Scientific Subjectivity

By Ashton Embry

Scientists like to portray themselves and their endeavours as being very objective and completely lacking in any personal prejudices when it comes to determining and analyzing data. It would be wonderful if this was so but unfortunately scientists are affected by the same human frailties as everyone else. Thus subjectivity, rather than cold, hard objectivity, often plays a big role in science. Scientists tend to have a lot in common with lawyers in that once they take a position they will emphasize the evidence that supports their hypothesis and ignore, or at best downplay, the evidence which favours an opposing hypothesis. Thus in science we often have two "camps" when it comes to a given scientific question just like we have a prosecutor and a defense attorney when it comes to a legal question. This is fundamentally the way science progresses with the two camps battling it out until one completely overpowers the other and the views of the victorious group assume the mantle of scientific "truth".

Various scientific questions about multiple sclerosis have their two camps and a good example of this is the debate of whether or not nutritional factors play a significant role in MS onset and progression. As most readers know I am a warrior in this ongoing battle which pits the pillars of conventional medicine - MS researchers, neurologists, pharmaceutical companies, National MS charities - against the holistic medical practitioners, a few iconoclastic scientists and the odd small charity. This debate is greatly influenced by financial considerations with conventional medicine being bankrolled by the wealthy pharmaceutical companies. The conventional medicine "camp" pushes the exclusive use of expensive drugs despite their questionable effectiveness and safety. At the same time this group strongly discourages the use of nutritional strategies despite robust scientific evidence which supports their use.

Persons with multiple sclerosis are interested in scientific opinions when it comes to new, potentially beneficial therapies such as a drug or a supplement. The scientific literature is often thought of as the most reliable source of information and I certainly believe this. One problem with the scientific literature is that one has to be a scientist to be able to access, read and most importantly, appraise the information in the medical journals. Most people, including many MS scientists and neurologists read only the abstracts of articles or, more commonly, will read only a second or third hand summary of the main conclusions of an article. This has pitfalls.

I have recently come across two classic examples of how one could be led astray by author subjectivity if the entire research articles were not critically read. In the first example the researchers have focused on the benefits of one drug while ignoring the apparent worthlessness of another. In the other example they have ignored key data and emphasized a relatively minor finding in order to demonstrate that a nutritional factor is not potentially involved in MS.

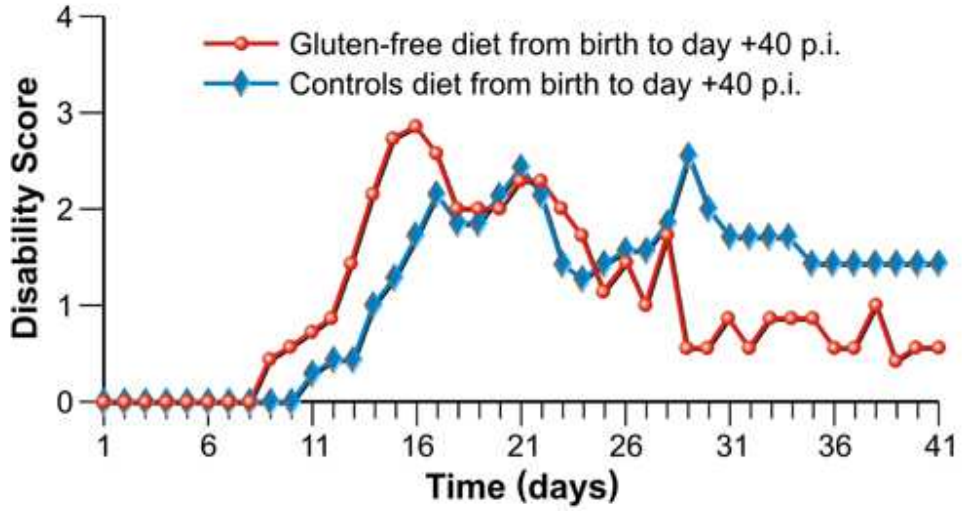
A few months ago two papers which described the results of the clinical trials involving Tysabri were published. One paper provided the details of a trial in which one group of patients used Tysabri while the control group received a placebo. A second, closely related trial had one group on both Tysabri and Avonex with the control group receiving only Avonex. In both trials those using Tysabri did far better than the control groups did in terms of active lesions and rate of attacks. There is no doubt that the researchers were justified in claiming that Tysabri positively affected the MS disease process despite having rare fatal side effects.

Another finding of these two trials was that the results of those on Avonex (the control group in the Tysabri plus Avonex versus Avonex trial) were exactly the same as those in the placebo group in the Tysabri versus placebo trial. The results were as follows:

Measurement	Avonex	Placebo
Annual relapse rate	.75	.73
% having no relapses	37%	46%
Mean number active lesions	.9 +/- 3.2	1.2 =/- 3.9 %
% with no active lesions	75%	72%

These results leave no doubt that the highly touted MS drug, Avonex, is no better than a placebo and thus is most likely of no value for MS. None of the researchers pointed out this very obvious result. Such an oversight is not surprising given that the researchers all received payments from the company that manufactures Avonex.

The other paper of interest presented the results of the use of a gluten-free diet for rats which were given an animal form of MS known as EAE. EAE is induced in rats by injecting them with myelin proteins mixed with bacteria. The results of this study are illustrated in the accompanying graph. The red line represents the changes in disability with time of those rats on a gluten-free diet. As can be seen, they suffered worse effects (score of 3) early in the disease (14 days after disease induction) than those consuming gluten (blue line, score 2.5). However, as also can be readily seen on the graph, by day 40 the gluten-free rats were doing much better on average (score of > 1) than those eating gluten (score 2). The researchers chose to emphasize the result that the gluten-free rats had worse symptoms early on and in the abstract they noted that a gluten-free approach "exacerbated the course" of the disease. They ignored the result that the gluten-free rats had much less disability at the end of the trial. The authors clearly did not want to see, or at least admit to, any possible benefits of a gluten-free approach to MS.



These two examples show the strong bias which exists in the MS scientific literature which strongly promotes drug therapy and denigrates the potential of nutritional therapies. Persons with MS must realize that there is often much more to scientific results than those mentioned in abstracts and by

spokespersons for conventional medicine. The scientific process in medical research is sometimes corrupted by an overriding subjectivity which is primarily driven by financial gain. It is not easy to get the “whole story” but at least the Internet provides an outlet for other sides of the story. This is a vast improvement of the past situation where the word of conventional medicine went unquestioned.