Better Data Needed on Sensitivity Syndrome

An NRC workshop on "multiple chemical sensitivity" produced unexpected consensus: Further studies are required

Irvine, California—EVERYONE'S SEEN THEM on the TV news: people who live in stripped-down rooms to avoid contact with the chemicals that are present in everything from synthetic carpets to laundry soap. Even tiny doses of these chemicals, they say, produce myriad symptoms, including headaches, rashes, depression, confusion, and fatigue. Their controversial diagnosis: "multiple chemical sensitivity."

But is multiple chemical sensitivity (MCS) a real clinical condition or merely a psychomatic illness? A crusading band of physicians who call themselves "clinical ecologists" has been arguing that it's real. But mainstream medicine generally considers the clinical ecologists' evidence shoddy, and as a result regulatory agencies have turned a deaf ear...until lately.

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Now growing media attention and political pressure from patient groups, as well as new views of the interactions between brain and body, are causing scientists and regulators alike to take a new look at MCS. The Department of Housing and Urban Development has recently given the condition disability status. And the Environmental Protection Agency (which had a rash of MCS claims from the employees in its Washington headquarters a few years ago after the installation of new carpeting) sponsored a scientific workshop here last week to develop a research plan aimed at finding out what MCS is all about. "We don't think there's enough science yet to make any judgment, but we'd like to see studies done," says Robert Axelrad, director of EPA's indoor air division.

The meeting, organized by the National Research Council, brought together mainstream researchers and clinical ecologists who until recently have done more shouting at each other than consensus building. On one side are allergists, immunologists, and toxicologists who attribute MCS symptoms to psychiatric ills. "I have seen nothing to demonstrate that [MCS] even exists," says William Waddell, chairman of pharmacology and toxicology at the University of Louisville School of Medicine. He blames the syndrome on "irrational fear of manmade chemicals."

Washington, D.C., allergist Dan Ein lumps chemical sensitivity together with another controversial diagnosis—chronic fatigue syndrome—as "conditions that get glommed onto by people who are depressed." Many MCS patients do have histories of mental illness, and some of their symptoms mimic depression.

But to clinical ecologists, the fact that some MCS patients are depressed does not mean the disorder is psychosomatic. Claudia Miller, an allergist and immunologist who treats MCS patients at the University of Texas and coauthor of the book *Chemical Exposures*, argues that many of her patients "have no prior psychiatric history, nothing going on in their lives that would even suggest that they would be psychosomatic. Hardworking, very good work records, and suddenly the occurrence of illness after an exposure."

Although the believers and the skeptics are still far apart, the dialogue at the workshop did make it seem that agreement is emerging on one point: There is a crying need for double-blind, placebo-controlled studies of patients' responses to airborne chemicals. Indeed, there are as yet no well-designed studies of that kind in the medical literature—which is why the debate on MCS has gone on until now without a clear resolution.

Most workshop participants also agreed that there are precedents for chemical exposures causing a range of disease, from occupational asthma—a condition common in people who work with platinum, toluene diisocyanate or several other substances—to autoimmune maladies like lupus, which can be triggered by exposure to hydrazine. Some syndromes now accepted as chemically caused were once considered psychosomatic: "sick building syndrome," once referred to as "mass psychogenic illness," is now recognized as a real toxicological phenomenon in which volatile chemicals in a sealed building can make some occupants sick. By considering all these types of chemical sensitivity, says immunologist William Meggs of East Carolina University School of Medicine, researchers may gain insights into mechanisms by which chemical exposure causes disease.

In the absence of well-designed studies, there is little insight into what those mechanisms might be. One thorn in the immunologists' side has been the fact that clinical ecologists typically phrase their claims in terms of immune impairment, but have not produced convincing evidence of effects on the immune system. Claims of altered T-cell counts, or antibodies to benzene and other chemicals, are "highly suspect," says immunologist Robert Burrell of West Virginia University. It is also unclear how exposure to one or several chemicals could trigger responses to a broad range of unrelated chemicals. "We don't know how to get from the stimulus to the patient's complaint," Burrell says.

At the workshop, however, there were some signs that the debate is beginning to move beyond this impasse to consider a wider range of possible mechanisms—for instance the notion that the central nervous system could play a key role in a chemically triggered syndrome. University of Arizona psychiatrist Iris Bell proposes that a mix of psychogenic and chemical causes can act together in some cases of MCS. Drugs that alter brain levels of neurotransmitters such as serotonin or acetylcholine can mimic depression in animals, and Bell proposes that some organic chemicals may have a similar effect. If that were so, she says, "you would expect chemicals could...facilitate the onset of depression if you combined, for example, [chemical] exposure with marital problems."

Although workshop participants tossed around such models, there was a consensus that mechanism studies should wait until the cause of MCS is better characterized. High on most attendees' priority lists is the need for isolation units. These hospital-like wards would provide environments free of potentially sensitizing volatile chemicals, a condition necessary to prepare MCS patients for experimental chemical challenges. The workshop also proposed that plans be made for following victims of chemical spills to see if any develop MCS. Finally, they called for an epidemiological survey to determine the prevalence of MCS and to identify possible predisposing factors in sufferers' histories. At least one workshop participant was confident that these measures would bring resolution to the MCS fracas. "The scientific method cannot resolve all controversies," said East Carolina's Meggs, "but it can resolve this one." ■ MARCIA BARINAGA