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Man & His Environment in Health and Disease**

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**IN SITU NUCLEIC ACID HYBRIDIZATION AS A DIAGNOSTIC TOOL AND ITS
APPLICATION TO ECOLOGICAL PROBLEMS.**

Biological and chemical agents from the environment play a role in the disease process of man. Some pathological changes may be the result of interaction of the foreign agents with the cellular genetic material. High rate of leukemia among the school children in New Jersey, acute immunodeficiency disease among homosexuals, involvement of HTLV-III virus in AIDS, herpes simplex virus and ureaplasma infections are a few to mention among others. These interactions are taking place at the molecular level. It is very important to understand and identify each of these events at a gene level which may be an alteration in gene expression, deletions or addition of genetic material and/or physical damage to the nucleic acids. With the recent advances in the recombinant DNA technology, it is now possible to produce DNA probes in pure form and in mass quantities. We used these cloned probes to detect herpes virus infections at a single cell level using in situ nucleic acid hybridizations. Further use of this technique for understanding, diagnosis and prognoses will be discussed.

C. H. Bastomsky, Royal Victoria Hospital, Montreal, Canada.

POLYHALOGENATED AROMATIC HYDROCARBONS AND THYROID FUNCTION

In the rat hepatic glucuronidation of thyroxine (T_4) and its excretion in the bile is a major route of T_4 metabolism. T_4 -glucuronide formation is rate-limiting for its biliary elimination and hepatic microsomal enzyme inducers, which increase microsomal UDP-glucuronyl transferase activity enhance this route of metabolism. In rats treated with polychlorinated biphenyls (PCBs) or

2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD; dioxin), the bile to plasma - ^{125}I concentration ratio following iv injection of ^{125}I -T₄ and the biliary content of ^{125}I and its proportion present as T₄-glucuronide were increased many fold. In animals receiving these compounds or polybrominated biphenyls (PBBs), serum T₄ concentrations were reduced and thyrotropin levels elevated and goiters were present. The effects were accentuated in rats fed a low-iodine diet. The data indicates that these polyhalogenated aromatic hydrocarbons increased T₄ metabolism to such an extent that normal feedback mechanisms were unable to compensate for enhanced peripheral T₄ disposal.

It is difficult to extrapolate these results to man, but low free T₄ index associated with high thyrotropin, was reported in 4 of 35 workers exposed to PBBs (Bahn et al., 1980).

Jeffrey Bland Linus Pauling Institute, Palo Alto, CA

NUTRITION, GUT PERMEABILITY, AND ALARM SUBSTANCES ABSTRACT.

Considerable information has been developed the past few years which allows for a better definition of the biological mechanism of the pathogenesis of ecological disorders. Many of the food-related ecological disorders have their understanding in incomplete protein breakdown products, gut permeability, and stimulation of release of alarm substances such as leucotrienes. This presentation will develop this particular association and point to specific clinical therapies that derive from this understanding. The role of specific nutrients in both the prevention and management of this condition will be integrated into the presentation and a correlation of the prodromal features of the clinical manifestations with the biochemical mechanisms will be addressed.

A. B. Brill, Medical Dept., Brookhaven National Laboratory, Upton, NY.

POTENTIAL HEALTH EFFECTS OF STABLE AND RADIOACTIVE IODINE.

Studies on persons who received high doses of radioactive iodine (I-131) in therapy of thyroid disease do not reveal an increased incidence of thyroid cancer. Following somewhat lower doses, received by Marshallese exposed to fallout from a weapons testing accident, thyroid cancer incidence was increased. In Sweden, large numbers of persons who had received diagnostic and therapeutic I-131 doses were studied, and no increase in thyroid cancer was detected.

Following X-ray therapy to the head and neck, in childhood, thyroid cancer incidence is increased. In these persons, thyroid cancer has been induced at lower thyroid doses than from I-131 in human subjects. Precedent for this discrepancy in oncogenic potency has been established from numerous (but not all) animal studies, comparing X-ray and I-131. Differences in dose rate, and spatial distribution of dose is thought to be responsible for the lower thyroid carcinogenicity of I-131.

Various blocking agents, such as stable iodine or thyroid hormone can be used to diminish the dose to the thyroid from I131. The comparative utility and risks from such countermeasures have occasioned much discussion and debate. Data concerning the risks from the various exposure levels and the benefits and risks of the various possible countermeasures will be presented and discussed.

Work performed under contract #DE-AC02-76CH00016 with the U. S. Dept. of Energy.

Jonathan Brostoff, M.D. Department of Immunology, Middlesex Hospital Medical School, London, W.1., UK

THE SKIN AND LUNG AS MODELS FOR ALLERGIC REACTIONS IN THE GUT

The skin and lung show varied immune responses following allergen challenge. The immediate response is IgE mediated and can be followed some hours later by a late phase reaction dependent on the arrival of neutrophils. True delayed hypersensitivity can only be seen in the skin but is suspected in both lung and gut as well.

Irritable bowel syndrome is the classic example of 'asthma of the gut' and studies are in progress to examine luminal fluid for IgE and immune complexes.

Crohns disease from the histological point of view could be a delayed reaction in the mucosa or a chronic late phase response which may be indistinguishable histologically. The excellent response that some Crohns patients make to dietary exclusion make this an exciting area of study.

Lino Businco, Elena Businco, Lucia Tucci, Mario Corgiolu, Roberto Litomarga, Centro Studi Biologica Ordine di Malta, Roma

HEPATIC ALLERGIC REACTIONS TO WOMAN MILK

Food may cause local allergic reactions or be absorbed and give allergic reactions in other organs with eczema, urticaria, migraine, etc., The local allergic reaction brings about histamine release and other mediators.

Clinical case:

G.R., m., 2 month. Allergy to woman milk. Eight days old, hospitalized because of food refusal and serious asthenia. In hospital he is fed with woman milk and dried milk. Vomiting, diarrhea, hepatomegalie, eosinophilie soon occur. After 28 days hepatic biopsy: many eosinophils in the hepatic tissues. These eosinophil elements seem originated by the Kupffer cells. Kupffer cell's eosinophilic transformation is probably caused by the histamine released during allergic milk reaction in the gastrointestinal tract. The eosinophilic cells, in fact, with their granulations rich in histamine produce an antihistaminic action. After changing the food in soja milk, the patient was better, and hepatomegalie reduced. In the second biopsy, hepatic eosinophilie disappeared with clinical return to normality.

