions to low chemical concentrations, concentrations which may be encountered in everyday life. In my view it is not to be equated with toxicity, the effects of irritation or a conditioned response, although such processes may contribute to symptoms in individual patients. The chemicals involved may not have toxic properties or a significant odour.

Symptoms associated with chemical sensitivity can be roughly divided into two categories: respiratory and involving the central nervous system. Respiratory symptoms may have a low profile and are often underrated. However management of this aspect of the problem can be quite instructive. Specific symptoms include nasal obstruction, excess mucus, facial ("sinus") pain, eye discomfort, cough, hoarse voice and shortness of breath. In my practice patients are often referred for the investigation of such symptoms and have no awareness of the possible role of chemicals. In such patients there may be little of the emotive or conditioning aspects which can be associated with chemical reactions. Also, only one of two specific chemicals may be involved, often chemicals which would otherwise be considered innocuous. I wonder whether this situation provides a less cluttered view of chemical sensitivity.

Other symptoms imply involvement of the central nervous system. They include fatigue, headache, muscle pain (myalgia), dizziness, poor concentration, memory impairment and disturbances of mood. Both anxiety and depression may be evident. These symptoms can dominate the "image" of chemical sensitivity, although they may only represent a subgroup of patients. Many studies on multiple chemical sensitivity refer to associations with the chronic fatigue syndrome, fibromyalgia and various psychiatric disorders, based on an interpretation of the disorder which focuses on "neural" symptoms. Certainly there may be greater disability associated with such symptoms, but attention can be directed away from other aspects of the problem.

Studies, generally based on questionnaires, indicate that adverse reactions to everyday chemical exposures are probably quite common in the general population. Reactions to chemicals, in mild form, have been reported at an incidence of around 15% of young adults. The severer form, often considered to represent multiple chemical sensitivity, occurs at an incidence of only 2 to 5%. Studies often stress the involvement of chemicals which may potentially have toxic properties or a pungent odour, perhaps because such chemicals attract the attention of patients rather than necessarily being implicated in reactions. However in individual cases odourless chemicals such as nitrogen dioxide may be important. Also, sensitivity to chemicals may be very selective, for example only involving seasonal emissions of terpenes from flowering plants. A careful history teaches that chemical sensitivity is an acquired disorder. In some cases the induction is associated, at the very least temporarily, with high exposure to chemicals such as solvents, or a viral illness.

There has been a slow buildup of data to substantiate chemical sensitivity as an entity. This situation has occurred partly because of the intrinsic difficulties in documenting a condition which often has no clear-cut overt features. Questionnaires have been helpful in defining the clinical features of the problem. Some of the best research comes from studies on respiratory function, in particular demonstrating a heightened response of the sensory nerves of the respiratory tract. In vitro assays, including those based on immune parameters, have been generally unsuccessful to date, although recent studies show potential, as will be discussed below. Procedures such as scans, EEGs etc may not be sufficiently sensitive to be suitable for widespread use. Because of the potent conditioning which can develop in some patients, often quite understandable in view of the impact on the quality of life, psychiatric assessment can be a minefield: in the absence of specific markers of chemical sensitivity, the presentation is vulnerable to subjective assessment. Finally, double blind assessment is often very difficult as inducing chemicals are often difficult to disguise, and at some stage many patients develop at least some degree of phobia about chemical exposures.

Studies by several independent groups have demonstrated a heightened response of sensory nerves of the respiratory tract. For example there is a low threshold for the induction of cough by capsaicin in patients and also an enhanced release of neuropeptides following capsaicin inhalation. These observations are consistent with the process of neurogenic inflammation affecting the respiratory tract. A Belgium group exposed patients to non-toxic concentrations of chemicals such as ethyl benzene and demonstrated swelling of the nasal linings which they also attributed to neurogenic inflammation.

Neurogenic inflammation is mainly associated with c fibres. These nerves transmit painful stimuli and can be stimulated by irritants, injury, cytokines and other inflammatory mediators. These latter products are released in infection or example by viruses. Commonly a persistent cough occurs in the context of a viral illness which is associated with neurogenic inflammation. However other immune reactions, both IgE -based, but also non- IgE in type, for example in contact dermatitis, can be involved. Mast cells are thought to play a central role in this process. Immune (and non-immune) processes induce the release of mediators and cytokines by mast cells. Depending on the type of process, different mediators (and cytokines) can be involved. Not only may histamine, bradykinin and prostaglandins be important, but also nitric oxide, tryptase and tumour necrosis factor alpha. (TNF-alpha) These mast cell products may directly release neuropeptides from nerve endings, but also enhance their release in response to irritants, heat and capsaicin. This raises the possibility that in chemical sensitivity mediators are released by mast cells to cause the enhanced response to agents such as capsaicin. The activation of sensory nerve endings may not only cause local inflammation, but relayed effects on the central nervous system.

In what I suspect is a neglected study, Kimata measured neuropeptides in the plasma of chemically sensitive subjects before and after exposure to a mixture of volatile organic compounds.(VOC's) Concentrations of substance P, VIP, nerve growth factor and histamine were measured in both patients and controls. Only in the patient group was there a significant rise. Also baseline levels were higher in patients. These results suggest that the process of neurogenic inflammation was occurring before the exposure. Exposure to the chemical mixture may have caused the release of neuropeptides by effects on mast cells. In patients sensitive to chemicals following exposure to capsaicin, respiratory symptoms are reported more often and are severer in comparison with controls. This observation is also consistent with enhanced neuropeptide release with local effects. In addition, symptoms

attributable to relayed effects on the central nervous system occurred more often in patients following capsaicin exposure, or example fatigue, headache, dizziness and poor concentration. Such observations strongly imply that "neural" symptoms occurring in multiple chemical sensitivity can be caused by neurogenic inflammation involving the respiratory tract.

The observations described so far suggest close parallels between the effects of chemical exposure and those of immune stimuli. As outlined, immune processes cause neurogenic inflammation. They are also associated with functional changes within the central nervous system. Following immune responses in the periphery, there may be activation of glia in dorsal root ganglia and the spinal cord. Among other effects, this causes enhanced transmission of pain stimuli. Microglia are activated in the brain, particularly in areas such as the amygdala and hypothalamus. Altered neural function in such regions is thought to cause effects such as fatigue, anxiety and memory impairment, symptoms often reported by chemically sensitive patients. Similarly, the effects on pain transmission are probably important in causing flulike symptoms such as headache and myalgia, symptoms again prominent in chemical sensitivity.

It is important not to adopt overly simplistic concepts as to how peripheral immune stimuli affect the nervous system. Studies have shown that the outcome depends on the site, intensity and type of immune stimulus. For example, the inhalation or peritoneal injection of bacterial extracts may stimulate vagal afferent nerve endings which relay to the brainstem then to the hypothalamus, hippocampus and other limbic centres. A recent study involving inoculation of flu virus indicates the olfactory nerve is stimulated and relays to the olfactory cortex and hypothalamus to cause hypothermia. Unravelling the intricacies of how immune responses impact on the nervous system is a major task, as yet far from completion.

Can one progress from indicating parallels between chemical sensitivity and immune responses to maintain that, at least in some situations, immune responses to chemicals is the underlying event? There are other observations to suggest this is plausible. Chemical sensitivity is an acquired disorder, consistent with altered immune response. Also, it is selective, both in the sense of involving only certain individuals, and also for only certain specific chemicals. This suggests the immune response is important, as may the fundamental observation that adverse reactions occur at low chemical concentrations, reminiscent of allergic reactions. Many patients with chemical sensitivity are also intolerant to foods and certainly inappropriate immune responses could be a common denominator.

What evidence is there that the potential role of immune reactions in chemical sensitivity has been underrated? The immense range of simple chemicals capable of causing immune contact dermatitis should caution against neglecting the issue. There are reported associations between drug allergy and multiple chemical sensitivity and it is possible that virus infections, for example, could be associated with both in some cases. Studies show that respiratory symptoms related to perfume exposure, but not to pollen exposure, are associated with an increased incidence of positive patch tests. This suggests that TH1 immune responses may be important.

Basophil histamine release/activation tests may be useful in studying immune responses in MCS. A Danish group measured histamine release from basophils following the addition of increasing doses of perfume extract in both patients and controls. The patients reported respiratory symptoms in association with perfume exposure. 20% had perfume contact allergy. At the highest perfume concentration, basophils from the patient released significantly more histamine than did controls. In my view this study warrants repeating, probably using the basophil activation test, which is commercially available. This test is already reported to be useful in detecting non-IgE allergy reactions to food additives, drugs and even simple chemicals such as formaldehyde. For reasons outlined in my earlier presentation, it is possible that antigen specific light chains are involved.

Several years ago a study was published involving a non-IgE model of chemical sensitisation. Animals were sensitised to Dinitrofluorobenzene by contact and subsequently challenged via the trachea to cross-reacting Dinitrosulphonic acid. Within 15-30 minutes TNF alpha was detected in the tracheal fluid. A mast cell dependent process was involved. The sensory nerves of the trachea were sensitised and showed a heightened response to capsaicin. It would be intriguing to know if light chains specific to the chemical were involved.

Conclusion

The concepts outlined in this presentation require qualification at many points. However there is evidence that immune responses to chemicals may contribute to symptom induction in some patients. Perhaps the recent availability of the basophil activation test provides an opportunity to probe this question further. Without doubt tests which document specific responses to chemicals in a subgroup of individuals such as MCS patients could advance the recognition of the problem in both the medical profession and the community.

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Objectives & Notes

William J. Rea, M.D.

Date of talk: Saturday, June 5, 2010, 9:20 am

Environmental Health Center - Dallas
8345 Walnut Hill Lane, Ste. 220
Dallas, TX 75231

Training:

Current Job Description:

Founder and President of the Environmental Health Center – Dallas, President American Environmental Health Foundation

Current Faculty Appointments:

Medical School/ University Attended

Ohio State University College of Medicine, Columbus, OH

Internship:

Parkland Memorial Hospital, Dallas, TX

Residency:

University of Texas Southwestern Medical School; Parkland Memorial Hospital, Baylor, Veteran’s Hospital, Children’s Medical Center

Board Certifications:

American Board of Surgery, American Board of Thoracic Surgery, American Board of Environmental Medicine

Other Information:

Author of “Chemical Sensitivity I-IV”, “Optimum Environments for Optimum Health”

Disclosure Statement:

Financial with Environmental Health Center-Dallas

SPEECH TITLE: “Treatment of Electromagnetic Sensitivity”

At the end of this Presentation, the participant should be able to:

1. Understand that avoidant EMF is significant in treatment.
2. Understand how to avoid EMF.
3. Understand how nutrition affects EMF.

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

TREATMENT OF ELECTROMAGNETIC SENSITIVITY

William J. Rea, M.D., F.A.C.S., F.A.A.E.M.
Yaqin Pan, M.D.
Ron Overberg, Ph.D.

ABSTRACT: The treatment of EMF remains difficult due to the avoidance problem of electrical and magnetic generators in our environment. This is especially true of computers, cellular phones, and other Wi-Fi receivers. At the present, Wi-Fi is the most pervasive emitter in the United States. Also, grounding has become a problem due to iron veins, underground cables and pipes, and railroad tracks. Also, building construction is important depending on whether is it metal, wood, or stone. Glass bottled filtered water, spring or distilled water is necessary as is organic food and a rotary diet. Intradermal neutralization for metals, food, chemicals, and molds is often necessary. Oral, injection, or IV nutrients is also necessary. Often, oxygen therapy is necessary as is sauna and immune modulation. Energy manipulation by a gift healer who works with energy is a must. It is now clear that these modalities can help the EMF patient if treated comprehensively with an 85% improvement rate.

CONCLUSION: Most cases of EMF can be treated by environmental and energy manipulation.

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Rea, William J., Pan, Yaqin, Fenyves, Ervin J., Sujisawa, Iehiko, Nasrola, Samadi, Ross, Gerald H.: *Electromagnetic Field Sensitivity*, *Journal of Bioelectricity*, Volume 10, No. 1 & 2, 1991.

Objectives & Notes

Kaye H. Kilburn, M.D.

Date of talk: Saturday, June 5, 2010, 10:30 am

P.O. Box 5374
Pasadena, CA 91107

Training:

Current Job Description:

Consultant, President of Neuro-test, Inc.

Current Faculty Appointments:

USC retired 2006

Medical School/ University Attended

University of Utah 1954

Internship:

Western Reserve Hospitals – Cleveland

Residency:

University of Utah: Medicine and pathology, Duke: cardiopulmonary, London: cardiology

Board Certifications:

Am Board Internal Medicine, Am Board Preventive Medicine, Occupational Health

Other Information:

“Chemical Brain Injury,” NY: John Wiley 1998; “Mold and Mycotoxins,” editor Washington DC:

Heldref 2004; “Endangered Brains” Princeton Scientific Press 2004, “Mold and Mycotoxins:

Toward Healthy Homes,” Toxicology and Industrial Health, Oct/Nov 2009, Vol. 25

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: “Does An Electron Shunt Revive Neurons?”

At the end of this Presentation, the participant should be able to:

1. See the uniting role of reactive oxygen species (ROS) in inflammation
2. Understand the concept of redox therapy and the evidence that it relieves various central nervous system dysfunctions.
3. Appreciate the strategy of fusing avoidance of ROS and provision of electron shunts

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Does an Electron Shunt Revive Neurons?

By Kaye H. Kilburn, M.D.

Pondering Six Points led me to suggest to patients to try anti-inflammatory redox agents to treat neurological inflammation from chemicals. Findings for 6 patients exposed to hydrogen sulfide, 2 to organophosphates insecticides and 6 to mold/mycotoxins are discussed. First, I was intrigued by the functions of the human brain could be measured individually. I focused on physiologic functions and developed measurements of balance, reaction time, color discrimination, visual fields, grip strength and hearing to complement established psychological tests. Second, the measurements expressed simply as total abnormalities should, for the first time, categorize and quantify changes in functions, losses and recoveries. Third, neurologic inflammation was general and usually its symptoms coincided with irritation of skin, nose and upper airway and lung. Fourth, that oxidation was a central theme for membrane and organelle damage, in particular to mitochondria and synapses. Fifth, the brain's relative isolation and protection was breached by smell and sound pathways, which were accessible to deliver therapeutic agents as the lung. Sixth, that the time course and latency of changes may be the same in neurons and glial cells in animal models and in the human brain.

