

Systematic Considerations in the Area of Multiple Chemical Sensitivity

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Many workers who speculate about multiple chemical sensitivity (MCS) have devised a large number of hypothetical constructs designed to explain the phenomena. Too often these are not logically connected to the larger body of scientific thought but instead appeal to ideas not documented in accessible literature and often appearing metaphysical in nature. — *Environ Health Perspect* 105(Suppl 2):485 (1997)

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It is, perhaps, not unusual that the hypotheses and constructs in a new area of investigation often are mistaken; too little is known in the beginning to develop accurate and generally fitting hypotheses. What can and should be expected in a scientific pursuit is that the hypotheses and constructs are carefully and logically well founded. Some of the investigators in the area of MCS have violated this tenet in the extreme and have provided only tenuous logical connections between their hypotheses and the phenomena they are attempting to explain.

A major source of conflict in this area is that frequently the original observations and data come from the clinic and these raw observations are later evaluated by laboratory science standards. It is important not to give these raw observations more credence than they are due. On the other hand, laboratory scientists should not be critical of the data that fuel their engines

because they are not from controlled experiments—it is their job to make and systematize such observations. Conversely, the clinician must not be critical of the scientist who is not trying to find immediate cures but rather is trying to systematically account for the data.

In the beginning of an investigation of a newly recognized phenomenon, the problem always appears complicated. Many independent variables appear to affect multiple dependent variables in complicated ways. It is only after a solution is found that the problem may appear simple and more understandable. MCS may be an extreme example of complexity in a scientific problem; at least this appears true now. The complexity of a problem, however, does not give one license to make new hypotheses and constructs without restraint. According to Albert Einstein, most of the fundamental ideas of science are simple and as a rule can be expressed in language everyone understands (*1*).

One of the striking characteristics of some of the work in MCS is the remarkable complexity and the large number of hypothetical constructs invoked to explain the phenomena involved (*2*). But it is important not to mistake ideas and theories resulting from such brainstorming as being factual or as explanations. Any construct or hypothesis introduced not only must be necessary but also must be well documented and related to other areas of science. Sometimes a totally new concept is

needed, but such instances are rare and when they actually occur, can be quite startling. One must be cautious not to introduce poorly documented concepts that are unrelated to the main body of science before much deductive and empirical work has been done.

The above considerations are well illustrated by comparing the work of two investigators. Rea (*2*) introduced many constructs that are poorly related to the main body of science and not well documented in publicly accessible literature. A prime example of this is his nebulous idea of a hypothetical cellular communication system employing a vaguely defined energy which has not been publicly documented and which does not serve to explain anything specific about MCS (the ground regulation system). Lehrer (*3*), on the other hand, introduces perhaps as many hypotheses and constructs, but they are conceived as possible avenues of investigation, not as explanations. Furthermore, all of Lehrer's offerings are well understood ideas connected to the main body of scientific knowledge. A construct cannot explain anything unless it is well documented and understood.

Some researchers might argue that if a theory produces clinical success, then it is supported. If this were true, however, then the principles by which a shaman operates could constitute accepted theory. It could even be the case that clinicians sometimes do the right thing for the wrong reason. The problems inherent in MCS are sufficiently complicated and important enough that researchers should avoid gratuitous complexity, poor logic, and dubious constructs.

REFERENCES

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Abbreviation used: MCS, multiple chemical sensitivity.