Joel R. Butler Ph.D. Dallas Environmental Health Center

COGNITIVE AND PERSONALITY PATTERNS: PROGNOSIS FOR E.C.U. TREATMENT

The purpose of the present study was to determine what cognitive and personality patterns would be predictors of successful outcome of E.C.U. treatment.

Standardized tests of intelligence/cognitive/behavioral profiles were administered to 100 environmental in-patients. Results show that patients most likely to respond favorably to treatment will have positive changes in memory functioning, concentration, attentional skills, speed of mental operations, ability to learn a new task, relief from alienated depression, and malaise.

Those patients who do not improve are less defined in antecedent-consequent symptomatology and who project anger, blame and negativity, deny improvement, and rationalize for noncompliance.

Gary Campbell, D.O. Department of Public Health and Preventive Medicine, Fort Worth, Texas

MANAGEMENT OF THE ENVIRONMENTALLY REACTIVE PATIENT

It is increasingly evident that nearly everyone has some level of environmental sensitivities that may adversely effect one's health. While the literature and conferences concerning environmental illness usually pay particular attention to the more seriously ill, it may be beneficial to categorize patients into various levels so appropriate testing and treatment may ensue. Using the concepts of health promotion, there are usually considered three levels.

Level 1 would fall into the category of prospective medicine whereby there is no immediate health risk yet there is vulnerability and there is a precursor present. Levels 2 and 3 categorize those patients who are commonly seen in the physician's office because they have developed signs, symptoms and disability.

It is also valuable to utilize health promotion techniques in the care of these patients once they have been categorized at Levels 1,2, or 3. The Level 1 patient would generally do well because only minor changes are required in lifestyle and/or diet to reduce or eliminate the environmental precursors that may eventually induce illness. Patients may already be highly motivated and will follow instructions regarding diet, exercise and reduction of environmental toxicity. Those at Levels 2 and 3 may need to make more dramatic and sometimes radical changes in their lifestyle thereby requiring extensive support and reasonable recommendations as to alternatives. Many of the same techniques used in behavioral modification should be utilized at this stage.

Robert T. Edgar, PhD Human Ecology Research Foundation of the Southwest

VOLATILE ORGANIC POLLUTANTS IN THE URBAN ATMOSPHERE

A large number of different types of volatile organics exist in urban atmospheres. The basic types are aromatics, paraffins, halomethanes, haloethanes, chloroethylenes, chloroaromatics, and secondary organics (photochemically produced) Their primary sources are industry and motor vehicles. The concentrations of these various organic pollutants are generally in the parts per billion range with residence times ranging from minutes to years. The long term health effects of these potentially hazardous chemicals are not clearly understood.

Ervin J. Fenyves, Ph.D. University of Texas at Dallas

RADON - AN UNSUSPECTED AGENT OF ENVIRONMENTAL POLLUTION

High levels of indoor radon found in recent measurements, particularly in energy saving homes and buildings, caused serious concern in respect to their public health hazard. Radon diffuses out of the soil and ground water, specially in areas which have higher levels of uranium and radium, into the buildings and is entrapped in structural shells such as basements or other isolated and not well ventilated parts of the building. The radon gas builds up also in water pipes and outgasses to the air when the water is used. In addition to this, radon is also emitted from building materials. Major health effects of radon are lung cancer and bronchial cancer. The expected fatality rates for the U.S. and methods to reduce them will be discussed.

Ronald Finn, M.D., FRCP., Royal Liverpool Hospital, Liverpool, England

EXPANDING HORIZONS OF ALLERGY AND THE TOTAL ALLERGY SYNDROME

Clinical allergy is usually limited to rhinitis, asthma, eczema and urticaria. It is now becoming recognized that immunological reactions causing allergic symptoms can affect many organ systems in the body, and hence the clinical spectrum of allergy is being widened to include many conditions not previously included in the spectrum of allergic disease.

The Irritable Bowel Syndrome comprises over half the cases presenting to gastroenterologists, and it is usually considered to be a functional disorder. Evidence will be presented to indicate that this syndrome is usually due to Food Allergy. The most extreme form of allergy is the so-called Total Allergy Syndrome and this is probably due to a combined clinical picture of allergy and hyperventilation.

Eduardo Gaitan., M.D. and Robert C. Cooksey, M.S. University of Mississippi School of Medicine and VA Medical Center, Jackson, MS 39216

SIMPLE GOITER AND AUTOIMMUNE THYROIDITIS (AT): ENVIRONMENTAL AND GENETICS FACTORS.

The incidence of AT has steadily increased in the United States during the past five decades and it has been attributed to excessive iodine intake. Prior to iodine prophylaxis in 1924, the Appalachian was one of three areas with highest goiter prevalence in the U.S. At present, Goiter, AT and Subclinical Hypothyroidism are prevalent in the coal-rich Appalachian area, while these conditions are absent in the nearby Inner Bluegrass region of central Kentucky. Thus, the question is raised as to whether the same region-specific environmental factors that cause goiter (i.e., organic and microbial water pollutants) operate in genetically predisposed individuals (i.e., HLA-DR5 antigens) to trigger the pathogenic mechanism leading to AT. Recent findings in western Colombia reinforce the hypothesis that endemic goiter and AT are intimately related and that dietary iodine and genetic composition determine their clinical, histological and autoimmune presentations. Furthermore, AT develops after administration of polycyclic aromatic hydrocarbons (PAH) and carbon tetrachloride to the BUF rat and of thyroglobulin with bacterial lipopolysaccharide to "good responder" mice, which differ from "poor responders" in their H-2 haplotype. Besides, organic goitrogens (resorcinol, thiocyanates, disulfides) and potential "triggers" of the autoimmune response (PAH and halogenated hydrocarbons) have been isolated from coal and water supplies of endemic areas.

John W. Gerrad, D.M. Department of Pediatrics, University Hospital, Saskatoon, Saskatchewan, Canada.

THE SCOPE OF ENVIRONMENTAL ILLNESS AS ILLUSTRATED BY THE PATIENT

Specialists tend to consider that aspect of a patient's illness which is of special concern only to their own specialty. When the patient's illness is unraveled it is often found that a common factor underlies his many symptoms. Two illustrative case histories are included in this summary. Joan A., age 43, developed arthritis with incapacitating low-back pain at age 23, migraine at age 35, and chronic diarrhea at age 37 years. Investigations carried out by her gastroenterologist were noninformative, she was never the less advised to avoid all cereals except rice, on the supposition that she had celiac disease. Her arthritis and headaches cleared when she did this (both were due to wheat). She then decided to also avoid rice, and her diarrhea cleared. She then realized that all her problems were diet related and that foods had caused different reactions to different systems. Alex N., age 66, developed diabetes mellitus at age 52, controlled initially by diet and orinaseR. At age 63 he developed arthritis of his right hip. At age 64 he required insulin to control his diabetes. At age 65 he became insulin insensitive, developing antibodies beef insulin. He was therefore placed on pork insulin with benefit. Because he was becoming increasingly handicapped by his arthritis and because he had developed antibodies to beef insulin he decided to avoid beef, and when he did so his arthritis cleared. Further examples will be given in the presentation.