Methods In the first series, 10 patients received glutathione intranasally at 100 mg/ml, luminol 10 mg/ml or both at varied doses and frequencies. For the second series of 14 patients, we used 10 times larger luminol doses which made effects measurable in 1.5 to 3.0 hours. Then patterns of improvement and time sequence were related to exposure agents, duration of symptoms to age, education and gender. The protocol worked so that further testing on patients can add environmental modification, counseling, rest and physical therapy and conditioning.

Results The 10 low dose luminol patients who were 19 to 61 years of age, mean 42.4, education level 10 to 20, mean 15.7 years, had 7-14 and averaged 9.3 abnormalities. Abnormalities decreased to 6.3 in response to luminol. Additional of 100 mg/ml glutathione in 9 patients brought abnormalities down to 5.8. No additional benefit was measured from continuing it for up to a year or replacing glutathione with Ritalin in 3 patients. No toxicity was found.

The 14 high dose luminol patients were 35 to 69 years of age, mean 49.4 years, educational level 11 to 20, mean 13.4 years, and had 4-21 and averaged 9.6 abnormalities. Abnormalities decreased to 2.9 in 2 to 4 hours and 24 hours with repeated doses (one patient had inconsistent luminol doses and repeated exposures to mold/mycotoxins). However, he improved balance, grip strength and color within 120-180 minutes. The 14 patients reported/observed improved mental clarity (absence of brain fog) decreased headache, decreased tremors, decreased leg pain, improved steadiness, and improved recall in 90 to 180 minutes after an intranasal dose of luminol. Considerable protection against effects of reexposure was observed by 6 of 6 high dose patients, and two reported protection against effects of airliner cabins and auto exhaust fumes/odors.

Conclusion Redox agents given intranasally improved neurobehavioral functions including balance, problem solving, grip strength and color discrimination. After 30 days of treatment stopping these agents removed the improvement in 2 days, so treatment must continue.

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Objectives & Notes

Kalpna Patel, M.D.

Date of talk: Saturday, June 5, 2010, 11:00 am

Allergy and Environmental Health Center - Buffalo
65 Wehrle Dr.
Buffalo, NY 14225

Training:

Current Job Description:

Director/President of Allergy and Environmental Health Center Buffalo

Current Faculty Appointments:

Assistant Professor of pediatrics Suny Buffalo

Medical School/ University Attended

B.J. Medical School

Internship:

Bexar County Hospital, San Antonio TX

Residency:

Bexar County Hospital, San Antonio TX

Board Certifications:

American Board of Pediatrics, American Board of Environmental Medicine

Other Information:

Comprehensive approach to Treating Autism and ADHD. Pre Pilot Study. *Journal of Alternative and Complementary Medicine*, October 2007. 2) Nutritional and Environmental Approaches to Preventing and Treating Autism and ADHD Review

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: "Adverse Health Effects Of Low Level Ionizing Radiation"

At the end of this Presentation, the participant should be able to:

1. Describe Ionizing Radiation- Radioactivity
2. Discuss relevant Scientific Literature on Americium and Cesium.
3. Discuss Multi system non cancer adverse health effects from radiation exposure to Americium and Cesium

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Objectives & Notes**Stephanie McCarter, M.D.**

Date of talk: Saturday, June 5, 2010, 11:30 am

Environmental Health Center-Dallas
 2755 Rains County Rd. 1490
 Point, TX 75472

Training:

Current Job Description:	Part time internal medicine/environmental medicine
Medical School:	I.U. School of Medicine
Internship:	I.U. School of Medicine
Residency:	I.U. School of Medicine
Board Certifications:	Internal Medicine
Other Information:	"Building Considerations for Low EMF"
Disclosure Statement:	No financial or affiliations to disclose

SPEECH TITLE: "EMF Sensitivity Field: How to Treat"

At the end of this Presentation, the participant should be able to:

1. Identify factors that increase or decrease a patient's EMF (ELF/RF) sensitivity.
2. Identify sources of EMF exposure and methods for shielding EMF.
3. Identify sources of (RF) wireless radiation and applications to minimize exposure.

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"EMF Field: How to Treat" by Stephanie McCarter, M.D.

Non-ionizing radiation includes electromagnetic fields (EMF): extremely low frequency (ELF-EMF) and radio frequency /microwave /wireless (RF-EMF) . Sensitivity to these fields is a complicated condition which has become more difficult to treat in our ever-increasing ELF-EMF and RF-EMF society. Several factors play a role in the development of EMF sensitivity and its fluctuation in patients. These factors include pesticide, mycotoxin, and heavy metal exposures as well as the amount of EMF (RF/ELF) present in a person's environment both during the time their body becomes vulnerable to EMF fields as well as during their period of healing. Most EMF sensitive patients do not have and have not learned to set healthy personal boundaries in their lives and have unhealthy attachments/relationships that drain their inner energy.

Decreasing the patient's load is vital to overcoming EMF sensitivity as well as detoxification of chemicals, mycotoxins, and heavy metals. Removal of silver amalgams (which contain mercury) is extremely beneficial in decreasing EMF sensitivity. Caution must be taken in the proper pace of removal as too much too fast can damage a person's nervous system and increase their sensitivity. The same principle applies to the rate of detoxification. If a person's nutritional status cannot support mobilization of toxins, the EMF sensitivity will increase. Diet is vitally important and overgrowth of yeast and "bad" bacteria in the gastrointestinal tract will increase the EMF sensitivity. Strict adherence to a yeast-free diet will accelerate healing and decrease sensitivities rapidly. A proper balance of minerals and "good fats" (e.g. fish oils) as well as good hydration helps EMF sensitivity.

ELF fields are more easily shielded than wireless /RF radiation. Devices for wireless shielding (fabrics, hats, paints, faraday cages and canopies) often attract other RF's that a person is also sensitive to. Any small leak in shielding can exacerbate the exposure and symptoms as the RF's bounce easily off metal surfaces back onto a person. Electrical fields in a home can be lowered to extremely low levels by neutral isolators which can then make RF/wireless radiation more tolerable and more easily adapted to by the patient. Computers, cell phones, televisions, autos, and now airplanes have ELF/RF fields which can be shielded and /or lowered by various techniques and devices.

Energy is power and our bodies require energy, therefore our bodies require power. Our relationship to power is at the core of our health. Learning to ground one's own energy fields and restore the ability to generate one's own internal power is crucial to healing ELF/RF sensitivity. The body's energy fields become a person's biology. Balance of the body's energy fields is necessary for health. ELF/RF/toxin exposures can disrupt the balance of these energy fields as well as a person's personal attachments and source of internal power (energy).

The body's energy can be divided into 7 chakras (or energy centers) vertically aligned from the base of the spine to the crown of the head. These seven power centers are critical regulators of the flow of life energy. Qigong, yoga, stretching and breathing exercises and grounding exercises all help open and re-balance these chakras (energy centers). Doing some form of these exercises DAILY is imperative to help a person heal from ELF/RF sensitivity. Laser frequency therapy, acupuncture and acupressure also help to re-balance the flow of energy through these charkas (energy centers).

Each chakra or energy center represents a sacred truth with specific spiritual /emotional needs and each has specific associated organs of the body. If a person's power or energy is misdirected from that center (by a negative thought or a food eaten that is an allergen) the associated organs' function is altered. Most illnesses result from loss of energy or stress patterns in the lower three chakras (base of spine; sexual organs/pelvis; and abdomen: intestines, liver/gallbladder, kidney). These chakras are where most people spend their energy. (family; money/work; care of self and others/trust/fear). These are

issues that engage us with external power rather than internal power. Examples of energy “drains” that we lose power to are: people we can’t forgive, money, people we feel the need to control, and the need for approval from certain people.

Healing from misdirection of one’s spirit (energy) is important for overcoming sensitivities (not just undergoing physical treatment). Increasing one’s internal power and emotional resources by better managing one’s mind, thoughts, and spirit is important, too. DAILY thought field therapy is part of this treatment. EVERY choice directs our spirit (and thus our energy). If fear or negative thoughts direct us, then fear/negativity returns to the energy field and to our body, disrupting energy flow. If faith directs us, then grace returns to our energy field and our biological systems thrive. ELF/RF sensitive patients are extremely sensitive to fears, negative thoughts, and negative people. Without setting personal boundaries and increasing their internal power by letting go of unhealthy attachments and negative relationships and by honoring themselves, their ELF/RF sensitivity will not improve or will recur no matter how much they isolate or shield themselves from physical ELF/RF fields.

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Objectives & Notes**Ron Overberg, Ph.D., C.C.N., R.D.**

Date of talk: Saturday, June 5, 2010, 1:30 pm

Environmental Health Center - Dallas
8345 Walnut Hill Lane, Ste. 220
Dallas, TX 75231**Training:**

Current Job Description:	Nutritionist at Environmental Health Center - Dallas and Nutriwellness in Dallas
University Attended	University of Texas, Dallas, Texas
Internship:	Texas Woman's University, Denton, Texas
Board Certifications:	Certified Clinical Nutritionist
Other Information:	Registered Dietitian, licensed in Texas
Disclosure Statement:	No financial or affiliations to disclose.

SPEECH TITLE: "Nutrition Considerations for Patients with EMF Sensitivity"

At the end of this Presentation, the participant should be able to:

1. Evaluate the Mineral status in Patients with EMF Sensitivity
2. Determine the Fatty acid status in Patients with EMF Sensitivity
3. Assess the energy intake in Patients with EMF Sensitivity

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

Nutrition Considerations for Patients with EMF Sensitivity

By Ron Overberg, Ph.D., C.C.N., R.D.

Abstract

Electromagnetic field (EMF) sensitive patients were usually sensitive to the EMF field from cars, refrigerators, TV's, and other devices. This allowed them to protect themselves by creating distance between them and the device.

Now with the proliferation of wire-less communication devices we see more and more patients that sensitive are to a wider spectrum of EMF emitting devices. Most importantly, now it is almost impossible for EMF patients to find a safe place free of EMF so that they can recover.

Patients who list EMF sensitivity is one of their complaints present a special challenge. There is no desensitization or neutralization for EMF, like there is for reactive foods, pollen, molds, metals, etc. In addition there is no good way for them to practice avoidance.

We present the case history of a patient who came to us after her second EMF exposure. After her first exposure she got slowly better over a period of 5 years by limiting her exposure and by "grounding" her as often as possible. After 5 years she no longer reacted to hairdryers, etc. but was still sensitive to wireless technology: cellphones, Wi-Fi, wireless mouse, etc. She then had a chemical exposure to latex or Raid which gave her an additional set of symptoms, which faded over the subsequent 10 weeks. Her second EMF exposure started the moment the utility company activated RF transmitters on the water, gas and electricity meters in her home, and the entire town. This left her with no safe place to recover and she came to the EHC-D.

From the history and physical developed a treatment plan. In Dallas she didn't have the continual RF exposure, although she still had all the other EMF exposures. We discovered multiple foods that she was sensitive too and started a rotation diet to avoid those foods and to prevent more food allergies from occurring. She had multiple amalgams and tested sensitive to multiple metals and to porcelain. Later, back at home she had the amalgams removed. We used the results from Hair Mineral and Red Blood Cell Mineral analysis to adjust her supplement program. Later we did an Erythrocyte Fatty Acid analysis and adjusted her essential fatty acids intake. She also had her amalgams removed.

She went back home and twenty months later reported: "I'm doing a lot better than before, although I'm not yet at 100%."

In conclusion: EMF sensitive patients benefit from replenishment of nutrient deficiencies (minerals, essential fatty acids and others), a rotation diet to prevent more food allergies, desensitization, and neutralization of any other reactive substances.

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-

Objectives & Notes**Martin Pall, Ph.D.**

Date of talk: Saturday, June 5, 2010, 2:00 pm

Washington State University
638 NE 41st Ave.
Portland, OR 97232

Training:

Current Job Description:

Medical School/ University Attended

Internship:

Other Information:

Itinerant scientist and general trouble maker

B.A., Johns Hopkins University; Ph.D., Caltech

Professor Emeritus of Biochemistry and Basic Medical Sciences, Washington State University and Research Director, the Tenth Paradigm Research Group

Explaining "Unexplained Illnesses": Disease Paradigm for Chronic Fatigue Syndrome, Multiple Chemical Sensitivity, Fibromyalgia, Post-Traumatic Stress Disorder, Gulf War Syndrome and Others, Harrington Park Press, 2007.

Pall ML, 2009 Multiple Chemical Sensitivity: Toxicological Questions and Mechanisms. Chapter

XX in General and Applied Toxicology, 3rd Edition, Bryan Ballantyne, Timothy C. Marrs, Tore Syversen, Eds. John Wiley & Sons, London.Other information and relevant citations on the author's web site: thetenthparadigm.org

Disclosure Statement:

Financial with Allergy Research Group

SPEECH TITLE: "Therapy and Relation to EMF Sensitivity"

At the end of this Presentation, the participant should be able to:

1. Outline how various nutritional agents and sauna therapy can act to down-regulate the NO/ONOO- cycle and therefore produce improvements in people suffering from MCS.
2. Understand that four types of evidence that support the view that EMF sensitivity is also a NO/ONOO- cycle disease:
 - a.) There is a high comorbidity with MCS.
 - b.) Clinical observations by Dr. Rea and others suggest that treatments that can lower the NO/ONOO- cycle and are effective in the treatment of chemical sensitivity patients are effective in producing clinical improvement in patients suffering from EMF sensitivity.
 - c.) EMF fields are reported to raise most of the various parts of the NO/ONOO- cycle.
 - d.) There are plausible targets of EMF fields that may be expected to stimulate the NO/ONOO- cycle.

