

Chris

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**Environmental Illness and  
Multiple Chemical Sensitivities**

"My dear friend," he would say, "I beg you: shall I be causing you much inconvenience if I ask you to take the handkerchief out of your jacket? You know how I can't bear any perfume...the last time you were so good as to come and see me...I was obliged to take the chair you sat in and keep it out in the courtyard for three days."

from Marcel Proust: **His Life and Work.**  
by Leon Pierre-Quint, Peter Lang, 1925

Dr. John W. Davies, MB BS, DPH, MSc. Medical Advisor to the  
Director General, Laboratory Centre for Disease Control. Ottawa,  
Ontario.

**Environmental Illness and  
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The affliction known as environmental hypersensitivity, multiple chemical sensitivity, universal allergy (or its numerous other labels) continues to be a medical conundrum both in terms of the nature of the condition and the possible mechanisms of causation.

In August, 1985 The Ad Hoc Committee on Environmental Hypersensitivity Disorders, established by the Ontario Ministry of Health and chaired by Judge George M. Thompson, following a comprehensive review of the problem, published its report<sup><1></sup>. The Committee invited briefs, met with professional and patient groups and defined the condition as "a multi-system disorder usually involving symptoms of the central nervous system and at least one other system caused by intolerance to some foods, chemicals and environmental agents, singly or in combination, at levels tolerated by the majority". The patient is usually free from abnormal objective findings and no single laboratory test is consistently altered. Causality can, however, be inferred by the clearing of symptoms with removal from the offending agent(s) or environment and recurrence of symptoms with specific challenge. Its principal recommendations were for programs of research and education about the condition and equitable social assistance to patients whose condition has resulted in loss of employment.

Bascom<2> in a report to the State of Maryland, Department of the Environment described it as an acquired disorder whereby individuals develop a strong aversion to a wide variety of chemicals or mixtures of volatile organic compounds (VOC's) at low levels of exposure. Examples of exposures which trigger symptoms reportedly include; gasoline fumes, cigarette smoke, perfumes, paints, pesticides, household cleaners, detergents, room deodorizers, adhesives, particle board, carpeting, as well as in some cases common foods, dusts, moulds, and other allergens. The symptoms which patients report as being triggered by the exposures can involve many organ systems and include fatigue, headache, mucous membrane irritation, rhinitis, wheezing, intestinal disturbances, muscle and joint pains, feelings of irritability or depression and difficulty with concentration. The illness can be mild or severely debilitating. There is no reliable data on the number of persons affected and the underlying mechanisms are not well understood.

The non-specific nature of the complaints and lack of objective findings make the diagnosis of multiple chemical sensitivities (MCS) difficult. It may be easily confused with other symptom based conditions such as stress disorders, somatoform disorders, psychological or psychiatric conditions, or the chronic fatigue syndrome. Patients with this latter syndrome also cite a multitude of ill-defined symptoms among which depression, easy fatigue, difficulty concentrating and sleep disturbances are

common. Half to three-fourths also report inhalant (seasonal), food or drug allergies<3>. Psychiatrists who see patients with such puzzling symptoms may diagnose a depressive illness but this or any other psychiatric diagnosis is frequently unacceptable to the patients who refuse psychiatric treatment<4>.

In 1987, Cullen and staff of the Yale-New Haven Occupational Medicine Program, based on their experience with individuals exposed in the work environment, undertook a dialogue with investigators of diverse backgrounds which resulted in production of a volume summarizing their experience<5>. They were aware at the outset that the "level of knowledge was slight, tenacity of opinions great and that those with differing views had long since ceased serious dialogue." By coalescing the experience of investigators of differing disciplines in a single source, it was hoped to hasten the only "viable approach we know to such a clinical problem - serious open-minded scientific inquiry"<6>.

The Toxicology Committee of the American College of Occupational Medicine in an Editorial<7> endorsing expansion of its traditional role to include environmental issues, recommended that physicians recognize that "the symptoms leading to the diagnosis of multiple chemical sensitivities (MCS) are real to the patient even if the validity of the diagnosis and its proposed mechanisms are conjectural". It also called for the College to promote continued research to resolve key

environmental issues including health consequences of indoor air quality and to perform "blind, case control, multi-disciplinary, repeatable, peer-reviewed research concerning immunologic and neuropsychologic aspects of multiple-chemical sensitivity."