F. Timothy Guilford, M.D., San Mateo, California

IMMUNOLOGIC (ANTIBODY) RESPONSE TO CANDIDA ALBICANS AS A GUIDE TO DIAGNOSIS AND THERAPY

Candida albicans has been implicated in a wide range of clinical problems. The association between the presence of this yeast and clinical symptoms has been previously difficult to establish and has delayed acceptance of Candida related problems. Statistical studies of over 1000 patients has confirmed our initial observation that specific antibody responses of a significant immunologic challenge from Candida and can be used as a guide to monitor therapy.

Candida Specific Immunoglobulin G (IgG) levels greater than 6.5ug/ml are consistent with an increased challenge from Candida albicans. Elevations of Specific IgM and IgA may parallel the rise in specific IgG or may be individually elevated, depending on the patients individual immune response. A typical response of a patient with an acute Candida challenge might include the following parameters of Candida specific levels: IgG-Cand: 12-18 ug/ml, IgA-Cand: over 25 ug/ml and IgM-Cand: over 60 ug/ml. These levels will decrease during therapy and as the challenge resolves.

Decreases in the specific immunoglobulin levels parallel clinical improvement in yeast related symptoms. Follow-up elevations can be used to monitor effectiveness of therapy for this common pathogen.

Satoshi Ishikawa, Mikio Miyata & Yoshiro Taneda. Department of Ophthalmology, School of Medicine, Kitasato University, Sagamihara, Japan.

OPTIC-AUTONOMIC PERIPHERAL NEUROPATHY IN CHRONIC ORGANOPHOSPHORUS PESTICIDE POISONING

Chronic exposure to organophosphorus pesticides (OP) produces delayed-neurotoxic involvements. We have experienced 20 cases of the patients with chronic OP intoxication during past 9 years at our hospital. All cases had an extensive contact with OP. Their initial symptoms were reduced vision (50%), disturbance of autonomic nervous system (25%), and numbness and gait difficulty (25%) etc. They had the following clinical manifestations; visual fields' narrowings, abnormal accommodation, vertical gaze palsy, sensorial or motor neuropathy of the legs, EEG abnormality with abnormal REM sleep, and disturbance of the body balance. Blood analysis including cholinesterases and pesticide will be evaluated.

Treatment was made by prolonged use of atropine nitrate or pralidoximes, if necessary. Some signs improved and some not by the treatment.

Clinically, chronic OP intoxication will be summarized as optic-autonomic peripheral neuropathy. Until the patients visited us, all cases were left along without diagnosis. We would like to emphasize the significance of detailed neurological and ophthalmological examinations for these patients.

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

CLINICAL ASPECTS OF INDOOR AIR POLLUTION

One of the most difficult clinical diagnosis to make is that of poor indoor air quality causing multiple symptoms. Headaches, fatigue, myalgias, abdominal pain, arthritis, tachycardia, mental confusion, and depression all may be triggered by common indoor air pollutants acting as incitants to the gastrointestinal, neuro muscular, cardio, renal, and vascular systems. Chronic disease state must be carefully analyzed with a thorough history for chemical hypersensitivity while ruling out all other causes. Defining and then omission of the specific incitants then is the physician's and patient's responsibility.

MATERIALS FOR SAFE ECOLOGICAL CONSTRUCTION

If all materials in a wall allow gas diffusion, gas diffusion will be there by the physical law of partial pressure. It not only allows harmful gases to get out and fresh oxygen to come in, it also allows small ions to come in from outside which is a positive influence on the indoor electro climate. Gas diffusable building materials are bricks of burnt clay, specially if hollow, adobe, wood etc. Of course plasters paints and wall paper etc. have to be gas diffusable too, otherwise the effect does not come. No laquer and no synthetic sealing on room surfaces. No plastic surfaces or paints, no plastic wall papers. The charge ability of all carpet should be measured beforehand. Static electric fields of 100.000 V/m are totally unnatural to the system. They also destroy the ions which are essential for health. Iron materials alter the geomagnetic field and carry around the omnipresent technical alternate magnetic fields, which are specially strong in city areas. Bed places in particular should be in a distance (6 feet or more) from all iron parts e.g. from central heating or in concrete walls. Because of the electrical alternate fields they should also be in a distance (or 4 feet at least) from all live wires and electrical appliances. Electrical alternate fields can also be avoided by shielding off and switching off these wires. Field measurements should be the basis of all steps for improving the situation. Electrical alternate fields can also be the cause for the lack of necessary ions in the air.

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IMMUNE STUDIES IN A PRIMITIVE CIVILIZATION

The Waorani are a group of about 600 American Indians who inhabit the Amazon Rainforest in Eastern Ecuador. Since 1975 we have carried out a number of biocultural studies of this unique population. Medical and dental examinations of over 60% of the people revealed a very robust, healthy population. Despite the universal presence of high serum IgE titers (population average >12,000 Iu/ml) no individuals had clinically notable allergic disease. The population has among the highest documented snakebite prevalence in the world, accounting for 3-4% of the deaths. Anti-venom antibody was demonstrated in over 70% of those tested and some sera gave protection to mice challenged with venoms of native snakes. A subpopulation of recently contacted people had significantly lower antibody titers to rotavirus, Norwalk agent, influenza A, parainfluenza type 3, hepatitis B, leptospira spp., plasmodium malariae and plasmodium vivax. By comparing the titers of these individuals with individuals contacted 20 years ago, we have been able to gain insight into the ecology of infectious diseases in the Western Hemisphere. Furthermore, we have documented the bio-ecological consequences of new Waorani settlement patterns and their increasing contact with the outside.