These individual observations make a weak case for a NO/ONOO- cycle etiology for EMF sensitivity, but the combination of them makes a substantially stronger case.

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Objectives & Notes**William J. Meggs, M.D., Ph.D.**

Date of talk: Saturday, June 5, 2010, 2:30 pm

Brody School of Medicine, East Carolina University
 600 Moye Blvd., Room 3ED311.
 PCMH, 3ED-311, Department of Emergency Medicine
 Greenville, NC 27834-4354

Training:

Current Job Description:

Chief of Toxicology, Professor of Emergency Medicine

Current Faculty Appointments:

Professor, Brody School of Medicine

Medical School/ University Attended

University of Miami, Miami, Florida

Internship:

Rochester General Hospital

Residency:

Rochester General Hospital, Fellowships at NIH and NYU

Board Certifications:

Medical Toxicology, Allergy and Immunology, Internal Medicine, Emergency Medicine

Other Information:

Author of "The Inflammation Cure", over 50 research publications, Co-editor of "Health and Safety in Farming, Forestry, & Fisheries"; Co-author of "Biomarkers of Immunotoxicology"

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: "Psychiatric Polypharmacy: Is More Better?"

At the end of this Presentation, the participant should be able to:

1. To know the major classes of psychotropic medications, their actions, and indications.
2. To know the drug interactions and contraindications of psychotropic medications.
3. To know the status and dangers of polypharmacy in the treatment of behavioral disorders.

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

Psychiatric Polypharmacy: Is More Better?

William Meggs, M.D., Ph.D

Abstract

Background: Polypharmacy among the elderly is a well-studied phenomenon that may contribute significantly to morbidity and mortality in the aging population. Polypharmacy for psychiatric illnesses is less studied but believed to be an increasing problem.

Methodology: Literature on polypharmacy in psychiatry is reviewed. Databases on drug interactions are used to identify potential drug interactions among psychiatric medications.

Results: Literature on polypharmacy in psychiatry is limited but supports the potential harm of the practice. Further, polypharmacy in psychiatry violates practice guidelines but is widespread.

Conclusions: Like polypharmacy among the elderly, polypharmacy in psychiatry is of no benefit and potentially harmful.

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A. Thompson¹, S. A. Sullivan^{1*}, M. Barley¹, S. O. Strange¹, L. Moore², P. Rogers³, A. Sipos¹ and G. Harrison¹ The DEBIT trial: an intervention to reduce antipsychotic polypharmacy prescribing in adult psychiatry wards – a cluster randomized controlled trial. Psychological Medicine (2008), 38, 705–715.

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Objectives & Notes**Kalpna Patel, M.D.**

Date of talk: Saturday, June 5, 2010, 3:30 pm

Allergy and Environmental Health Center - Buffalo
 65 Wehrle Dr.
 Buffalo, NY 14225

Training:

Current Job Description:

Director/President of Allergy and Environmental Health Center Buffalo

Current Faculty Appointments:

Assistant Professor of pediatrics Suny Buffalo

Medical School/ University Attended

B.J. Medical School

Internship:

Bexar County Hospital, San Antonio TX

Residency:

Bexar County Hospital, San Antonio TX

Board Certifications:

American Board of Pediatrics, American Board of Environmental Medicine

Other Information:

Comprehensive approach to Treating Autism and ADHD. Pre Pilot Study. Journal of Alternative and Complementary Medicine, October 2007. 2) Nutritional and Environmental Approaches to Preventing and Treating Autism and ADHD Review

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: "Case Study Report of 20 Workers in Nuclear Facility"

At the end of this Presentation, the participant should be able to:

1. Understand Multi system adverse health effects from radiation exposure to Americium and Cesium in Cohort of 16 patients exposed to low level exposure.
2. Similarity in the clinical and Lab findings with that Chemical sensitivity.
3. Understand Total Load Effect of Low level Radiation Exposure.

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Objectives & Notes

Theodore R. Simon, M.D.

Date of talk: Saturday, June 5, 2010, 4:00 pm

North Texas Imaging Center
8345 Walnut Hill Lane, Ste. 210
Dallas, TX 75231

Training:

Current Job Description:	Physician
Medical School:	Yale University
Internship:	University of Rochester
Residency:	University of California at San Francisco, Yale University
Board Certifications:	ABNM
Other Information:	Editorial Board: Journal of Nuclear Medicine
Disclosure Statement:	No financial or affiliations to disclose.

SPEECH TITLE: "Functional Imaging In 2010"

At the end of this Presentation, the participant should be able to:

1. Characterize the neurotoxic pattern in brain scintigraphy.
2. Understand the process involved in determining subtypes for this pattern.
3. Describe the subtypes identified within the neurotoxic pattern seen in scintigraphy.

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Objectives & Notes

Jean Monro, M.D.

Date of talk: Saturday, June 5, 2010, 4:30 pm

Breakspear Hospital
Hertfordshire House
Wood Lane
Hemel Hempstead, Herts HP2 4FD
England

Training:

Current Job Description:	Medical Director of The Breakspear Medical Group Ltd., England
Current Faculty Appointments:	Medical Director of The Breakspear Medical Group Ltd., England
Medical School/ University Attended	London Hospital Medical School, England
Residency:	London Hospital
Board Certifications:	MB BS, MRCS, LRCP, FAAEM, DipIBEM, MACOEM
Disclosure Statement:	No financial or affiliations to disclose.

SPEECH TITLE: "Lymphocyte Sensitivity Tests, Both To Chemicals And Electromagnetic Fields".

At the end of this Presentation, the participant should be able to:

Understand the use of molecular biological techniques for diagnosis of Electrical Sensitivities, Chemical Sensitivities and Food Sensitivities.

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Dr. Monro's abstract not available at time of printing.

SUNDAY, JUNE 6, 2010 ABSTRACTS

Objectives & Notes

Arpad Szallasi, M.D.

Date of talk: Sunday, June 6, 2010, 8:20 am

Monmouth Medical CenterPathology
300-2nd Ave.
Long Branch, NJ 07740

Training:

Current Job Description:

Current Faculty Appointments:

Medical School/ University Attended

Internship:

Residency:

Board Certifications:

Other Information:

Disclosure Statement:

Medical Director for the Transfusion Services

Monmouth Medical Center, Longbranch, NJ, Drexel University College of Medicine, Philadelphia, PA

University Medical School Debrecen Hungary

St. Louis University School of Medicine, St. Louis MO

Washington University Medical School, St. Louis MO

Anatomical & Clinical Pathology; Hematopathology

Over 100 papers on the roles of

No financial or affiliations to disclose.

SPEECH TITLE: "TRPV1: Some Like It "Hot""

At the end of this Presentation, the participant should be able to:

1. Recognize the capsaicin receptor TRPV1 as a molecular integrator of noxious stimuli
2. Understand the pivotal role of TRPV1 in the development and maintenance of sensory hyperreactivity (SHR) and chronic cough
3. Describe the contribution of TRPV1 to body temperature regulation and thermosensation

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TRPV1: some like it “hot”

Arpad Szallasi MD, Ph.D., FCAP

Monmouth Medical Center Long Branch, NJ and Drexel University College of Medicine, Philadelphia, PA

Connoisseurs of “hot” spicy food know the predominant pharmacological actions of capsaicin from personal experience [1]. Capsaicin causes a “hot” burning sensation (slide 1) which is exacerbated by alcohol consumption and abates with repeated exposure [1]. Capsaicin also induces profuse perspiration, termed gustatory sweating (slide 2). What makes capsaicin unique among naturally occurring irritant agents is that the initial excitation by capsaicin of sensory neurons is followed by a lasting refractory state, traditionally referred to as “capsaicin desensitization” or, under special conditions like neonatal administration, frank neurotoxicity (slide 3) [1].

The existence of a receptor for capsaicin had long been anticipated based on the specific action of capsaicin on nociceptive afferent neurons [1]. These neurons are bipolar with un-myelinated (slow conducting) fibers and somata in sensory (dorsal root, trigeminal and nodose) ganglia. The peripheral axon innervates the skin, the airways and most visceral organs whereas the central fiber enters the central nervous system where it makes synapse at second order neurons [1].

The capsaicin receptor TRPV1 is the founding member of the vanilloid family of TRP (transient receptor potential) channels (slide 4) [2]. TRPV1 is a serpentine protein with six transmembrane domains and a loop that is believed to form a cation pore with limited selectivity for Ca^{2+} (slide 4). The human *TRPV1* gene is located on chromosome 17 and has a number of SNPs (single nucleotide polymorphism) which have been linked to individual differences in pain sensitivity [3]. Of note, TRPV1 is co-expressed with its relatives (TRPV2, TRPV3, TRPV4 and TRPA1, but not TRPM8) in sensory neurons (slide 5) [4].

TRPV1 functions as a molecular integrator of noxious stimuli (i.e. a *par excellence* polymodal nociceptor): it is sensitive to noxious heat (above 43 °C), acidosis (pH between 5 and 6), “endovanilloids” (e.g. anandamide, arachidonic acid metabolites such as N-arachidonoyl-dopamine [NADA] 12-hydroperoxyeicosatetraenoic acid and others) and to a variety of pungent compounds such as capsaicin, RTX, piperine, gingerol, zingerone, camphor, eugenol, ethanol and venoms from jellyfish and spiders (slide 6) [5]. Pro-inflammatory agents such as prostaglandins, bradykinin, adenosine triphosphate (ATP), 5-hydroxytryptamine and nerve growth factor (NGF) cause allosteric modification of TRPV1 either directly or indirectly (e.g. via phosphorylation by protein kinase C [PKC]) such that the probability of channel opening by heat, protons and capsaicin is enhanced [6]. In other words, TRPV1 is an “amplifier” in which each stimulus sensitizes the channel to other stimuli, with the end result being pain, hyperalgesia and allodynia (slide 7). These findings have implied TRPV1 as a promising target to relieve inflammatory pain [7]. Indeed, both genetic deletion and pharmacological blockade of TRPV1 ameliorate heat hyperalgesia in rodent models of inflammatory pain.

The presence of TRPV1-expressing nerve fibers in the airways is firmly established (slide 8) [8, 9]. These nerve endings release a variety of pro-inflammatory neuropeptides (e.g. substance P [SP], calcitonin gene-related peptide [CGRP], and neurokinin A [NKA]) that induce a series of local effects globally defined as neurogenic inflammation (slide 9) [10]. Neurogenic inflammation is thought to play a central role in the pathogenesis of various disease states that range from migraine through asthma to inflammatory bowel disease [10].

Capsaicin-sensitive nerves in the airways also mediate the cough reflex (slide 10) [11]. In fact, nebulized capsaicin is a standard procedure to assess cough response in humans (slide 11) and to determine the efficacy of antitussive agents in animal experiments (slide 10). Patients with chronic cough are distinguished by their exaggerated response to inhaled capsaicin (slide 11) [12]. These chronic coughers are clearly distinct from asthmatics who are more similar to control individuals in their response to capsaicin cough challenge (slide 12). There is good evidence that chronic cough patients over-express TRPV1 in their airways (slide 13) [13]. Such disease-related change in TRPV1 expression is no unprecedented and may be bidirectional [14]. For example, in a murine model of diabetic neuropathy the early, hyperalgesic state is associated with increased TRPV1 expression whereas the hypoalgesic state that follows is linked to TRPV1 down-regulation (slide 14) [15]. Similarly, patients with burning mouth syndrome show increased TRPV1-like immunoreactivity in their tongue and oral mucosa (slide 14) [14].

A peculiar subpopulation of chronic coughers are distinguished by their unique sensitivity to both cold air and various chemicals and scents (e.g. perfumes, household cleaning agents, flowers, cigarette smoke, exhaust fumes, etc). This constellation of symptoms is often referred to as Sensory Hyperreactivity (SHR) syndrome (slide 15) [16]. It was postulated that SHR reflects the hypersensitivity of capsaicin-sensitive trigeminal and vagal nerves that innervate the airways (slide 16). Indeed, positive capsaicin inhalation test is a reliable diagnostic criterion of SHR (slide 16 and 17) [17]. Unlike asthmatics, who are similar to healthy controls in the capsaicin inhalation test, SHR patients show exaggerated cough in response to inhaled capsaicin (slide 18) [17], cold air (slide 19) [18], and ethanol (slide 20) [19]. Clearly, SHR and asthma are distinct diseases that require distinct management strategies (slide 21). The prevalence of SHR is unknown but it is estimated to be as high as 6% (slide 22).

Agonists of TRPV1, such as capsaicin and its ultrapotent analog resiniferatoxin (RTX), have long been known to decrease body temperature in multiple species including man (slide 23) [1]. This effect was attributed to skin vasodilation and reduction in metabolism. Indeed, it was speculated that this cooling phenomenon is responsible for the popularity of hot, spicy food under tropical climates [1]. A new (and debated) concept suggests that a predominant function of TRPV1 is body temperature regulation [20, 21]. This concept is based on the profound hyperthermic action of some (but not all) TRPV1 antagonists, implying an endogenous tone for TRPV1 involved in thermoregulation (slide 23). There is good evidence that hypothermia to agonists and hyperthermia by antagonists are

mediated by two, anatomically distinct TRPV1 population. The site responsible for capsaicin-induced hypothermia is central (it has been localized to the preoptic area in the brain) [1]. By contrast, the effect of TRPV1 antagonists on core body temperature is believed to be mediated by a peripheral (visceral) capsaicin-sensitive nerve population in the gastrointestinal tract [21]. Subchronic administration of TRPV1 antagonists results in desensitization of the hyperthermic effect, consistent with the observation that core body temperature in TRPV1 knockout mice is identical to wild-type mice. Importantly, the febrile action of TRPV1 antagonists and bacterial toxins are additive (slide 24). Although it was initially believed that the transient hyperthermic activity of TRPV1 antagonists could be reversed by acetaminophen and other common antipyretics, later it turned out not to be the case for all compounds [22].

