1200 Maricopa Hwy • Suite A • Ojai, CA 93023 • 2128 Pico Blvd • Santa Monica, CA 90405 • Tel 805-640-0180 • Fax 805-640-0181

CHEMICAL SENSITIVITY

by Dr. Robin Bernhoft, MD, FACS, DABEM, FAAEM

Multiple chemical sensitivity (MCS) has been a controversial diagnosis for the past thirty years. (See links below.) It was first observed in clinical ecology (environmental medicine) circles, but was resisted until recently in more mainstream medical arenas because it did not fit easily into the mainstream paradigm. Reasons for resisting MCS have included its complexity (it can arise from many different toxic agents, affect any organ system and produce a wide range of symptoms) and the lack of specific diagnostic tests.

Typically, a patient suffering from MCS reacts to exposure to various chemicals, e.g. volatile organics, perfumes, smoke, motor exhaust, pesticides, and suffers symptoms sometimes allergic in nature (coughing, wheezing, sneezing) sometimes not (headache, vertigo, light headedness, muscle aches and pains). Symptoms can be reproduced by exposure to inciting materials, and relieved by avoidance, but the diagnosis is generally not supported by abnormal immune or other common tests.

It seems to occur chiefly in persons whose native ability to excrete toxins has been compromised or overwhelmed; most MCS patients have abnormalities in the Glutathione Transferase enzyme system. There is evidence from Australia that increased sensitivity to specific chemicals, and the resulting reactions, are mediated through the unmyelinated nerves, bypassing immunity altogether. There is also evidence from this country that MCS is associated with abnormalities in the processing of nitrous oxide. Further research continues.

Recovery from MCS is obtained through avoidance, augmentation of liver enzyme detox capacity, sauna, and other standard detox measures (see Detoxification). It is often a reversible condition (Dr Bernhoft's personal case being one example).

Useful Links:

- 1. http://www.niehs.nih.gov/external/faq/mcss.htm
- 2. http://www.multiplechemicalsensitivity.org/

Selected References:

- 1. Pall ML. Elevated nitric oxide/peroxynitrite theory of multiple chemical sensitivity: central role of N-methyl-D-aspartate receptors in the sensitivity mechanism. Environ Health Perspect. 2003;111(12):1461-4
- 2. Lee YL, et al. Central neurological abnormalities and multiple chemical sensitivity caused by chronic toluene exposure. Occup Med (Lond). 2003;53(7):479-82
- 3. Kimata H. Effect of exposure to volatile organic compounds on plasma levels of neuropeptides, nerve growth factor and histamine in patients with self-reported nultiple

1200 Maricopa Hwy • Suite A • Ojai, CA 93023 • 2128 Pico Blvd • Santa Monica, CA 90405 • Tel 805-640-0180 • Fax 805-640-0181

chemical sensitivity. Int J Hyg Environ Health. 2004; 207(2):159-63.

- 4. Lee TG. Health Symptoms caused by molds in a courthouse. Arch Environ Health. 2003; 58(7): 442-6
- 5. McKeown-Eyssen G, et al. Case-control study of genotypes in multiple chemical sensitivity: CYP2D6, NAT1, NAT2, PON1, POIN2 and MTHFR. Int J Epidemiol. 2004; 33(5): 971-8.
- 6. Fiedler N, et al. Responses to controlled diesel vapor exposure among chemically sensitive Gulf War veterans. Psychosom Med 2004; 66(4):588-98.
- 7. Elberling J, et al. Mucosal symptoms elicited by fragrance products in a population-based sample in relation to atopy and bronchial hyper-reactivity. Clin Exp Allergy 2005; 35(1):75-81.
- 8. Lacour M, et al. Multiple chemical sensitivity syndrome (MCS) suggestions for an extension of the US MCS-case definition. Int J Hyg Environ Health 2005; 208(3):141-51.
- 9. Millqvist E, et al. Changes in levels of nerve growth factor in nasal secretions after capsaiacin inhalation in patients with airway symptoms from scents and chemicals. Environ Health Perspect. 2005; 113(7): 849-51.
- 10. Thomas, HV, et al. Systematic review of multi-symptom conditions in Gulf War veterans. Psycholog Med 2006;Â 36(6):735-37.
- 11. Hillert L, et al. Odor processing in multiple chemical sensitivity. Hum Brain Mapp. 2007; 28(3): 172-82.
- 12. Pall ML. Nitric oxide synthase partial uncoupling as a key switching mechanism for the NO/ONOO- cycle. Med Hypotheses 2007; Apr 18
- 13. Saunders RD, et al. neurobiological basis for ELF guidelines. Health Phys 2007; 92(6): 596-603.

Lee HS, et al. Pesticide-initiated idiopathic environmental intolerance in South Korean farmers. Inhal Toxicol. 2007; 19(6):577-85