John L. Laseter, Ph.D. Enviro-Health Systems, Inc., New Orleans, LA

"BODY BURDEN AND SOURCES OF TOXIC VOLATILE ORGANICS"

Volatile organics may originate from a variety of sources such as common household products, chlorination of potable water, paint and paint thinners, degreasers, dry cleaning operations,

petroleum products, plastics and fugitive emissions from chemical manufacturing operations. To date approximately 100 volatile organics have been characterized in human blood from several hundred patients. Many of these components are of anthropogenic origin such as halogenated and aromatic hydrocarbons and ingredients of plastic manufacture. Transplacental passage of several of these compounds along with the food additive BHT have been observed. The possible environmental sources of these toxic volatile organics and their distribution in the human population will be discussed.

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FREE REDICAL MECHANISMS UNDERLYING "ADAPTION" AND "MALADAPTION" IN ECOLOGICAL ILLNESS. DEGENERATIVE DISEASES AND CANCER

Modern living subjects the average citizen to inorganic and organic environmental pollutant (xenobiotic) chemicals in the air, water, soil, and food. Many are toxic and sensitizing. The vast majority of pollutant of xenobiotic are free-radical oxidants. Some parent xenobiotic are free radicals; many are metabolized radical derivatives by Mixed Function Oxidase enzymes or prostaglandin synthetase. Radical xenobiotic compounds can form covalent adducts with biomolecules (alkylation), or cyclically donate their unpaired electrons to molecular oxygen to generate activated oxygen/species (redox cycling). Oxidative stress engendered by either mechanism can severely challenge cellular antioxidant adaptability and result in degenerative disease. Activated oxygen species mediate peroxidative and cress linking damage in respiratory distress syndromes, burn injury, infection, hypoxic-ischemic states, and immune dysfunctions. Cancer "initiator" agents damage DNA by free radical (FR) mechanisms; and "promoters" enhance cellular proliferation, to permanently "fix" DNA damage into the genotype. The aerobic phenotype and adaptive antioxidant capacities are compromised in preneoplastic cells. Hypoxia favors selection in vivo for anaerobic, invasive cancer cell clones.

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ONCOGENES

The development of recombinant DNA techniques has made it possible to identify and isolate genes from tumors which are able to confer the transformed or cancerous phenotype to cells in culture. When these genes, termed oncogenes are compared to the homologous gene in non-cancerous tissue, the gene from the tumor cells are found to be altered so that they either overproduce their protein product or synthesize a mutated form. The involvement of these genes in cancer is strengthened by the finding that many of these same genes are carried by tumorogenic retroviruses. It is likely that these viruses have either picked up a mutated oncogene or a normal one whose structure or expression is subsequently altered. The products of oncogenes appear to be involved in the regulation of cell growth.

Thus, one step in the cause of cancer is likely to be the conversion of normal cellular genes to those which produce an altered product which in turn allows abnormal growth to occur. As many of the alterations result from point mutations or chromosomal rearrangements, environmental insults are likely to play a significant role in causing these changes.

Colin Little, Queen Victoria Medical Centre, Melbourne E.C.U., Bethesda Hospital, Melbourne

Details of expansion of the environmental control unit to 22 beds is briefly described. Methods of recording neuropsychiatric change in allergy reactions are briefly described. Newer approaches involving computerized testing for reaction time, memory, perception etc. are discussed.

In vitro experiments involving the measurement of opiate peptides after lymphocyte stimulation are described. Results with lymphocyte stimulation by Con A and specific antigen are presented. Possible role of opiate peptides in allergy reactions is discussed.

Experiments on cytotoxic T cell responses to chemical haptens are briefly discussed.

Measurements of antigen-specific IgG before and after challenge in migraine patients is presented. Measurement of IgG against a number of common food antigens in rheumatoid arthritis patients is also presented.

Andrew A. Marino, Ph.D. Louisiana State University Medical Center

ELECTROMAGNETIC POLLUTION

Reports concerning the biological effects of weak electromagnetic signals can now be found in the literature of virtually all surgical specialties, environmental medicine, dentistry, neurology, anatomy, biochemistry, and many other disciplines and specialties. A new science - bioelectricity - is being born, and it is bright with the promise of benefitting humanity. One of the brightest promises involves the deeper understanding of the origin of disease. It is becoming increasingly clear that much illness is environmentally induced. This awareness brings into sharp focus the question of the chemical and non-chemical composition of our environment. Numerous studies have shown that electromagnetic energy can produce a therapeutic result in the hands of a clinician, that detection of electromagnetic fields is part of the primordial apparatus of living systems, and that ultraweak electrical signals can initiate and regulate the body's growth systems. It is, consequently, reasonable to expect that uncontrolled exposure of the population to electromagnetic energy emanating from power lines, microwave ovens, electric blankets, and many other kinds of electrical hardware would have adverse health effects. Indeed, adverse effects have been reported in many laboratory and epidemiological studies. Electromagnetic

pollution, therefore, belongs on the list of established and accepted environmental contaminants that are capable of causing disease.

Donald C. McEwen, M.D.

POPULATION AND ECOLOGY

Death-rate solutions to the population-world resources crunch is unthinkable, implying mass starvation, disease lethal pollution, nuclear holocaust, or some combination of these events.

Birth-rate solutions are desirable but illusory. Hope of zero-population increase in advanced (rebuilt) societies continues but world population of four billion may continue to increase one million people a week to an estimated ten billion in the lifetime of children born today. The obvious impact on ecological systems already in jeopardy must be comprehended.

Unless we understand the sensitive inner-ecology of third world countries which may be in conflict with our birth-regulatory concepts, an attempt to find a solution to excessive birth may be hopeless.

Dr. Jean A. Monro The Nightingale Hospital, 19 Lisson Grove, London, NW1.

CLINICAL EFFECTS OF ELECTROMAGNETIC FIELDS IN ALLERGIES SUBJECTS

Evidence will be presented that man has the ability to perceive electromagnetic fields. These can have adverse effects particularly in allergic subjects in whom coherent oscillations can provoke or aggravate responses. The clinical effects will be demonstrated as well as the therapeutic effectiveness of their utilization in the treatment of allergic subjects. A hypothesis as to their mode of action will be offered.