Most recently, clinical studies have confirmed the role of TRPV1 as a noxious heat sensor in humans demonstrating the involvement of the channel in heat perception in healthy volunteers. Indeed, heat pain threshold was significantly elevated in non-sensitized skin of healthy volunteers following 400 mg SB-705498 (*GlaxoSmithKline*) oral administration [23]. Subsequently, investigators at Merck-Neurogen have reported that compound MK-2295 markedly blunted heat perception in healthy human subjects (quantitative thermal sensory tests, pain evoked by hand immersion into or sipping hot water) with no sign of tachyphylaxis (slides 27-31) [24]. Similar results were observed by AstraZeneca with the TRPV1 antagonist, AZD1386. AZD1386 was investigated in two phase I trials in healthy volunteers and found to increase mean thresholds for heat-induced pain. Interestingly, the enhancement in heat pain threshold persisted after repeated dosing of compound AZD1386 [22].

The enhanced heat pain threshold and tolerance induced by TRPV1 antagonists in healthy volunteers (which is apparently greater than those observed in pre-clinical species) is worrisome for its potential to cause scalding injury. Indeed, some subjects taking MK-2295 perceived potentially harmful temperatures as innocuous (slide 31) [24]. These individuals could have suffered scalding injuries when taking hot shower or drinking hot coffee. Importantly, the effect of TRPV1 antagonists on heat pain sensation does not attenuate after multiple dosages.

In conclusion, the capsaicin receptor TRPV1 functions as an important molecular integrator of irritant/noxious stimuli on primary sensory neurons innervating the skin, airways, and visceral organs. The expression of TRPV1 is plastic: for example, it is up-regulated in the airways of chronic cough patients. Indeed, these patients are distinguished by their unique sensitivity to inhaled capsaicin. These findings imply a therapeutic potential for potent, small molecule TRPV1 antagonists as novel antitussive agents. In fact, clinical trials are already on-going for this indication. Interestingly, a positive capsaicin inhalation test is also a diagnostic criterion for Sensory Hyperreactivity (SHR). SHR is a relatively prevalent disorder whose medical management is problematic. Given the similarity (and possible overlap) between chronic coughers and SHR patients, it is tempting to speculate that TRPV1 antagonists will prove beneficial in SHR patients, too. The on-going clinical studies with TRPV1 antagonists have revealed two adverse effects that may doom their systemic (*per os*) administration. First, many (but not all) TRPV1 antagonists enhance body temperature and this febrile reaction may reach dangerously high levels in patients with co-existing sepsis/bacterial infection. Indeed, a clinical candidate molecule by Amgen was withdrawn from the trials due to this side-effect. Second, not completely unexpectedly given the role of TRPV1 as a noxious heat sensor, some TRPV1 antagonists were found to interfere with noxious heat sensation. Worryingly, individuals taking the TRPV1 antagonists MK-2295 were unable to distinguish between pleasantly warm and dangerously hot food or coffee. In principle, both side-effects can be prevented by local TRPV1 antagonist administrations, for example a nebulizer for chronic coughers and a solution (cream, nasal spray, etc) for SHR and vasomotor rhinitis patients.

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Objectives & Notes**Magda Havas, Ph.D.**

Date of talk: Sunday, June 6, 2010, 8:50 am

Environmental & Resource Studies, Trent University
 Peterborough, ON
 Canada K9J 7B8

Training:

Current Job Description:

Teach and do research on the health and environmental effects of chemical contaminants and electromagnetic pollution

Current Faculty Appointments:

Associate Professor, Trent University

Medical School/ University Attended

B.Sc. and Ph.D. at University of Toronto (Institute for Environmental Studies and Department of Botany)

Internship:

Post Doctoral Fellow at Cornell University

Other Information:

1. Public Health SOS: the shadow side of the wireless revolution. Co-authored with Camilla Rees.

2. see articles and videos at www.magdahavas.com

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: “Empirical Evidence for Electrohypersensitivity ”

At the end of this Presentation, the participant should be able to:

1. Recognize the symptoms of electrohypersensitivity.
2. Realize that radio frequency radiation at low levels emitted by equipment commonly found in the home or office can affect the blood and the autonomic nervous system of those who are sensitive to this radiation resulting in irregular or rapid heart rate and rouleaux formation of the blood.
3. Use heart rate variability and live blood analysis to assess their patients for electrohypersensitivity.

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Empirical Evidence for Electrohypersensitivity

Magda Havas, B.Sc., Ph.D.

Environmental and Resource Studies, Trent University, Peterborough, ON, Canada, mhavas@trentu.ca, www.magdahavas.com

Abstract

Objectives: The objective of this presentation is to identify diagnostic tests that can be used in a doctor's office or for research with individuals who claim to be electrohypersensitive (EHS). We document 4 objective biological responses to electromagnetic frequencies that range from intermediate frequencies (IF) in the kHz range to microwave (MW) frequencies in the GHz range. We found that poor power quality or dirty electricity affects blood sugar in some diabetics. Exercising on a treadmill, which generates dirty electricity, results in an increase rather than a decrease in blood sugar. Reducing dirty electricity results in a lowering of blood sugar in both type 1 and type 2 diabetics, and a need for less medication. This blood sugar response has been classified as type 3 diabetes and is defined as blood sugar that is influenced by environmental conditions. The second example is altered symptoms in those with progressive multiple sclerosis. Improved power quality resulted in improved motor coordination and reduced tremors that were observed within a few weeks, and video taped. The third example is arrhythmia and tachycardia among subjects blindly exposed to microwave radiation from a cordless DECT phone. Changes in heart rate variability coincided with exposure to MW radiation but not with placebo exposure. Changes in both parasympathetic and sympathetic nervous system are documented using Nerve Express HRV. The fourth and final example uses live blood analysis and rouleux formation in the blood after a few minutes exposure to computers and mobile phones.

Conclusions: Four different diagnostic tests document responses to electromagnetic energy that may be useful for testing individuals who claim to be electrohypersensitive. These four tests include: (1) blood sugar measurements for diabetics before and after using a treadmill for 20 minutes; (2) video monitoring of tremors and other noticeable physical symptoms of multiple sclerosis before and after reducing electromagnetic exposure; (3) monitoring heart rate variability with blind exposure to a cordless DECT phone or some other EM source; (4) live blood analysis and rouleux formation before and after EM exposure.

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Havas, M. 2006. Electromagnetic Hypersensitivity: Biological effects of dirty electricity with emphasis on diabetes and multiple sclerosis. *Electromagnetic Biology and Medicine*, 25: 259-268.

Havas, M. 2010. Provocation Study using Heart Rate Variability shows Microwave Radiation from DECT phone affects Autonomic Nervous System. *The Europ. J. of Oncology*, Ramazzini Institute, Italy. (in press)

Havas, M. 2010. Diabetes and Electromog. <http://www.youtube.com/watch?v=gJcM6RZwyfA>

Havas, M. 2010. Live Blood and Electromog. <http://www.youtube.com/watch?v=L7E36zGHxRw&feature=related>

Havas, M and J. Marrongelle. 2010. DECT Phone and Microwave Radiation.

Objectives & Notes

Nancy A. Didriksen, Ph.D.

Date of talk: Sunday, June 6, 2010, 9:20 am

Private Practice
1143 Rockingham Drive
Suite 105
Richardson, TX 75080

Training:

Current Job Description:

Private Practice, in health Psychology/Behavior medicine and neuropsychology-evaluation and treatment.

Current Faculty Appointments:

Adjunct professor of Psychology, University of North Texas.

Medical School/ University Attended

University of North Texas

Internship:

Northeast Community Hospital, Bedford, TX

Disclosure Statement:

No financial or affiliations to disclose

SPEECH TITLE: "Assessment of Environmentally Ill Patients for Disability"

At the end of this Presentation, the participant should be able to:

1. Determine how and when to refer patients for psychological/neuropsychological evaluation to extend documentation for disability issues.
2. Know the different requirements/levels of documentation for Social Security Disability v. private disability.
3. Know the psychological/neuropsychological conditions considered disabling by the Social Security Administration and private disability companies.

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Assessment of Environmentally Ill-Patients for Disability

Nancy A. Didriksen, Ph.D.

Goals and Objectives:

1. Provide a definition of disability under the law for Social Security Disability programs and provide a general definition of disability used by private disability companies.
2. Provide the rationale for neuropsychological and personality/behavioral assessment in association with application for disability benefits.
3. Describe the neuropsychological and personality instruments in the assessment batteries.
4. Contrast the documentation requirements for Social Security Disability and for the private disability insurance carriers and describe the necessary components of the disability report.
5. Provide recommendations for further documentation of a patient's disabled status.

An unfortunate and relatively frequent consequence of toxic/neurotoxic exposure and/or environmental illness is an inability to maintain gainful employment. Patients report a variety of symptoms in many organ systems as well as adverse reactions to many substances found in ordinary work environments, interfering with reliable and consistent workplace performance and/or resulting in frequent absenteeism as adverse reactions are often unpredictable.

Many patients have attempted to continue working despite illness, and despite exposures to toxic substances, due to the obvious necessity of earning a living and maintaining benefits, including health insurance, retirement plans, etc. until they are no longer able to do so. Patients subsequently apply for benefits from private disability companies, e.g., Unum, CIGNA, etc. and/or for Social Security Disability benefits. Referral for neuropsychological evaluation by treating physicians or attorneys extends documentation of the disabled condition as the majority of patients report many neurocognitive deficits including diminished attention, concentration, and memory, slowed information processing, dysphasic deficits, including naming and word-finding problems, as well as executive dysfunction. Changes in personality and behavior are also reported and include anxiety, depression, social isolation, interpersonal problems, and diminished self-confidence, self-esteem, self-assertiveness, and coping ability.

The law defines disability under Social Security Disability programs as the inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment(s) which can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than 12 months. A medically determinable physical or mental impairment that results from anatomical, physiological, or psychological abnormalities which are able to be shown by medically acceptable, clinical, and laboratory diagnostic techniques must be established by medical evidence consisting of signs, symptoms, and laboratory findings.

State agencies called Disability Determination Services are responsible for obtaining medical/psychological evidence and initially determining whether a claimant is disabled under the law. Unavailable or insufficient evidence results in a consultative examination with a healthcare professional chosen by DDS. However, these examiners may be unfamiliar with the effects of toxic exposures and/or environmental illness, in general, which may place the patient at a disadvantage. Through medical documentation, sometimes spanning months and years, is essential.

The following is a typical definition of disability by a private disability insurance carrier: You are considered disabled if, solely because of injury or sickness, you are (1) unable to perform the material duties of your regular occupation and (2) unable to earn 80% or more of your indexed earnings from working in your regular occupation. After disability benefits have been payable for 14 months, you are considered disabled if, solely due to injury or sickness, you are (1) unable to perform the material duties of any occupation for which you are or may reasonably become qualified based on education, training, or experience and (2) unable to earn 80% or more of your indexed earnings.

Several neurocognitive tests are utilized to assess patients' claims of neuropsychological dysfunction. The following measures are those usually required by Disability Determination Services with the exception of a comprehensive measure of higher-cortical functions. General intellectual functioning is typically assessed using one of the Wechsler scales, either the Wechsler Adult Intelligence Scale – III or IV. Many cognitive strengths and weaknesses are able to be shown with this measure. The WAIS – III yields Verbal and Performance IQ scores, as well as a Full Scale IQ score. Score differences may suggest greater deficits in fluid or crystallized intelligence and/or in either the right or left hemisphere. The WAIS – IV yields a Full Scale IQ score and five Index scores including Verbal Comprehension, Perceptual Reasoning, Working Memory, Processing Speed, and General Ability.

Neurotoxic exposures usually result in diffuse brain damage as opposed to the focal damage of cancer or stroke and often no abnormal differences between Verbal and Performance IQ scores are observed. Decrements are typically observed on measures of information processing speed, perceptual organization, and attention and concentration. Measures of crystallized abilities, e.g., the Information and Vocabulary subtests, are usually reliable indicators of premorbid levels of functioning. Demographically-adjusted scores comparing the individual to his/her age, sex, educational, and racial peers may also suggest the degree of decline.

Memory tests are typically a part of the assessment battery, as almost all patients report deficits in immediate and short-term memory, in particular. The Wechsler Memory Scale – III or IV may be utilized to assess verbal and visual memory, immediate and delayed. Scores often suggest a high rate of forgetting over time, as well as difficulties with attention and concentration, which along with slowed information processing, are the most commonly cited cognitive problems causing unemployment failure. Memory scores are also compared with their age, sex, educational, and racial peers to allow for more precise interpretation. The Benton Visual Retention Test is utilized as well, due to its known sensitivity for neurotoxic effects.

The Halstead Category Test is used to measure the executive functions of new learning and problem-solving, abstract reasoning, concept formation, mental efficiency, and judgment, the abilities most necessary for effective and efficient workplace and everyday functioning. Additionally, the Category Test is highly sensitive to brain injury. Individuals who score poorly on this test have significant difficulty adapting to rapidly changing demands or learning new and unfamiliar tasks. This test also measures flexibility of thinking. Therefore, those who are in supervisory, managerial, or professional occupations and score poorly on this measure are likely to have significant difficulty with workplace performance.

Many patients report that they are no longer able to attend to more than one task or demand at a time following a toxic exposure. The Trail Making Tests are administered to assess not only information processing speed (Trails A), but divided attention as well on Trails B. A poor score on Trails B typically suggests that

performance may deteriorate when distractions are present in the work environment.

The Wide Range Achievement Test – Revision 4, a measure of basic academic skills, including Word Reading, Spelling, and Math Computation is administered to assess premorbid levels of functioning. The Word Reading subtest is particularly useful, as scores are relatively unaffected unless overall cognitive deterioration is profound or there are focal lesions in the left hemisphere. The Arithmetic subtest yields important information regarding a patient's ability to attend and concentrate on a task while working independently. Many patients report that after becoming ill following toxic exposure, their work has become inaccurate and they are prone to committing frequent errors. The Arithmetic subtest is the only test performed independently and typically reveals this inability to remain focused and/or attend to details.