Clinical experience indicates that there appears to be a growing number of persons in Canada and other industrialized countries who are unusually sensitive to chemical and other substances in the environment. Psychosocial debility may be a prominent feature of individual cases. Sensational media coverage has been detrimental to dealing with the problem in an objective fashion.

In 1991 there was published the Proceedings of a Workshop on Environmental Sensitivities held in Ottawa, May 1990<8>. The Department of National Health and Welfare organized this workshop with two purposes in mind: a) to identify and develop priorities for multidisciplinary research into the condition and b) to identify educational/health promotion needs and explore social problems of affected persons. Workshop participants included medical experts, health researchers and representatives of lay and medical agencies involved in research or clinical activities relevant to the condition.

Among the important recommendations made by the group were that patients should not be caught in the medical debate about the aetiology of the condition; functional status was more important

than the medical label in applying for social or other benefits; scientific conclusions need to be based on comprehensive data collection from individuals affected and their environment (home, office, etc.) and this should precede psychiatric workup. Given the clinical prominence and attendant socioeconomic cost, it was considered that MCS is worthy of serious scientific study and patients should be treated sympathetically while research proceeds.

Some individuals with MCS triggered by environmental exposures have undertaken to modify their homes to reduce potential exposures to indoor inhalants and chemicals. A sample survey of the features of these homes and the experience of the people who participated has been published recently by Canada Mortgage and Housing Corporation. The report summarizes the types of modifications undertaken to improve air quality in the home and includes a list of manufacturers of specialty products such as air cleaners, low toxicity paints and sealers designed to minimize exposure to chemical products<sup><9></sup>. Barron has completed a detailed review of the medical histories of the respondents<sup><10></sup>. 80% were female. Onset of illness occurred in persons over the age of 20 years in three quarters of the cases and the duration of illness was over 11 years in 60%. 86% of the respondents, most of whom had seen multiple physicians as well as alternative medicine practitioners, estimated that modification(s) to their homes had been "very significant" in

improving their health. Only 1 person had not responded in any way.

The New Jersey Health Department was the recipient of the World Health Organization's Macedo Award in recognition of its outstanding leadership in commissioning a study of the problem (Ashford and Miller)<11> and in addressing this public health concern. Their report found evidence offering areas for further fruitful research and an increasing desire to find a common ground from which the issues can be objectively and cooperatively addressed. A lengthy list of recommendations covers Research; Information needs; Medical, Health Care, Social and Legal needs as well as policy in the workplace. This important document should be read in its entirety by those who are interested in the problem.

Publication of the Ashford and Miller report has given impetus to further professional consideration of the problem. At a workshop organized by The National Academy of Sciences in California in the spring of 1991, attended by clinicians, immunologists, toxicologists, psychiatrists, psychologists and others involved in research or clinical activity relevant to the problem, there was surprising agreement over what to date has been a highly controversial topic. The emergence of multiple chemical sensitivity as a phenomenon that needs investigation coincides with recognition of the myriad exposures to environmental agents

that are sustained in indoor & outdoor environments. Priorities for research included study of the adaptation-deadaptation hypothesis; establishment of an environmental control unit for control and study of exposures to foods and chemicals; follow-up of victims of environmental spills and subsequent development of MCS and epidemiological surveys to determine the prevalence of MCS<12-13>. Endpoints for response to exposures should include immunologic, neurologic, endocrinologic, psychologic, social etc markers or measures<14>.

The arguments for and against environmental illness as a clinical entity are very similar to those which related to the chronic fatigue syndrome (myalgic encephalomyelitis)<15>. Fatigue, difficulty concentrating and depression are characteristic symptoms which are often prominent in both conditions. It is time for a non-judgemental approach which acknowledges that mind and body are not discrete and separate entities but are integrated systems that are mutually interdependent. The hypothalamus, a part of the limbic system, has attracted considerable attention because it is the focal point in the brain where the immune, nervous and endocrine systems interact<16>. The time is ripe it would seem for a concerted collaborative effort to deal with the issue of MCS. The Canadian Medical Association in its official policy on environmental issues has called for its own Association and other organizations such as the Department of National Health and Welfare to document the

health consequences of environmental degradation and to set priorities in responding<17>. It also calls on the Committee on Education to pursue the issue of environmental health education in medical schools. Well designed multi-disciplinary clinical and epidemiological studies which incorporate well-defined operational case definitions are now required to clarify possible risk factors and triggering mechanisms while experimental and biological approaches investigate the postulated underlying mechanisms held responsible for the condition.

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