Odkvist, L.M., Bergholtz, L.M., Larsby, B., and Tham, R. Depart. Of Otolaryngology and Audiology, University Hospital, Linköping, Sweden

SOLVENT INDUCED CNS DISTURBANCES APPEARING IN HEARING AND VESTIBULO-OCULOMOTOR TESTS

Animal experiments have shown that organic solvents cause vestibular disturbances. The vestibulo-ocular reflex which connects the labyrinths with the eye muscles via the brain stem is affected by many solvents tested. One group of solvents including halogenated saturated hydrocarbons cause depression of the reflex. Another group including benzene compounds like xylene, toluene, styrene and halogenated unsaturated hydrocarbons like trichloroethylene cause an excitation to the VOR. Simultaneous exposure for two solvents may cause potentiation of the effect. The vestibular, oculomotor and auditory systems were tested in workers exposed to solvents or jet fuel. The findings were clinical signs of cerebellar disturbancy, pathology in the electronystagmography and disturbed saccade test and pathological visual suppression. There was a dose-effect relationship, the less exposed workers having few abnormalities. Somewhat similar findings were made in healthy test persons given trichloroethylene, styrene or toluene.

The findings were interpreted as caused by disturbances in the central vestibular oculomotor systems and especially the cerebellum. In the chronic cases the routine auditory tests were normal but interrupted speech tests and cortical response audiometry using frequency ramps showed early pathology. Hopefully some parts of the test battery will prove useful in early detection of solvent induced brain damage.

Adolfo Perez-Comas, M.D., Ph.D. Ponce Medical School,

EPIDEMY OF ABNORMAL SEXUAL DEVELOPMENT: ENVIRONMENTAL ASPECTS

We have evaluated over 756 patients with abnormal sexual development in the Occidental region of P.R. in the past 11 years. Main diagnosis include Premature Thelarche, Premature Pubarche, Precocious Puberty & Gynecomastia. Other diagnosis include Yatrogenic Thelarche, Pseudoprecocious Puberty, in specific vaginitis and virginal hyperplasia of breast with high estrogen levels. Other possible related conditions include asymmetry of the breast, fibrocystic disease of the ovaries, and adult gynecomastia.

Abnormal high serum total estrogen levels (80% of patients) as well as FSH, LH, & Prolactin were observed. Bone age was accelerated in 28% of patients and 60% of females presented ovarian cysts.

The condition mimics the syndrome of "Estrogenism" observed in animal husbandry on animals treated with estrogenic growth promoting agents. Diet exclusion of meat, poultry and egg products produced a significant clinical and lab, remission in 58% of patients treated.

Together with Dr. C.A. Saenz, an independent investigator who has evaluated over 800 patients, estrogen contamination of poultry and meat products from P.R. and U.S.A. were demonstrated. Dr. Saenz has also found Zeranone in 5 of 6 patients studied.

At present, we calculate that there are over 3000 affected patients in the island. This represents a serious public health problem due to the somatic and psycho social implications of the condition, as well as its direct relation with cancer. Adequate international legislation and fiscalization is needed to prohibit the inadequate use of these products in animal husbandry. Up to this date local and federal agencies have not taken any action to stop the distribution of these products that are freely sold over the counter in P.R.

Carl C. Pfeiffer, Ph.D., M.D.

UNSUSPECTED COPPER AND/OR ALUMINUM POISONING IN PATIENTS AND THE TREATMENT

Many patients have a low blood histamine (histopenia) & high serum copper level. Low histamine patients are typically overstimulated with thoughts racing through their minds making normal ideation difficult. Low histamine children are hyperactive while often healthy in other respects. Serum Cu levels in these patients are abnormally high. The normal level of serum Cu is

about 100 mcg%. Since Cu is a brain stimulant and destroys histamine, the elevated serum (and presumably brain Cu) level probably accounts for many symptoms, including the low blood histamine level. The treatment Rx consists of the administration of zinc, manganese, vit. C, niacin, vit. B-12, and folic acid. Folic acid in conjunction with B-12 injections raises blood histamine while lowering the degree of symptomatology. Zn allows for the normal storage of histamine in both the blood cells and the brain. Zn and manganese increase the urinary excretion of copper. Patients with loss of memory frequently have high blood AL levels above 20 ppb. As magnesium, zn and vit C. are given the high blood AL level decreases to normal (less than 10 ppb) and memory improves. Accumulation of AL occurs in various human tissues including blood, brain, liver & bone. Several independent research reports now indicate that a high AL intake may have an adverse effect on memory in the adult (Alzheimer's D.), & may be a factor in learning disabilities & behavioral problems in younger people. Humans do not need AL for any purpose. Individuals with elevated blood AL levels, memory loss & those frequently exposed to AL compounds will find it beneficial to minimize or eliminate all AL sources.

Cecil E. Pitard, M. D.

BIOLOGICAL RESPONSE MODIFIERS (BRM): THE FOURTH MODALITY FOR CANCER TREATMENT

A nodular poorly differentiated lymphocytic lymphoma growing log rate was treated initially with combined biological response modifiers, which induced total remission with a high quality of life for four years at which time there was recurrence. The recurrence occurred following prolonged stress.

Adding a rather mild chemotherapy with the same group of biological response modifiers has again induced remission, without complications even though the stress is still present, and is yielding a high quality of life at four and a half years, even with the continued presence of stress.

The biological response modifiers used are Staphage Lysate, Tagamet, Indocin, and Butyrate. The Chemo-therapeutic agents added are cyclophosphamide and vincristine.

In 1980, Dr. David DeVita, head of the National Cancer Institute established the Biological Response Modifiers Division of the NCI to encourage research in, and Clinical usage of BRM's in patients with malignant and other disease.

The above combination of BRM's is compatible with the three other modes of treatment of patients with malignant disease - all of which are immunosuppressive - and are legal, low cost, relatively safe, and effective in inducing remission in several malignancies.

Robert W. Rand, Ph.D., M.D.

THERMOMAGNETIC SURGERY FOR CANCER

Thermomagnetic surgery is a unique combination of physical techniques to control selectively the destruction of deep neoplasms. Heating of magnetic compounds of ferro silicone by

hysteresis phenomena produces temperatures which are incompatible with cancer cell survival. This intense focal heating causes coagulation necrosis of the cells. Damage to surrounding normal tissue can be avoided by careful temperature monitoring and power control of the AC magnetic field. Cancer cell destruction in the target tissue has been demonstrated by light and electron microscopy. In one series of 12 experimental VX₂ rabbit renal cancers, incomplete destruction occurred with off-on hysteresis heating to surface temperatures of 50C to 10 to 15 minutes in a second series of VX₂ rabbit renal carcinoma models, total cancer cell necrosis occurred in all animals.

Thermomagnetic surgery is now approved for application by the Food and Drug Administration (FDA) and the UCLA Human Subject Protection Committee (IRB) for the treatment of Stage 1 grade 1, 2 and 3 endometrial carcinoma of the uterus. Application is now being made to treat renal cancer.