Evaluations for private, long-term disability benefits require a higher level of documentation, similar to the documentation required for a patient involved in litigation. The entire Halstead-Reitan Neuropsychological Test Battery is utilized with these patients. The battery assesses a variety of cognitive domains including higher-order functions, attention, concentration, sensory and motor functions, and pathognomonic signs, e.g., dysnomia, dyscalculia, constructional dyspraxia, etc. as well as right-left hemisphere differences. The HRB is the most widely used and researched neuropsychological test battery in the U.S. The overall score, called the General Neuropsychological Deficit Scale score, indicates the degree of impairment. The Impairment Index indicates the consistency of impairment across measures. The majority of environmentally-ill patients score in a mildly impaired range, but often in moderately to severely impaired ranges on the tests of higher cortical functions. Scores from the Wechsler Adult Intelligence Scale are utilized to calculate the GNDS. Additional tests in the comprehensive battery include those measuring memory, academic functioning, manual speed and dexterity, and personality and behavior.

Many of the patients who have private disability policies through their workplaces are typically employed in occupations that are professional or technical. Therefore, impairment on measures of higher cortical functions (executive functions) are particularly important in determining whether a patient is able to perform the duties of his/her occupation, effectively and efficiently. A determination is made whether the patient's neurocognitive deficits are consistent with the primary medical diagnoses which further supports the claim for disability from a specific illness.

A personality/behavioral assessment instrument is usually included in a neuropsychological test battery to measure the effects of brain injury or impairment on psychological functioning. Environmentally-ill patients typically report secondary anxiety, depression, and reduced coping ability. A lack of appropriate self-assertiveness is often observed as well as social isolation and withdrawal.

The PsychEval Personality Questionnaire is utilized and is the newest version of the Clinical Analysis Questionnaire which has been utilized and researched for many years in this office with toxically exposed, environmentally-ill patients. The use of the Minnesota Multiphasic Personality Inventory (MMPI – 2) is typically not favored with this patient population due to its frequent misinterpretation by those unfamiliar with environmentally-ill patients, leading to incorrect diagnoses, e.g., Somatization Disorder or Undifferentiated Somatoform Disorder. This is particularly troublesome for patients who are seeking disability benefits through private disability companies, as many policies terminate benefits after a period of two years if the primary diagnosis is psychiatric, rather than physical.

The qualitative aspects of the neuropsychological evaluation are probably as important as the quantitative aspects, i.e., the test scores, in determining whether a patient is disabled or not. It is important to record behavioral observations during the testing, including ability to cope, levels of fatigue, levels of pain and discomfort, reactions to incitants with or without corresponding observations of cognitive dysfunction, appropriateness of behavior, and effort and motivation to do well. A test instrument to assess malingering is required for an evaluation of patients with private disability policies. Imbedded indicators of malingering are examined, as well. Patients are also asked to report when they return to their baseline level of dysfunction following the evaluation.

The neuropsychological evaluation report should be thorough and include not only test scores, but behavioral observations, the results of the mental status examination, presenting complaints, overall history as well as the history of the present illness, and a summary and conclusions section. The history and presenting complaints sections will also include activities of daily living and one's ability to function independently, social functioning referring to the capacity to interact independently, appropriately, effectively, and on a sustained basis with others, the ability to get along with others and accept constructive criticism or supervision in the workplace or appropriately supervise or criticize others, and whether the patient is able to sustain concentration, persistence, and pace, and complete tasks in a timely manner. Very frequently patients report that they are unable to work at the pace necessary to complete tasks and perform their duties in a timely manner, resulting in increased stress and further negative impact on physical and mental health. Requiring an inordinate amount of time to complete the evaluation is also included in the report.

Patients' claims of disability and dysfunction may be supported by others who interact frequently with the patient, including spouses, parents, children, coworkers, etc. Work performance reviews may also be utilized to document a significant decline in workplace functioning, extending documentation of the disabled condition. Additional information regarding patients' premorbid level of functioning is provided through academic transcripts, letters of commendation, performance reviews, recognition of exceptional accomplishments, bonuses, etc. Thorough documentation of the patient's present status, contrasted with prior levels of functioning usually predicts a more favorable outcome in terms of awarding benefits.

Conclusions:

Many patients are disabled following toxic/neurotoxic exposures and/or from chemical/environmental sensitivity. Neurocognitive and personality/behavioral evaluation is an important component of the documentation required for application for disability benefits, either Social Security Disability benefits or from private disability insurance carriers, e.g., The Hartford, CIGNA, UNUM, etc. Environmentally-ill patients typically report deficits in cognitive functioning as well as anxiety, depression, and diminished ability to cope effectively, usually secondary to illness and the negative life changes which have occurred as a result of illness.

Test results are generally consistent with patients' self-report of dysfunction and extend documentation of inability to work. Deficits in attention, concentration, memory, and information processing speed argue most significantly against the ability to perform adequately in the workplace. Decreased scores on measures of executive functioning and overall impairment on the Halstead-Reitan Neuropsychological Test Battery provide additional evidence of inability to work in supervisory, managerial, professional, and/or executive positions. Behavioral observations during and after the evaluation are recorded and also indicate whether patients are capable of maintaining full-time employment.

Supporting evidence of the disabled condition, in addition to medical documentation, may be provided through letters from family members and friends, work performance reviews, academic transcripts, letters of commendation, or any other documents which describe and contrast performance prior to illness and at the present time. Additional evidence also strengthens each case by arguing against malingering or symptom magnification.

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Legal Resources:

Michael J. Walkup & Associates, Attorneys at Law
Practice concentrated in S.S. Disability claims involving Fibromyalgia, Chronic Fatigue Syndrome, and Chemical Sensitivity (Social Security Disability claims, only).

Phone: 815-459-7090

Fax: 815-477-9681

Toll free: 866-880-4878

E-mail: Michael@walkuplaw.com

Website: www.walkuplaw.com

Bernard A. Guerrini, P.C.

ERISA and Non ERISA Long-Term Disability Attorney

6500 Greenville Avenue, Suite 320

Dallas, TX 75206

Phone: 214-692-6556

Fax: 214-692-6578

Objectives & Notes

Samuel Milham MD, MPH

Date of talk: Sunday, June6, 2010, 9:50 am

2318 Gravelly Beach Loop NW
Olympia, WA 98502

Training:

Current Job Description:

Retired

Current Faculty Appointments:

U of Washington School of Public Health, Mt. Sinai Medical School

Medical School

Albany Medical College, Johns Hopkins School of Public Health

Internship:

USPHS Hospital Boston (Brighton Marine)

Residency:

New York State Health Dept

Board Certifications:

Public Health

Other Information:

Type Milham s in pub med

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: "Electrification Caused the Diseases of Civilization"

At the end of this Presentation, the participant should be able to:

1. Know what dirty electricity is.
2. Advise patients on exposure mitigation.

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

Objectives & Notes

Lisa Nagy, M.D.

Date of talk: Sunday, June 6, 2010, 10:30 am

P.O. Box 2472
Vineyard Haven, MA 02568

Training:

Current Job Description:

President – The Preventive and Environmental Health Alliance Inc. and Founder of Comprehensive Medical Care of Martha’s Vineyard

Medical School:

Cornell Medical Center

Internship:

Surgery: Catholic Medical Center, Queens, New York

Residency:

Emergency Medicine: Metropolitan Hospital, NY, NY

Board Certifications:

Emergency Medicine thru 2006

Other Information:

Board Eligible Environmental Medicine

Disclosure Statement:

No financial or affiliations to disclose.

SPEECH TITLE: "What lies Ahead for Treatment in the Realm of Electrical Sensitivity"?

At the end of this Presentation, the participant should be able to:

1. Think about possible future treatment modalities for Electrical Sensitivity.
2. Discuss the literature concerning cations and ES as well as psychiatric disease.
3. Advise patients with mold exposure (and others) on early treatment in order to avoid developing electrical sensitivity.

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

What lies Ahead for Treatment in the Realm of Electrical Sensitivity

Lisa Nagy M. D.

The Preventive and Environmental Health Alliance Inc.

www.environmentalmedicineinfo.com

lisa@nagy1.com

508 696 6998

Topics to be discussed:

1. Altered Cortical Excitability in ES patients.
2. Case report of ECT resolving symptoms of CS in a depressed patient. Mechanisms involved. Why not to react emotionally but scientifically to such scientific reports.
3. What have we learned about mechanism and possible treatment because of oral galvanism?
4. Abnormal brain stem evoked potentials (Monro). Can we alter those abnormalities for immediate relief?

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Silver School of Social Work, New York University (NYU), USA. Nancy.Payne@nyu.edu

Objectives & Notes**Cyril W. Smith, Ph.D.**

Date of talk: Sunday, June 6, 2010, 11:00 am

36 Westminster Road
 Ellesmere Park
 Eccles, Manchester M30-9EA
 U.K.

Training:

Current Job Description:
 Current Faculty Appointments:
 Medical School/ University Attended
 Other Information:

Retired Physicist and Author
 N/A
 Exeter University and Imperial College, London
 Smith CW (2008) GUEST EDITORIAL: The electrical properties of high dilutions. Homeopathy 97 pp. 111-112.
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SPEECH TITLE: "Chemical Frequency Signatures, Frequencies and Fractals"

At the end of this Presentation, the participant should be able to:

1. Understand the nature of chemical frequency signatures.
2. Understand fractality of frequencies in coherent systems
3. Understand how frequency fractality links effects in the chemical, technological and biological parts of the frequency spectrum.

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

**28th ANNUAL INTERNATIONAL SYMPOSIUM
on Man and His Environment in Health and Disease**

“The Chemical Mechanisms Leading to EMF Sensitivity”

June 3-6, 2010 Dallas, Texas

ABSTRACT

Cyril W. Smith, Ph.D.

"Chemical Frequency Signatures, Frequencies and Fractals"

The Nature of Chemical Frequency Signatures

I did a lot of work on the electrical insulation and breakdown properties of n-hexane. This is a good material with which to investigate chemical frequency signatures because its only spectrum is in the far-infra-red (FIR) which it is used a solvent in spectroscopy. Any interaction with water must also be in this part of the electro magnetic spectrum. When it is dry there are no chemical frequency signatures. These appear at 14 ppm concentration of trace water. There is good agreement between the with ELF measurements multiplied by fractal ratio and the FIR spectra.

Water resonances can be similarly interpreted. However, there are many hundreds of lines in the FIR spectra of water so it was necessary to make the assumption that only those lines which could become sufficiently coherent for use in a water vapour laser were of significance. This gave a set of resonances which could be confirmed by measurement. When a frequency is imprinted into water, these resonances develop side-bands at that frequency and at other resonances these are fractally proportionate.

The Physics of “Water Memory” is based on the coherent precession protons in a domain of critical size such that they generate that magnetic field which satisfies the magnetic resonance condition. This is independent of the frequency of precession and the process is able to record any frequency. Living systems make use of the entire electromagnetic spectrum from circadian rhythms at micro-Hertz through all the technological frequencies to the FIR and thence to frequencies associated with chemical reactions.

The frequency information is in the A-field component of an electromagnetic field. The A-field (magnetic vector potential) is in the direction of the current. It is around a toroid. It arises as a mathematical necessity because the B-field always occurs in closed loops. The A-field has quantum effects in that it can affect the phase of the wave function describing a system.

The frequency of an A-field can be imprinted into water if the water is succussed by mechanical shock. The change of momentum is the effective physical quantity. The application of a B-field strong enough to overcome thermal dissipation in a coherence domain will potentise. The combination of these two field components near power lines will potentise all surrounding environmental frequencies into water or a living system. A train of 7-unidirectional voltage pulses applied in the presence of a frequency will potentise (binary 000-111). This can happen near a calculator, computer or a mobile or even a train of nerve impulses. The voltage pulses on dial-up are sufficient for this and can imprint directly into the head frequencies which take some time to disperse. With classical Hahnemann potentisation, seven rapid swings of the arm holding the vial through the geomagnetic field will generate sufficient in the way of voltage pulses for potentisation without any impact. It is also possible to potentise using a chemical frequency signature. All this shows how resilient a living system must be to the many irrelevant frequency imprints it experiences.

Potency or a water frequency imprint is “erased” if the geomagnetic field is shielded by placing it in a closed steel box. Erasure occurs at about 1% of the normal geomagnetic field so most steels except stainless steels will do this. About 380 nT is the critical magnetic field for which the magnetic energy in the volume of a coherence domain becomes less than the thermal energy (kT). This gives the size of the domain of coherence for water memory as a sphere of diameter 53 μm at ambient temperature; there is a slight temperature dependence...

In Classical Chinese Acupuncture, 12 meridians are considered to form 3 sets of closed paths along which a vital energy (Qi) is supposed to flow. In these, the Yin and Yang Organ frequencies will combine to a frequency given by their geometric means. When a pair of tubes of water imprinted with 2-Yin and 2-Yang frequencies respectively is placed close together - all frequencies disappear! Attempting to imprint all 4 frequencies into a single tube of water with 3 frequencies already present, the succession to imprint the 4th. frequency results in complete erasure of all frequencies. This gives living systems an error detection mechanism for control of homeostasis for so long as the four meridians are in a healthy condition, the frequencies around each course will be erased. This is an application of the theory of a ‘nilpotent’ operation (Daiz and Rowlands, 2004). Measurement of a water imprint in a Caduceus coil gives that ‘nilpotency’ frequency which erases the imprint. Nil-Potency provides living systems with a tool for erasing unwanted frequencies

An Objective Measurement for Frequency Imprinting

Living systems can in principle identify chemicals and isotopes by frequency. Atomic isotopes can be identified by vibrational frequencies. Alfred Partheil (1861-1909) a Professor of Pharmacy at Konigsberg, studied a relationship between musical notes and the Periodic Table finding the relation ship acoustic frequency = atomic weight ×16. I took 24 chemical elements which happened to be available to me and measured them placed between headphones connected to an oscillator. They all gave a measurable resonance at the audio frequency predicted by Partheil. Combining the Rydberg Constant of spectroscopy theory for hydrogen and the fractal ratio for ELF to optical frequencies gave a factor 16.7 for hydrogen - in close agreement with Partheil’s factor 16.