Theron G. Randolph, M.D., Chicago, Illinois

DISTINCTIONS BETWEEN CONVENTIONAL MEDICAL CARE AND ECOLOGICALLY FOCUSED MEDICAL CARE

A relatively static excessively analytical and bodily centered medical approach, based on the history, physical examination and many diagnostic laboratory tests, renders a mass-applicable, but environmentally alienated program. Added demonstrable environmental factors observed in individually studied patients, based on histories and confirmed by provocative tests, reveal dynamic interrelationships between intact individuals and their personal intake and surroundings.

Demonstrable exogenous excitants of conventional allergy consist mainly of biological materials (pollens, molds, house dust, mites, other insects, animal dander and some foods and drugs), as detected largely by means of immunological techniques and trail reexposures. Specific demonstrable excitants include most foods, biological drugs and many chemical exposures. These combustion products and derivatives of gas, oil, and coal, are found as additives and contaminants of air, food, water, medications and many textiles and building materials.

Treatment in conventional medical care, based mainly on suppressive drug therapy, is effective in many self-limited and acute episodic physical and cerebral illnesses. These relatively mass-applicable programs are amenable to various statistical evaluations (double blind studies and random trials). Alternative ecologically orientated treatment is based on avoidance and neutralization of exposures to which specific individual susceptibility has been demonstrated, as well as avoidance and detoxification of such identified materials. This program is helpful in many chronic physical cerebral and behavioral illnesses.

Doris J. Rapp, Ph.D., M.D. State University of New York at Buffalo

IS SURGERY ONE SEQUELAE TO MISSED FOOD ALLERGY IN INFANTS?

Clues to Infant Allergy

Allergic infants often have a history of kicking or hiccupping much more than normal during the fetal period. Sometimes this can be related to specific food or chemical exposures. Many such infants cannot sleep, scream and cry for hours, and are found not to tolerate a wide variety of formulas. These babies may resist being held, smile infrequently, and may gag, spit, or vomit much more than normal. They often bounce the crib off the walls or bang their heads or scratch their ears til they bleed. Some even need body length bibs because of excess drooling and need frequent clothing changes because of extreme perspiration. The latter may lead to excessive numbers of infections. Mothers also may note that the baby's buttocks suddenly appear "scalded".

Sequelae to Unsuspected Infant Allergy

It is not unusual for some unrecognized nasal allergies to lead to unnecessary surgery of recurrent serious otitis. Other infants may be diagnosed as having pyloric stenosis or reflux with secondary aspiration pneumonia. Some of the latter infants are treated with irreversible surgery in the form of Nissen fundoplasty to tighten the lower end of the esophagus.

This presentation will include discussion of the above problems. Could some of the reflux be missed food allergy? Could some infant surgery be markedly diminished with proper recognition and treatment of infant allergies? How can we increase the pediatrician's awareness?

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

PRINCIPLES OF ENVIRONMENTAL TRIGGERING IN DISEASE PROCESSES

The basic principles of how man handles his environment are load phenomena, adaptation, bipolarity, & biochemical individuality. The concept of load has been broadened into physical, chemical & biological areas. Adaptation has pathological & biochemical descriptions that appear sound. Bipolarity involves both induction & depression of the immune & biological detoxification systems. The uniqueness of biochemical individuality depends on genetics, state of nutrition, & load both in-utero and at the time of exposure. The uniqueness depends on the quality & quantity of vitamins, minerals, enzymes, amino acids, lipids, & CHO available for response. Environmental incitants stimulate free radicals which trigger the neurovascular & then the immune system. Vicious cycles may develop with inappropriate oxygenation, lysozyme release, and eventually trigger autonomous & fixed disease processes.

Phyllis L. Saifer, M.D., M.P.H.

AUTOIMMUNITY IN THE ENVIRONMENTALLY ILL PATIENT

Autoimmunity is an often overlooked component of environmentally induced disease. Environmentally ill patients are subject to immune dysregulation, that is, abnormal "T" lymphocyte numbers and function, and upset helper/suppressor ratios. Inappropriate response to environmental exposures is the most commonly studied aspect of their illnesses. Inappropriate

response to self-antigens may result from a genetic trait that determines individual susceptibility. Environmental factors, both internal and external, are triggers for expression of these genes. There are at least 2 good reasons to consider autoimmune disease in the complex environmentally ill patient who does not respond adequately to thorough treatment for external triggers. Such patients should be evaluated for thyroiditis, oophoritis, diabetes mellitus, adrenalitis, (Addison's disease), and gastritis (Pernicious anemia). First: Treatment for these diseases is well established and can be a major factor in achieving good health. Second: Forewarned is forearmed: multiple autoimmune endocrinopathies develop in certain patients; thus, the discovery of one should create a heightened suspicion for the presence of or later development of others. The knowledge one is dealing with such as a polyendocrinopathy patient can accelerate the establishment of an otherwise unsuspected diagnosis; for example, the insulin dependent diabetic who experiences the insidious onset of hypothyroidism, or the very commonly thyroiditic female who later develops oophoritis presenting as premenstrual syndrome.

The overlap between endocrine autoimmune disease and the collagen disorders is impressive; for example, rheumatoid arthritis is reported in patients with thyroiditis and their relatives.

Douglas B. Seba Environmentalist Washington, D.C.

DIMENSIONS OF POLLUTION

Drawing on diverse sources, this introductory presentation will cover the types and scopes of exposure that environmental medicine patients may experience. Particular emphasis will be placed on understanding cross-media pollution and the interconnectedness of man with his environment. Comprehension of this phenomenon is necessary for a rational treatment protocol. While chemical and radio frequency non-ionizing radiation exposure will be stressed in keeping with the conference theme, many unusual (or unrecognized) examples will be cited.

Cyril W. Smith University of Salford

ENVIRONMENTAL, ALLERGENIC AND THERAPEUTIC EFFECTS OF ELECTROMAGNETIC FIELDS

Man has evolved in an environment flooded with electromagnetic radiation of all frequencies. During the past century various forms of highly coherent electromagnetic radiation have appeared in the environment. The ways in which living systems may utilize coherent oscillations will be described together with the ways in which coherent oscillations in the environment may interfere to give rise to allergic responses. Experimental evidence of allergic reactions to electromagnetic fields will be presented and the applications of coherent electromagnetic oscillations in confrontation-neutralization therapy will be described.

Sprague Donald E. Environmental Health Center - Dallas

OUTDOOR ENVIRONMENTAL EFFECTS

This case history is presented to demonstrate the wide panorama of outdoor environmental effects on the health of a particular patient. This patient is a 29 year old male with a long history of multiple chemical exposures. As a child he lived on a farm which used pesticides. He remembers being sensitive to propane gas heat at his grandparents home. He also raised hogs which required the use of strong chemicals including pesticides. He then worked as a research chemist with Conoco Petroleum Company for the last several years before this admission. During that employment he was exposed to toluene and other industrial chemicals. The patient had shown a long history of inhalant sensitivity, as well as several clear cut food sensitivities. He had been tested and treated by a clinical ecologist previous to his admission to the Environmental Control Unit in Dallas. While the patient improved in some of his symptoms, the chemical exposure of his urban environment proved to be more than his system could handle. During his stay at the Environmental Control Unit in Dallas, the patient was found to be allergic in the classical sense with IgE mediated sensitivity. But in addition to this he had other problems which were uncovered during this investigation. The patient showed marked changes in his T and B cell population, abnormal C₃ and C₄, sed rate and CRP were abnormal, and he was found to have a number of volatile organic chemical substances, in addition to finding several pesticides present in his blood. Further testing showed amino acid abnormality, as well a abnormalities in his serum vitamin levels. The patient cleared while in the Environmental Control Unit and did fairly well.

Quan Wang, M.D. Dept. of ENT, 2nd Hosp. of 4th Military Medical College, Xian, People's Republic of China

25 CASES OF TUBERCULOSIS OF EAR, NOSE, THROAT AND LARYNX ENVIRONMENTAL ASPECTS

This report gives an outline of 25 cases of tuberculosis (TB) (aged 22m-65yr) between 1972-1975, especially discussing their diagnosis and environmental aspects of laryngeal TB (L.TB). Twenty-four were diagnosed by biopsy and one by positive culture of bacillus TB. Twenty-three peasants, two workers. Twenty-five cases invaded 38 places of ear, nose, throat, larynx and mouth. Mainly treated with isoniazid. Twenty-one cases L.TB, their TB of lung and larynx were all very severe. For early diagnosis of L.TB, five points had to be emphasized: 1. Negative roentogen finding of chest and 2. Negative sputum TB bacillus were both not able to engage the diagnosis of L.TB, 3. The severity of chest TB and L.TB was not parallel, 4. Any slight hoarseness, slight congestion of cords and abnormal throat feeling for a lung TB patient. 5. Doctor must pay attention to L.TB were very similar to laryngeal cancer. Age 40 was 57,1% (1928 was 27.2% by Looper). They could not rest on bed and deep silent, they still did heavy labor, but all with rather good result. For peasants, crowded living condition, dirty indoor air, poor nutrition, heavy labor, habit of smoking bad tobacco and drinking, pregnancy, etc were the relative factor from the environmental points of view for the exacerbation, recurrence and high morbidity of L.TB and their severity. All those were happened in the Cultural revolution and before the smash of the Gang of Four. But now, from 1978, along with economic reform, countryside has already had tremendous changes, peasant becomes prosperous, the above environmental conditions have already been changed, it must accompany a low morbidity.

Bent Weeke, M.D. Assoc. Prof., Susanne Vind Jølt, M.D. Research Fellow, Medical Dept. for Allergy, State University Hospital, Copenhagen, Denmark

MECHANISM OF BRONCHIAL AND GASTROINTESTINAL TRACT HYPERREACTIVITY TO FOOD CHALLENGE

Our recent knowledge about hyperreactivity in the airways can be applied on hyperreactivity in the intestinal tract. A complicated event of changes in the surface protection, permeability in the epithelium, nervous reflex, inflammation in the submucosa including allergic as well as non allergic activation of the mast cells, changes of the cell surface receptors and in the intercellular signal system in the effector cell may occur. By means of history, allergy testing and provocation test we are able to measure hyperreactivity and eventually allergy. A new hypothesis is put forward that patients with food intolerance may demonstrate hyperreactivity in the intestinal tract. This may be demonstrated by increase reaction to histamine applied to the intestinal tract in test tube or enterosoluble capsules and increase excretion in the urine of the histamine metabolite metylimidazole acetic acid = MIAA. Furthermore the permeability of the epithelium to e.g. PEG (polyethylen glycol) can be increased as measured by the excretion in the urine after orale intake of PEG.

Speculations on these techniques applied on food intolerance and our experience with vivasorb meal used in patients with perennial asthma will be presented.

Gary H. Wimbish, Ph.D., DABFT Texas College of Osteopathic Medicine

CHANGING TRENDS IN TOXICOLOGY

Classical toxicology may be categorized into three major subdivisions represented as environmental, economic and forensic toxicology. Heretofore, toxicologists have been forced into issues concerning the effects of chemicals on biological systems that produce serious injury or death and subsequently have become forensic in nature. Although this trend may not change, the focus of toxicology is changing to prevention associated research rather than explanation post facto.

Today we must be keenly aware that there are subset populations of people that are hyperreactive to certain chemicals and their surrogates, and cannot be considered as an average responding individual. The essential components that may help define this population is the relationship of reserve functional capacity and dose.

Hydrocarbons (toluene as an example) present an interesting model to evaluate significant changes that may occur in the CNS long before the overt symptoms of CNS depression appear. It is apparent that "sub-toxic" doses of toluene alter catecholamines in the CNS characterized by a transient elevation and then depletion that may present as irritation, confusion, hyperbehavior which then may result in the appearance of exogenous depression.

This model may allow early identification and establishment of an individual biological limit value that identifies with solid data subset populations that are hyperreactive to chemicals.

James A. Yost Summer Institute of Linguistics

LIVING PRIMITIVE: ISOLATION AND BEHAVIORAL VARIABLES INFLUENCING WAORANI HEALTH

Until this past decade certain branches of the Waorani tribe, an Amerindian population of Eastern Ecuador, maintained an intense isolation from the world that profoundly impacted their health. Not only were they geographically isolated from a number of pollutants and infectious agents common to the modern world, but they also led a lifestyle conducive to very high levels of health. Their diet and much of their behavior was in some senses ideal, presenting us with a natural population that could be used for baseline studies along a number of health dimensions.

Although major health problems include a high incidence of poisonous snakebite, severe dental caries, and numerous types of traumatic injuries, the Waorani were not faced with some of the health problems of modern man, particularly heart disease, cancer and chronic allergies. Even into advanced age, the Waorani demonstrate no increase in blood pressure. Encounters with the outside world have introduced a number of viral infections hitherto unknown to the Waorani, and these are proving to be their greatest health challenge.