For the measurement of frequency imprints, I developed the dowsing response method out of sheer necessity for dealing with patients so electromagnetic frequency sensitive that they could not tolerate an oscillator being switched on when they were anywhere in the building. It is clinically very effective and useful. It can cover a frequency range from μHz to GHz. The Nerve Degeneration Meridian which is Voll’s summation point for the entire autonomic .nervous system has a resonance at 550 μHz Patients sensitive to microwave cookers and WiFi need to be tested at 2.45 GHz. Measurement with the dowsing response involves a reaction to the phase changes produced by a resonance between left & right hand and arm Pericardium and Heart meridians.

In general, the frequencies measured from patients and chemical frequency signatures usually alternate between being stimulatory and depressive of biological activity. The reference for this seems to be the A-field component of the Earth’s magnetic field which is directed East-West.

Over many years, I have tried to devise instrumentation for this measurement. With two electrodes immersed in frequency imprinted water a DC connection to low-noise high-gain amplifier is necessary to give an asymmetry. The measured signals are very small (nV) and close to noise level. Optical measurements in water

similarly give give small signals. These techniques do provide a method for validating the dowsing measurement over a limited range of frequency.

The physics underlying a method in which a single electrode is immersed in the frequency imprinted water involves the alternating \underline{A} -field ($d\underline{A}/dt = -\underline{E}$) which generates an alternating electric field \underline{E} proportional to the frequency and can give a voltage (~mV) proportional to the coherence length. Electroacupuncture apparatus has been using this since its inception without knowing why.

Copying with Toroids: because the information is in the A-fields generated by the coherently precessing protons in a water memory domain, two ferrite rings can be arranged to couple the \underline{A} -field of a potency or imprint into 'erased' water. Because of quantum coupling, any of the 4 items may be succeeded. This means that a potency or allergen dilution can be imprinted directly into a patient and "without having to succeed the patient!"

A single ring makes an inverted copy, applicable for allergens without potentiation.

Frequency entrainment by cells cultured with environmental organo-chemicals has been demonstrated at EHC-Dallas. The effects were modified normal cell cycle profile for T-lymphocytes, interruption of the ordered and orderly progression of the cell cycle, destruction of specific proteins and enzymes, prevention of apoptosis leading to wrong translations from the DNA and wrong signals for control of cell progression. The immune system would be compromised leading to multiple manifestations including cancer. The frequencies of the challenged T-lymphocytes became entrained by the frequencies of the chemicals and were no longer free to fluctuate according to metabolic demands.

Fractality of Frequencies in Coherent Systems

The presentation continues with a brief discussion of the relations between coherent frequencies. Coherence relates to the constancy of frequency and phase between two or more oscillators which may be represented by molecules, cells, tissues, meridians or an entire living system and is a fundamental property of a quantum field.

The phases of their individual quantum fields and particle numbers are related by Heisenberg Uncertainty Principle. Within a coherent system, the range of the coherence (*coherence length*) becomes the constant quantity instead of the velocity. This makes frequency proportional to velocity apparently without restriction so long as one remains within the coherence length. There can be many velocities each with frequencies in proportion. Because these frequencies no longer have absolute values, the system has become *fractal in frequency*.

Consequently, identical effects can be induced from frequencies in many different parts of the electromagnetic spectrum. It is this which links effects of frequencies characteristic of chemical, technical and biological systems and why environmental frequencies can mimic chemical exposure for hypersensitive patients. For a wave - its constant velocity of propagation equals its frequency multiplied by its wavelength.

A duality exists between chemical structure and frequency patterns - otherwise chemical analysis by spectroscopy would be impossible. Within coherent system coherence length becomes the constant parameter and frequency becomes proportional to velocity of coherence propagation with no characteristic frequency scale. This implies a fractal system with self-similarity, scale invariance and power law. This gives rise to the observed RF and ELF frequency bands coupled to chemical and technological frequencies with implications for the ANS.

How Frequency and Chemistry Together Affect Man and His Environment in Health and Disease.

The effects of frequency and chemistry together on man and his environment in health and disease are best considered in the context of the acupuncture meridians which reflect the status of the various body systems.

The beginnings of acupuncture meridians could be coherence between embryonic ectoderm and endoderm cells with this persisting as a link throughout the development of the organism; the ectoderm couples to the acupuncture points, the endoderm and mesoderm to the target organs. The Yuan Source Points or Luo Connecting Points are common points for the frequencies of both meridians.

Each acupuncture meridian and chakra point has a characteristic pair of frequencies. For convenience, these are listed in the appended table. Where a meridian has a link to the ANS there is an additional frequency: ~ 3 mHz for sympathetic ANS~ 0.3 Hz for parasympathetic ANS.

The relationship between the acupuncture meridians and the autonomic nervous system (ANS) comes from the work of Dr. Reinholdt Voll. His work is cited in English by Kenyon (1983). Voll identifies a complete system of acupuncture points which indicate the functioning of both branches of the autonomic nervous system.

Voll regards the 'Nerve Degeneration' meridian point ND1a as the Summation Point for entire ANS. In measurements using electro-acupuncture apparatus, stress is indicated by a percentage change; the frequencies measured at this and other related Voll points show similar changes.

In 1983, we showed that living systems can respond to magnetic resonance (NMR) conditions at geomagnetic field strengths. This allowed speculation that a frequency might be retained in water if magnetic resonance precession of the protons could be synchronised to any applied frequency and if these protons can generate an internal magnetic field which exactly satisfies the proton NMR conditions locally within their coherence domain. This condition turns out to be independent of the frequency to be remembered and requires 6.3×10^{12} protons to precess coherently. Such a process should be stable unless the domain is thermally broken up by removing the stabilising geomagnetic field. This is what happens at "erasure" and at ambient temperature this requires a coherence domain of 53 μm in diameter.

There are chemical pH changes on frequency imprinting. An increase in pH corresponds to the removal of H^+ ions and the generation of an equal number of OH^- ions.

A solution of NaOH at pH 8.01 increased to pH 8.05 at frequency saturation with 377 separate imprints. This pH change involves 3.2×10^{12} hydrogen and hydroxyl ions. Thus, a total of 6.4×10^{12} protons are tied up per frequency imprint. The critical magnetic field for the memory erasure condition requires 6.3×10^{12} protons to become coherent for local proton NMR conditions to be satisfied.

The normal condition is for the acupuncture meridian frequencies to fluctuate in a quasi-periodic manner over about a one hour period. If the meridian is synchronized to a stimulatory phase of frequency, its fluctuation rate increases ten-fold. If it is synchronized to a depressive phase frequency, all fluctuations cease, this is analogous to the effect of a toxic chemical.

Conclusions

The first body system to become compromised in chemical and electrical hypersensitivities is the ANS. Just a few of the many factors which can affect the ANS have been listed. In health, the body will be aware but not incapacitated by them. Voll's connections between the ANS and the acupuncture system have been used to investigate the frequencies involved in these connections. All cells can emit a chemical in response to an electrical signal and an electrical signal in response to a chemical stimulus. Regulatory systems use both frequency and chemical signals to avoid feedback instability. If a reference frequency becomes locked to a frequency or a chemical frequency signature, it cannot respond to metabolic demands and the ANS feedback path will go open-circuit.

Coherent proton precession accounts for water memory and pH changes. Frequency coherence gives rise to frequencies which are fractals linking the chemical to the technical to the biological. Frequency signatures of chemicals arise from transitions in the FIR between rotational water lines and the chemical with trace water. Transitions between FIR rotational water lines give a resonance one of which is the reference frequency for the upper fractal of the Heart acupuncture meridian and chakra and explains their precision.

Frequency patterns develop from the chemical signature of a "mother tincture" to a homeopathic potency which can be reproduced from a frequency pattern with no chemical precursor. The physics of frequency resonance measurement involves the electric field from an alternating A-field on a single wire giving a measureable voltage. Living systems can become synchronised to environmental frequencies and to frequency signatures of chemicals. Endogenous frequencies can fall below noise level.

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Table
Acupuncture Points and Nominal Values for their Endogenous Frequencies

'Classical' Acupuncture Meridians	Point Measured	Low Band Frequency	High Band Frequency
		Hz	MHz
Lung	Lu1	0.48	24
Large Intestine	LI1	0.055	2.7
Stomach	St45 / right	0.044	22
Stomach	St45 / left	0.44	2.2
Spleen	Pn1	0.055	2.7
Heart	He9	7.8	384
Small Intestine	SI1	0.025	1.2
Urinary Bladder	BL67	5.5	270
Kidney	Ki1	0.00095	0.047
Pericardium	Pe9	0.25	13
Sanjiao (TW)	TW1	6000	300,000
Gall Bladder	GB44	0.05	2.46
Liver	Liv1	4.8	240
Du Mai (GV)	GV14	4.3	149
Ren Mai (CV)	Ren24	14	730
'Extra' Points			
Anmian I & II	Ex 8 & 9	3,000	
Extra 'Ting' Points			
Lymphatics	Ly1	0.06	2.95
Nerve Degeneration	ND1	0.00055	0.027
Allergy	AD1	2	98.4
Organ Degeneration	Or1	0.078	3.85
Fatty Degeneration	FatD1	0.74	36
Skin Degeneration	Sk1	0.0035	0.172
Joint Degeneration	JD1	0.3	148
Fibroid Degeneration	FibD 1	800	39,400
Circulation, pericardium	Ci9	0.05	2.46

ELECTRICAL SENSITIVITIES and the ELECTRICAL ENVIRONMENT

Cyril W. Smith, Ph.D.

E:mail: cyril.smith@which.net

A shortened and edited version of notes written for and in cooperation with The Breakspear Hospital, Hemel Hempstead, HP2 4FD, U.K. The writer has been helping their electrically hypersensitive patients since 1982.

What are Electrical Sensitivities?

Many persons suffer from sensitivities to certain foods and environmental chemicals which cause them discomfort, or even in extreme cases prevent them from functioning in any effective manner. Even the most minute amounts of these substances may on occasions 'trigger' reactions which are specific to each individual. Warnings regarding nuts, peanuts or gluten are commonly found displayed on food products. When a sensitivity reaction occurs, some regulatory system within the body has ceased to function properly and gives alarm signals, calling for an unjustified panic reaction. Usually, it is the autonomic nervous system (ANS) which is the first to become compromised in this way. This system controls all the involuntary body functions. Thus, any part or function of the body might become affected by the same allergen acting in different people which is why such effects do not show up in medical statistics.

Those who have already acquired several chemical hypersensitivities and which are 'on-going' are at particular risk of acquiring electrical sensitivities as an additional problem. The allergen 'triggering effect' may transfer from a minute amount of some chemical in the environment to some patient-specific frequency of an electromagnetic field in the environment. Usually, it is the same patient symptoms that continue to be 'triggered'. It is the frequency of the electromagnetic field that matters, once some patient-specific threshold of intensity or field strength has been exceeded. The range of effective coherent frequencies extends from below a thousand seconds per cycle (circadian rhythms) through audio- and radio- and microwave-frequencies to visible light. All these effects are 'non-thermal': the electrical power is insufficient to produce any significant heating. It is the frequency that matters. In technical terms, it is the spectral power density or the watts per cycle of bandwidth of the radiation which matters. The more precise the frequency – the less power is needed to produce an effect.

Germany has introduced the WHO International Classification of Diseases Code T78.4 for 'Chemical-Sensitivity Syndrome Multiple', against which this can be reported and statistics collected. There is no electrical equivalent WHO Classification to date but it would seem reasonable for these cases to be recorded as a complication of multiple chemical sensitivities. Sweden regards electrical sensitivity as a *disability* with the implication that all public places must be fit for the electrically sensitive disabled person to be in.

The Electrical Environment

Such persons may experience problems from the natural electrical environment beyond what is normal such as the influence of light on melatonin levels. Electrical or acoustic (even sub-audio) frequencies from approaching weather fronts or thunderstorms may become troublesome. Eventually, there may be a hypersensitivity to sunlight.

Fluorescent lighting and lasers at check-outs may make shopping difficult, particularly if inhalants such as chemicals on in-store fabrics provide an initial chemical sensitisation. The patient may experience problems when near any electrical equipment such as power lines, radio- TV- or mobile phone transmitters, tape or DVD-recorders, computers, mobile phones, satellites or in fact any one of the multitude of electronic devices in the modern environment. It is not necessary for an electrical device to be active, any passive resonant circuit may suffice; this could be the resonant frequency of a row of metal railings in the street. Persons may become aware of actually having electrical devices malfunction when they handle them or, even when in their vicinity.

The female characteristic is towards chronic sensitivities appearing at an early stage, resulting in being labelled as "over-anxious"; the male characteristic is for no reaction until the onset of a sudden and disabling crash which may result in the person becoming completely unable to function normally.

The hazard of chronic over-exposure to electrical frequencies is one of **adaptation to symptoms** triggered by a particular pattern of frequencies until they become indistinguishable from a **disease condition**. The problem seems to arise when the frequency pattern of a toxic chemical in the body matches that of the person's electrical environment. It is the frequencies in the electrical environment which makes the body think it is under chemical attack

Typical Subjective Symptoms Relating to Electrical Sensitivities

Drowsiness, malaise and headache, mood swings, tearfulness and eye pain, poor concentration, vertigo and tinnitus, numbness and tingling, nausea and flatulence, convulsions, noise sensitivity, alteration in appetite, visual disturbances, restlessness, blushing.

Clinical Observations Relating to Electrical Sensitivities

Changes in respiration, heart rate changes (heart rate variability analysis is a good indicator of the status of the ANS), eye pupil dilation, perspiration or lack of it, muscular weakness, loss of visual acuity, speech or writing difficulties, loss of consciousness, convulsions.

At the Breakspear Hospital, about 10% of all patients with chemical, nutritional or particulate sensitivities had acquired electromagnetic sensitivities. Tests often showed stress coming from some common environmental frequency such as the power supply (50Hz in UK, 60 Hz in North America) or the 2.45 GHz frequency of microwave cookers and other devices using this frequency.