S. Youdim, Ph.D. and W. J. Rea, M.D., Environmental Health Center - Dallas, Texas

IMMUNOLOGIC STUDIES ON PATIENTS WITH ENVIRONMENTAL SENSITIVITIES

Immunologic studies were performed on a group of twelve patients with long standing histories of treatment for environmental sensitivities. The number of T (thymus derived) lymphocytes, the helper and the suppressor cell subpopulations, and surface immunoglobulin (Ig) bearing cells (B lymphocytes) were determined by immunofluorescent methodology. Lymphocyte proliferative responses to concanavalin A, phytohemagglutinin, pokeweed mitogen and to the antigens tetanus and mumps were measured by the incorporation of ³H thymidine. Immunoglobulin, autoantibody, immune complex and complement levels were determined by routine laboratory methodology. The following preliminary results were obtained. 1. Total number of lymphocytes were low in 4/12 patients compared to control values. 2. Helper T lymphocytes were depressed in 5/12 patients and elevated in 4 patients. 3. Suppressor T lymphocytes were moderately to severely diminished in 10/12 patients. This reduction was maximally emphasized in patients who had other associated diseases, such as autoimmune diseases or severe eczema. 4. Surface Ig bearing lymphocytes were within normal ranges. 5. Proliferative responses to mitogens were generally within normal ranges, however, specific responses to recall antigens were somewhat depressed to low or low normal ranges. The limited data indicate that the decrease in the number of immunoregulatory suppressor T cells might relate to environmental sensitivities in certain patients. Supported by the Human Ecology Research Foundation of the Southwest, Inc. and the Hillcrest Foundation.

J. Krop, J. Swierczek, S. Wood St. Joseph's Health Center, Toronto, Canada

"COMPARISON OF SUBLINGUAL TESTING WITH VEGA TEST METHOD IN IDENTIFYING SENSITIVITIES TO CHEMICALS, FOODS, AND INHALANTS."

The bioenergetic method, vega test II (V.T. II) used for ecological testing, is now becoming a new object technique in identifying sensitivities to a variety of antigens. No study, however, was performed to compare classic ecological testing (E.T.) (intradermal, and sublingual) with the new method. Therefore, the aim of our study was to find out the correlation between neutralizing doses (N.D.) determined by both methods in the same group of patients and for the same compounds tested. Double testing was performed in 43 patients with multiple sensitivities. In total number of 227 tests, 183 were sublingual, and 44 were intradermal. In 66%, V.T. II testing, the neutralizing dose was exactly the same as in E.T. Despite of positive clinical history, 42 E.T.'s were negative, whereas V.T. II showed useful neutralizing doses. V.T. II was negative in two tests, whereas E.T. II showed only a pulse rate change. In 34 tests V.T. II showed lower dilution for neutralizing doses than that by E.T.

Conclusion: V.T. II is an objective and effective method of testing comparable to E.T. and without the risk associated with administration of antigens during provocative neutralization procedure.

George F. Kroker, M.D., F.A.C.A. Allergy Associates of La Crosse, Wisconsin

CASE REPORT: ENVIRONMENTALLY TRIGGERED PSORIATIC ARTHRITIS

A 43 year old typist with psoriatic arthritis was found to have externally triggered environmental factors significantly contributing to her active arthritic condition. Investigation was performed in a controlled hospital environment where extrinsic factors could be sequentially isolated and challenged. Dietary factors isolated which triggered symptoms included multiple protein containing foods (nearly all meat, fish, and fowl challenged). Wide-spread protein intolerance was possibly reflected by multiple amino acid metabolic abnormalities isolated in the patient. Multiple environmental chemical triggers were found including formaldehyde, phenol and smoke extract. Intradermal testing revealed mild reactivity to dust and mold antigens. Laboratory abnormalities revealed a low B6, complement, platelet MAO. HLA-B27 negative. Circulating immune complexes (CIQ) negative. Total T cell ct normal. The patient was managed with a program of environmental control, rotary diversified diet, and immunotherapy. ASA used p.r.n. Over a nine month period there was a decline in ESR (29 mm. To 13 mm), an improvement in the functioning of her affected right hand-increase grip strength (62 mm. To 188 mm.), and decreased swelling (289 1/2 mm to 277 mm.) ASA use declined from 12 ASA per day to 3 ASA per day. Further data is shown to support the view that this is the first quantitatively documented case of environmentally triggered psoriatic arthritis reported in the literature.

William Regelson, M.D. Virginia Commonwealth University Richmond, Virginia

INTERVENTION IN HUMAN AGING

Before one can evaluate programs in intervention in aging, one must be able to quantitatively measure aging in clinical study. This is now economically feasible and centers must be established that could provide convenient, economic methods for physiologic, biochemical and immunologic quantitation of human age. Quantitation will permit us to seriously consider endocrinologic, pharmacologic or physical conditioning techniques that could improve the quality of human survival. Methods of quantitation of human age include measurement of forced vital capacity, cardiac reserve, measurement of bone loss, renal function, finger nail growth, measurements of sensory functional capacity, i.e., auditory, vision, olfaction and taste. There are also convenient self administered techniques for measurement of motor performance and cognition that utilize view screens and computer programs. Endocrine measurements include: measurement of dehydroepiandrosterone (DHEA), prolactin parathormone. Immunologic profiles of T and B cells change with age and can be readily measured. There are other techniques, which require more validation, which includes measurement of biogenic amines in urine, volatiles in expired air, and protein/peptide changes in serum and urine. We also need to develop techniques applicable to quantitate human aging based upon biopsy samples of replicating tissue and/or lymphocytes which measure alterations in the physical state of DNA and DNA repair capacity which reflects of aging, mutational changes and carcinogenic risk.

Sherry A. Rogers, M.D., F.A.C.A., 2800 W. Genesee St., Syracuse, New York 13219

RHEUMATOID ARTHRITIS RESPONDING TO ECOLOGIC MANAGEMENT

A 49 year old female had a one year onset of severe incapacitating rheumatoid arthritis which left her bedridden for three months. Rheumatoid factor was 1:51,200 on several occasions. ESR was 85mm/hr and she had pyridoxinemia as well as iron deficiency anemia. Three rheumatologists all independently recommended gold injections, but the patient developed exfoliative dermatitis.

Ecologic management left her symptom-free immediately. A discussion by her physician will highlight her management and the panel will offer input from viewpoints that are not usually consulted for conventional medical problems.