Patients' reactions were triggered over a very wide range of frequencies for which at first there was no recognisable pattern. Then it was realised that 7.8 Hz often appeared. Measurements quickly revealed that 7.8 Hz was the endogenous frequency of the heart acupuncture meridian. The endogenous frequencies of other acupuncture meridians also appeared when these were under stress. The frequencies on acupuncture meridians are very precise; for 53 heart meridian frequencies from 38 patients, the mean was 7.788 Hz (standard deviation \pm 0.92%). This frequency is used in some therapeutic or environment protection devices and it occurs in radiation from the Schumann Bands in the upper atmosphere to which we are all exposed.

Sensitivities to Foods and Chemicals

About 1-in-6 of a 'population' is usually considered to have some degree of impaired function due to an allergic reaction to the environment or to food. Repeated exposure to a frequency while a person is reacting to some other allergic trigger may link that specific sensitivity pattern to that frequency, so that the same reaction is triggered on encountering either the frequency or the allergen on a subsequent occasion. In general, the patient's pattern of response is the

same whether the trigger is chemical, biological, particulate, nutritional or electrical – it is characteristic of the patient.

Exposure to pesticides or herbicides seems to enhance or even create electrical sensitivities. Formaldehyde is a very good sensitizer. Ionising radiation exposure (e.g. long-haul flights) represents an additional stress factor. A few persons may become hypersensitive to light, some to sunlight, or to the light of the mercury vapour spectrum, which is superimposed on the emission from fluorescent tubes and energy-saving lamps.

Dental fillings may cause problems due to electrolytic currents between amalgam fillings containing different mixtures of metals or, between fillings and surrounding tissue. Patients have been seen with black stains on the palate due to the electrolytic transport of mercury. Amalgam-to-tissue contacts may detect environmental frequencies such as radio transmissions just like a cat's-whisker crystal set. There has been a case where a dentist heard music coming from a patient's mouth. The mercury toxicity frequency and a mobile phone frequency unfortunately happen to stress the parasympathetic branch of the autonomic nervous system.

A common feature of electrical hypersensitivity is that its sufferers complain vigorously that nobody does anything for them, such as turning off an electrical source which they know is "triggering" their reactions but, which seems to have no effect on anyone else. When a hypersensitivity to sunlight is acquired, the futility of this approach is realised but perhaps not before the sufferer has become almost paranoid about these problems.

Treatment

When patients have acquired a high degree of sensitivity to many factors in foods and/or the chemical environment (multiple-sensitivities), they are very likely to have acquired an abnormal sensitivity to their electrical environment as a part of this 'package' of symptoms. It is rare to find electrical sensitivities without on-going chemical sensitivities. This electrical sensitivity can become so severe that a person becomes incompatible with technology and unable to function in the modern environment. Electrical sensitivity is not mutually exclusive of other clinical conditions; it can co-exist with and even trigger physical or mental illness. Electrical sensitivities make diagnosis and therapy more difficult. Medications may produce abnormal responses or side effects, even chronic sensitisation to the electrical environment.

A therapy for alleviating allergic reactions is called provocation / neutralisation therapy. It was developed from earlier work in the USA by Dr. Joseph Miller of Mobile, Alabama, and further developed at the Environmental Health Center, in Dallas, Texas, by Dr. W. J. Rea and at the Breakspear Hospital, Hemel Hempstead, England by its Medical Director, Dr. Jean Monro. This therapy relies on successive serial dilutions of the substance having in sequence the effects of stimulating and/or quelling the reactions that they produce. This therapy is not a substitute for eventually reducing the total body loading of triggering substances to a level that the individual can cope with which can be done by simultaneously increasing the rate of detoxification and reducing the rate of toxin intake until the body can function normally, assuming that the enzyme systems for detoxification are still intact. However, while this can produce an alleviation of the symptoms and thereby assist achieving eventual normalisation, it may not be possible to achieve this without some change in the patient's lifestyle. It is also labour-intensive and therefore expensive.

The general concept introduced by Dr. W. J. Rea is to seek to reduce the total body load of stressors. Which stress factors one seeks to reduce may be a matter of choice although some stresses are involuntary through exposure to the general environment. Dr. Rea has demonstrated the reality of electrical sensitivities in double-blind trials ^[1]. The equivalent therapy for alleviating reactions to electrical frequencies involves trying to find one or more frequencies which will turn-off the body's abnormal frequency sensitivity. This is not a cure but it can help stabilise the body for more effective allergy therapy. As foods and chemicals sensitivities are brought under control and the body detoxifies itself, the electrical sensitivities usually disappear as well. Symptoms usually disappear in the reverse order to their appearance. However, it is worth noting that if a person is working or sleeping in a zone of 'geopathic stress', which may be electrical in origin, then their problems, may persist and resist therapies.

Reducing the Impact of the Electrical Environment

The sensitive person is best able to determine what affects them. It is impossible to get away from the natural electromagnetic radiation from the sun, the ionosphere, the weather and the geomagnetic field. It is almost impossible to get away from man-made electromagnetic radiation. Persons who find a deep canyon or go to the 'out-back' still get zapped when a satellite comes over the horizon. The best indicators for safer places are – mobile phones do not work, TV reception is poor and there are no overhead lines.

In the home, electricity supply meters emit large fields and may be located in a passage on the other side of the wall from a bed-head. From where the power supply reaches the house, its cable may run on an outside wall but, close to a bed. Power lines on overhead poles may act as antennae for radio and microwave transmissions and channel them into the house wiring. It is good practice to turn off all non-essential electrical circuits at night. Power frequencies may have the same effect as daylight in the arctic summer depressing the level of melatonin (an anti-cancer agent). Some biologically based shielding may be provided by pine trees which have terpene problems, cacti or spider-plants.

The power supply frequencies are in effect impossible to shield with any practical measures. Higher frequencies can be shielded by metal wire mesh, metallised fabric or aluminium foil, although these may act as mirrors to reflect the radiation elsewhere. They can also reflect self-radiation emitted by a person having an allergic reaction making it even worse. A very sensitive person may react to a quantum component of the electromagnetic field called the magnetic vector potential and this cannot be shielded ^[2].

It is rare to find electrical sensitivities without previous and ongoing chemical sensitivities. If a person is sensitised chemically, the electrical sensitivity can be enhanced. Remember that electronic equipment emits chemical fumes and as these may be a trigger for reactions so they need to be ventilated. For example, a person may tolerate the electromagnetic radiation from a television set if it is enclosed in a glass-fronted box ventilated to the outside keeping fumes from the hot plastic out of the room.

Computers have different clock frequencies usually specified in terms of their speed of operation. These frequencies will be sub-divided in the process of carrying out the various computational functions. It may be possible to find a model/manufacture whose equipment is tolerated. The flat screen displays are likely to have less emission. The pulses emitted when a mobile phone dials-up a number can imprint frequencies into the head if it is held against the ear before dialling is complete.

The eye can also be a pathway for frequencies to enter the body such as when viewing TV or a computer. Most acupuncture meridians are stimulated/stressed while viewing a light source flashing at a frequency equal to the endogenous frequency of the meridian. Frequencies greater than 0.05 Hz and less than 47 kHz have this effect as do strong visual patterns and colours. The body as a whole is sensitive to resonances in its environment, so metal structures or even electronic equipment which is not switched on may cause problems.

Computer keyboards can have a long cable or an infrared optical link to the computer unit enabling the latter to be kept at a distance. A whole building or

public area may be fitted out with a wire-less internet link which cannot be avoided. There is software which enables one to dictate to a computer, so that the process of typing in a lot of text can be circumvented; only error correction and editing need be done at the keyboard.

Conclusion

It is rare to find a patient with electrical sensitivities who does not already have multiple on-going sensitivities to chemicals, volatiles and particulates. To avoid becoming electrically sensitive, one must be careful about acquiring a body load of chemicals which happen to be toxic to you because your body cannot get rid of them quickly. Then, if the frequency pattern of such substances happens to match a pattern of frequencies in your electrical environment this will make the body think it is under further chemical attack. That is why only some people are affected by their electrical environment. Engineers (chemical or electrical) work to specifications, unless they are told that certain environmental frequency patterns cause problems with certain environmental chemicals nothing will ever get done about the problem.

Submission to the Science and Technology Committee in respect of Evidence Check 2: Homeopathy

“Evidence Base in Physics for Homeopathic Products and Services”

Cyril W. Smith, BSc (London & Exeter); PhD, DIC (Imperial College, London); CEng, FIET; CPhys, MInstP; MIPEM; Life SMIEEE.

Executive Summary

1. Homeopathy involves frequencies and their effects on living systems.
2. Clinical evidence comes from hypersensitive patients whose reactions can be treated with specially prepared homeopathic potencies.
3. Homeopathic potencies involve the memory of water for frequencies.
4. A theory based in quantum physics is supported by experimental evidence.

1. Introduction

Homeopathy is one of the branches of Complementary and Alternative Medicine which involves the therapeutic use of frequency. For at least the past 60 years, the promulgated and accepted wisdom is that the only biological effects of non-ionising electromagnetic fields are thermal and as such can be reliably predicted from “Classical Physics”. One must conjecture that the motives for this have been military, commercial and legal. The majority of healthy persons have regulatory systems well able to cope with the natural and man-made electromagnetic environment as with other environmental stresses so, any frequency effects are not apparent.

Since the 1970’s the writer (Smith, 2008) has been involved with research into the ways that living systems make use of electric and magnetic fields and frequencies and has over 100 publications in this area. In 1982, he commenced an involvement with the problems of chemically sensitive patients who had become hypersensitive to their electrical environment. This work quickly showed that once a threshold of intensity had been exceeded, the relevant factor was frequency. Initially, patients were challenged with frequencies from an oscillator at environmental field strengths. Their reactions to specific frequencies were the same as their reactions to the chemicals, volatiles or particulates to which they happened to be sensitive.

The ‘Miller Technique’ used in the treatment of such patients involves successive serial dilutions of the allergen until one is found which turns-off the patient’s reaction. This needs to be more precise than the standard homeopathic potencies. Here, succussion takes place by vortexing in the syringe. For the treatment of electrical sensitivities a therapeutic frequency could be found, imprinted into water and used in the same way as an allergen dilution even though there was no chemical component present. This fitted conveniently into the existing facilities and practice of the hospital involved (Breakspear Hospital, Hemel Hempstead) and did not require an electrical oscillator for each patient. Rea et al. carried out a double-blind trial at the Environmental Health Centre, Dallas, Texas. Selected patients with electrically sensitivity could respond to a frequency to which they happened to be sensitive with 100% success and 0% response to placebos.

Examination of frequencies which had a clinical effect showed a correlation with the endogenous frequencies on the acupuncture meridians. When an acupuncture point is stressed either by pressure or with a needle, its endogenous frequency spreads throughout the body. Appropriate choice of meridians and points enables the acupuncturist to create a therapeutic frequency pattern from the patients own body fields. Dr. Reinhardt Voll showed that certain acupuncture meridians were linked to the autonomic nervous system (ANS). Homeopathic potencies can be selected to stimulate specific acupuncture meridians and thence specific parts of the ANS.

2. The Physics of Homeopathy

2.1 Frequency, Coherence and Fractality

Figure 1. Diagram of the quantities associated with frequency

Figure 1 shows the quantities associated with frequency irrespective of what is oscillating. If a frequency is propagating through space, there is a velocity and an associated wavelength.

The importance of frequency in biological systems was recognised by Herbert Fröhlich FRS (Smith, 2008) who in the 1930’s when told that the cell membrane potential was a fraction of a volt and existed across an extremely thin cell wall realised it represented an enormous electric field, strong enough to align molecules for assembly and resonating at about 100 GHz. By 1967, he had applied the theory of coherent modes of oscillation in non-linear systems and long-range phase correlations to biological order. The subsequent development of his ideas and the work of his world-wide circle of collaborators were edited by him into two “Green Books”: “Coherent Excitations in Biological Systems” and “Biological Coherence and Response to External Stimuli”.

In 1995, Preparata with Del Giudice and co-workers showed through quantum electrodynamics (QED) theory that water had phase coherence as a fundamental property arising from the exchange of radiation at the natural resonant frequencies of the water molecule. In a coherent system, the distance over which frequency coherence persists (*coherence length*) replaces velocity as the constant quantity making frequency proportional to velocity (see Figure 1) and a fractal quantity. Fractality enables the chemical, technological and biological frequency bands to interact. Table 1 shows the frequency fractals for light from a mercury discharge lamp imprinted into water. If the chemical bond was not associated with frequency, spectroscopic analysis would be impossible. Chemistry cannot be described by “Classical Physics”.

Table 1. Multiple Frequencies Fractal Effect for the Mercury (Hg) Optical Spectrum Imprinted into Water.

Hg lines	Optical		Microwave		ELF
nm	Hz		Hz		Hz
	$\times 10^{15}$	$\times 10^6$	$\times 10^6$	$\times 10^6$	$\times 1$

185	1.62		935		19.31
254	1.18		680		14.38
365/6	0.820		472		9.843
405	0.740		425		8.925
436	0.688		396		8.358
492/6	0.607		347		7.235
546	0.549		315		6.633
577/9	0.519		298		6.262
615	0.488		280		5.832
623	0.482		276		5.832
Ratio		1.7340		47.70	
Std. Dev.		± 0.34%		± 0.75%	

2.2 Fields

In mathematics, a *field* is a region of space containing mathematical objects, rather like the ‘field of view’ seen with binoculars. In physics, a *field* is a region in which a mechanical force acts, for example the gravitational field.

The “Classical Electromagnetic Field” is the basis of electronics and radio. “Classical Physics” describes a system for which the phase is well defined and the number of particles (quanta) is too large to matter. In contrast, a “Quantum Field” involves fewer particles and has a fundamental uncertainty described by the Heisenberg Relation (Smith, 2008).

These fields can be electric or magnetic. The magnetic field only exists in closed loops and a mathematical consequence is the magnetic vector potential explained theoretically by Aharonov and Bohm and later found experimentally. This generates an electric field proportional to its frequency and in a coherent region this gives an oscillating potential which can be measured.

3. The Physics of Water Memory

One important result from our clinical work was finding that the reactions of patients to environmental electromagnetic fields, chemicals, or potencies could be reproduced with frequency imprinted water. Water in flame-sealed glass ampoules could be imprinted with frequencies through the glass and no possibility of any chemical contact. This confirmed the basis of homeopathy as frequencies in water.

In 1983, my laboratory (Smith, 2008) showed that living systems could respond to magnetic resonance conditions at geomagnetic field strengths. This is a quantum effect but following its publication a cyclotron theory attempted to keep the effects within “Classical Physics”.

Later this suggested that a frequency might be retained in water if the precession of proton spin could be synchronised to an applied frequency to generate an internal magnetic field which exactly satisfied the proton magnetic resonance conditions locally within a coherence domain. This condition turned out to be independent of the frequency to be remembered and would be stable unless the domain is thermally broken up by removing the stabilising geomagnetic field. The critical field for this is about 340 nT making the coherence domain 53 µm in diameter. The statistical fluctuation in the number of protons involved determines the bandwidth of the frequency imprint which can be parts per million in agreements with experiment.

Imprinting a frequency into water immobilises free protons increasing the pH value. Figure 2 shows the pH of a solution of sodium hydroxide at pH 8.01 had increased to pH 8.05 at memory saturation after 377 separate frequencies had been imprinted. On erasure the pH returned to its initial value.

Figure 2.

3.1 Writing Frequencies into Water

Frequency information can be imprinted into a glass vial of water by succussion. This is what creates a homeopathic potency. Frequency information from a patient’s body also can be imprinted if the vial is held in a clenched fist while succussing the protruding end.

Imprinting can take place through the glass of a vial containing water by immersing it in frequency imprinted water. Water placed near to a source of frequencies such as an oscillator and coil, a chemical or homeopathic potency can be imprinted by succussion or, with a strong permanent magnet or, by succussing a toroid (ring) of ferrite material. A sequence of 7-voltage pulses will affect an imprint; imprinting can also be done chemically.

3.2 Erasing Water Memory

A homeopathic potency or a water imprint will be erased if the geomagnetic field is shielded by placing it briefly in a steel box. Erasure occurs when thermal energy becomes greater than the internal magnetic energy. This threshold, at about 1% of the Earth’s magnetic field, is independent of the imprinted frequency over at least the 13-decades from 10^{-4} Hz to 10^{+9} Hz. Heating imprinted water alters the imprint so that it becomes “hidden” and living systems do not recognise it. It can be recovered by the application of certain frequencies including that of the heart acupuncture meridian. Certain combinations of frequencies will self-erase, that is they are ‘nilpotent’.

3.3 Reading Water Memory

Frequencies in water and living systems present a great measurement problem. Clinically, they may be anywhere in the electromagnetic spectrum from milliHertz to GigaHertz and the bio-information is carried on the magnetic vector potential component of the field.

Several techniques have been applied to the objective measurement of frequencies in water and homeopathic potencies. They can be made to work over a limited range of frequencies (Smith, 2008).

1. Electrodes immersed in water or potency and connected to a low-noise high-gain amplifier have been used by the writer and Dr. Wolfgang Ludwig.
2. Dr. Peter Gariaev has used a special 2-beam laser interacting with potency; these results in the emission of a radiofrequency modulated with the signature of the potency.
3. Professor Vittorio Elia has used microcalorimetry to show a difference in heats of mixing between control water and potency and in cooperation with Professor Claudio Cardella has shown the same effect with water imprinted by placing in a microwave resonator.
4. Dr. Karen Langer has used both delayed luminescence and also the coupling between Tesla coils to demonstrate effects from potencies.
5. Dr. Louis Rey has irradiated samples with high energy ionising radiation after freezing and on warming found differences in the thermoluminescence between potencies and controls.
6. Professor Luc Montagnier has shown that some DNA sequences in pathogenic bacteria and viruses have a characteristic frequency signature even at high

dilutions of agitated aqueous solutions.

Figure 3. Measurement of Frequencies Imprinted into Water - using a low-noise amplifier and phase-sensitive detector (Brookdeal Electronics Ltd. LA350). Lower curve: single electrode in water; upper curve: water in electroacupuncture beaker.

The magnetic vector potential (\underline{A} -field) component is in the direction of a current i.e. the proton precession and since $d\mathbf{A}/dt = -\underline{E}$ an alternating \underline{A} -field will generate an alternating \underline{E} -field proportional to the frequency and an alternating potential in a coherent system. This is not a potential difference. It is in effect what electroacupuncture apparatus does without explaining the physics involved.

Table 2. Frequency Pattern of Homeopathic Phosphorous C6 Tablets

Phosphorous C6 Hz
2.113×10^{-1}
5.003×10^0
$5.000 \times 10^{+1}$
$3.003 \times 10^{+2}$
$6.005 \times 10^{+3}$ (± 1 Hz)

The frequency pattern of homeopathic phosphorous C6 tablets is shown in Table 2. Figure 4 shows this resonance measured with a low noise amplifier and phase sensitive detector (Brookdeal Electronics Ltd. LA350). The tablets were placed in an electroacupuncture brass beaker. The frequency was stepped manually in 1 Hz intervals to show the beats between the potency resonance and the reference frequency. The chart speed was 20mm/min.

Figure 4. Measurement of a Frequency Resonance in Phosphorous C6.

3.4 Chemical Frequency Signatures

Homeopathic potencies start from a "Mother Tincture" which is usually of chemical or biological origin. **Its chemical frequency signature is all that is needed for potentising.** A homeopathic repertory shows the wide range of frequency templates available for potentisation.

Experiments with n-hexane showed that only 14 ppm of water is needed for a frequency signature to develop. Since the n-hexane spectrum is in the far-infra-red (FIR), water can only interact here. Of the many FIR water lines a few (357 cm^{-1} , 213 cm^{-1} and 128 cm^{-1}) are coherent enough for a water vapour laser and for "water memory". The chemical frequency signatures calculated for n-hexane were as measured. The same calculation applied to pairs of FIR water lines gave the measured frequency signatures of water. When a frequency is imprinted into water, the FIR frequencies develop two sidebands proportional to the imprinted frequency with corresponding fractal sidebands in other parts of the electromagnetic spectrum.

4. Homeopathic Potencies

When a single frequency is imprinted into water which is then serially diluted, the original frequency disappears to be replaced by the original frequency multiplied by the dilution ratio. Not all dilution ratios do this, some have no effect, and others erase everything. Patterns developed from frequency signatures may be more complicated.

Figure 5 shows the frequency pattern for a set of potencies of thyroxin. It demonstrates the frequency basis for potentisation of homeopathic remedies. Frequency erased water was imprinted with the complete pattern of frequencies previously determined for thyroxin of potency D15. This was then potentised by conventional dilution and succussion. The frequencies measured for each synthesized potency were exactly the same as those for the potencies prepared from the "Mother Tincture" chemical thyroxin. Yet, the synthesized potencies had started from nothing but water. There is no discontinuity at potency D24 the dilution at which no molecule of an original substance should remain (Avogadro's number).

Figure 5. Frequency Pattern for Potencies of Thyroxin. The potency D15 was synthesised from all constituent frequencies. On dilution and succussion this gave the frequencies as measured in potencies coming from the "Mother Tincture".

The frequency signature of chemicals must apply to pharmaceuticals which must also have a homeopathic activity. Table 4 compares aspirin and aconite; combined they would stimulate the Du Mai meridian.

Table 4. Frequency Signatures for Soluble Aspirin and Aconite C6.

= stimulatory (hyperactive); $\bar{\text{—}}$ = depressive and stressful (hypoactive).

Soluble Aspirin	Aconite 6C	Aspirin + Aconite C6
	4.911×10^{-4}	
3.032×10^{-1}	$\bar{\text{—}}3.013 \times 10^{-1}$	
	7.712×10^0	4.133×10^0
	$\bar{\text{—}}5.513 \times 10^{+2}$	
$\bar{\text{—}}1.23 \times 10^{+6}$	$1.22 \times 10^{+6}$	

$7.10 \times 10^{+6}$	$-7.10 \times 10^{+6}$	
	$3.35 \times 10^{+7}$	

5. Chaos

Between the states of health and disease there may be a state of mathematical chaos (Smith, 2009). Chaos has been demonstrated in respect of the cardiac signal of a healthy human as well as in electroencephalograms, epidemics, fluid flow and oscillatory chemical reactions. A chaotic system eventually settles down to its "attractor" - a stable condition that may be a point focus or a limit-cycle oscillation. From the clinical and homeopathic point of view, any experiment involving a patient in a chaotic domain is **non-repeatable** from the same initial condition. Homeopathy can operate in the chaos region to switch a patient back from chaos to health.

6. Similiters and Provings

Hahnemann wrote, "...that for the totality of symptoms to be cured, one must seek that medicine which has demonstrated the greatest propensity to produce either *similar* or *opposite* symptoms".

Frequencies patterns are generally biphasic showing alternately stimulation and depression of biological activity. Endogenous frequencies in biological systems fluctuate around their nominal value in a quasi-periodic manner which may be chaotic. Frequencies of acupuncture meridians can be entrained by homeopathic potencies which may stimulate or depress biological activity and hence can be "therapeutic" or "proving". Chronic exposure to frequencies can result in "proving" symptoms which may become indistinguishable from a disease state.

In Table 5, the frequency pattern from a patient is compared to the frequency pattern of the homeopathic potency Lachesis C200 which may be the patient's similitar.

Table 5. Frequency Matching Indicates a Possible Similitar
(paired-values correlation coefficient 0.94)
= stimulatory (hyperactive); - = depressive or stressful (hypoactive).

Patient's Frequencies Hz	Nearby Meridians	Lachesis 200C Hz
1.514×10^{-2}	Small intestine	3.112×10^{-2}
-7.611×10^0	Heart	-6.142×10^0
$5.000 \times 10^{+1}$	50 Hz	$5.013 \times 10^{+1}$
$-6.006 \times 10^{+1}$	Triple-Warmer (Sanjiao)	$-6.114 \times 10^{+1}$
$2.95 \times 10^{+5}$	Skin Degeneration	$2.25 \times 10^{+5}$
$-1.23 \times 10^{+6}$	Small intestine	$-1.32 \times 10^{+6}$
$3.45 \times 10^{+6}$	Organ Degeneration	$3.15 \times 10^{+6}$
$-7.70 \times 10^{+6}$		$-7.30 \times 10^{+6}$
$3.18 \times 10^{+7}$	Fatty Degeneration	$2.80 \times 10^{+7}$
$-8.40 \times 10^{+7}$	Allergy	
$1.80 \times 10^{+8}$		

7. Conclusion

The theory of homeopathy has implications for both alternative and orthodox medicine and the chemical and electrical environments. It challenges convenient and comfortable paradigms.

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Declaration of Interests:

The writer is a scientific consultant for the Breakspear Medical Group Ltd. and does measurements for them and other medical practitioners.

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Cyril W. Smith (Retired),
Formerly Senior Lecturer
University of Salford, Salford M5 4WT, England.

E:mail cyril.smith@which.net

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Objectives & Notes

Richard Jaeckle, M.D.
Private Practice
8220 Walnut Hill Lane, Ste. 404
Dallas, TX 75231

Date of talk: Sunday, June 6, 2010, 11:30 am

Training:

Current Job Description:	Private Practice of Psychiatry & Environmental Medicine
Medical School:	University of Texas Southwestern Medical School
Residency:	Dallas Veterans Admin Hospital, St. Louis University Hospital
Board Certifications:	ABPN Psychiatry, ABPN-CH/ADOG Psychiatry
Other Information:	Fellowship, Child-adolescent Psychiatry Washington U. Child Guidance Clinic
Disclosure Statement:	Consultant for Pharmasan Laboratory

SPEECH TITLE: "The Role of the ANS in EI"

At the end of this Presentation, the participant should be able to:

The brain is involved in all disease as a result of Crosstalk

1. The complex of neurocircuitry among various nuclei of the ANS, the immune system and e
2. The ANS can be routinely evaluated via the ELISA testing of urinary neurotransmitters.
3. The same testing can be used to monitor therapeutic interventions directed to autoimmune disorders and cancer.

The American Environmental Health Foundation and the University of North Texas Health Science Center is not responsible for the contents of this presentation. AEHF has not altered or modified the contents of the information provided by this speaker.

THE AUTONOMIC NERVOUS SYSTEM & EMF

Richard G Jaeckle MD
Dallas, Texas

Lechin's research has spanned the last fifty years, proceeding from gastrointestinal motility to neurons and finally neurocircuitry, correlating his own findings with the world literature along the way. During the last thirty years, he has used the highest technology of neurotransmitter analysis to study over thirty thousand patients, extending to a sleep laboratory during the last ten years. Over two hundred and forty publications and two texts document his work. His successful treatment of patients attracts patients worldwide and earned the recognition of nomination for the Nobel Prize in Medicine in 2001 for work on bronchial asthma and myasthenia gravis.

A major portion of his work entails the separate portions of the sympathetic portion of the autonomic nervous system, namely the neural and the adrenal. He has elaborated the neurocircuitry and the separate syndromes pertinent to each. The neural pattern is the more stable, and includes many diseases including endogenous depression, autoimmunity, hypertensive disease, etc. The adrenal pattern is very unstable, with oscillations between the adrenal sympathetic and the parasympathetic, including immune suppression responsible for all cancers with only two exceptions. The instability of the adrenal pattern, which is an exhaustion pattern, makes it the likely predisposition for EMF sensitivity.

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1. For evidence that electromagnetic field sensitivity actually does exist and can be elicited under environmentally controlled double-blind conditions with 100% reactions to an active frequency and 0% to the placebos, see: Rea WJ, Pan Y, Fenyves EJ, Sujisawa I, Suyama H, Samadi N, and Ross GH. "Electromagnetic Field Sensitivity", *Journal of Bioelectricity* **10(1&2)**: 241-256 (1991).
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