

Vitamin D Supplementation and Autoimmune Disease - Opposing Views

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I have received a number of inquiries about a recent press release which was entitled “Vitamin D Deficiency Study Raises New Questions about Disease and Supplements”. It was released by the Autoimmune Research Foundation, a California charity. Given that the main message in the press release was that new research demonstrates that vitamin D supplementation may make autoimmune disease worse, I was very curious about such new research and the science behind it.

As a scientist, I am aware that there is no 100% certainty in any interpretation of scientific findings. All one can do is collect as much data as possible on a given problem. Then, through critical, rational thinking, sort out reliable scientific findings from baseless speculations and come up with the best interpretation of that data. I have done this when it comes to the question of the potential role of vitamin D in MS. There is a very large and diverse data base which indicates that vitamin D deficiency is a major factor in MS onset and progression and that vitamin D supplementation is potentially of significant value for preventing MS and for slowing progression. Thus I was somewhat surprised by a bold claim that new research demonstrates that just the opposite is true.

The author of the scientific paper on this purported new research is listed in the press release as “Trevor Marshall, Ph.D., professor at Australia’s Murdoch University School of Biological Medicine and Biotechnology” A Google search revealed Dr Marshall is actually the director of the Autoimmune Research Foundation, the source of the press release. Furthermore, he is not an Australian professor but simply has an adjunct position at that university. The fact that Dr Marshall passes himself off as an Australian professor rather than as a California charity director does not inspire confidence in his work.

However, such misrepresentation is not that big a deal. In science, when you want to evaluate the credibility of new research findings, it all comes down to the scientific data and interpretations an author presents, not the author’s credentials. To evaluate the new research, I downloaded the publication

which is entitled “Vitamin D discovery outpaces FDA decision making” a rather strange title for a scientific study. I soon realized that the paper had absolutely nothing to do with new research as claimed in the press release but was simply an opinion piece by Dr Marshall on his highly speculative and unorthodox hypothesis that autoimmune disease is caused by bacterial infection and vitamin D supplementation.

I had looked at this hypothesis in 2006 and found there is absolutely no credible science which supports it. In fact, I found there was a lot of reliable science which rendered such a hypothesis as extremely unlikely and similar to the hypothesis that all cancers are caused by parasites. Every chronic disease, including MS has its collection of speculative hypotheses which have little to no scientific support and each hypothesis has a related therapy. In Dr Marshall’s case he promotes his “Marshall Protocol” for autoimmune disease. This therapy consists of antibiotics, a vitamin D receptor stimulator and a very low vitamin D intake (no supplements, avoid the sun as much as possible) and is prescribed for a long list of diseases.

I went through Dr Marshall’s opinion piece and found it contained a number of outright factual errors as well as a number of highly questionable claims. As an example of a factual error, Dr Marshall states that vitamin D supplementation of food has spread throughout the world. This is simply not true and even continental Europe does not supplement food with vitamin D. A more serious error is the claim that an increasing concentration of 1,25-D, the active vitamin D hormone, depresses generation of 25(OH)D, the circulating form of vitamin D. Solid and diverse research data demonstrate that 25(OH)D concentration is a function of vitamin D intake and has no relationship to 1,25-D levels which are tightly regulated by various feedback processes.

Another claim is “the chronic addition of immunomodulatory vitamin D to the diet is partly responsible for the current obesity epidemic” and again no credible scientific data are presented or referenced to support such a speculation. Dr Marshall also briefly addresses MS and vitamin D and completely ignores all the studies which demonstrate the role of vitamin D deficiency in MS. He quotes one researcher who cautioned against vitamin D supplementation until more data are available. Coincidentally, when that paper was published a few years ago, I had asked the senior author why such a statement was in their paper and it turned out the very conservative journal

editor, not the authors, wanted its inclusion. The authors, Harvard research scientists, strongly support vitamin D supplementation for MS.

The bottom line is that the “new research” referred to in the press release is nothing more than a conglomeration of unsupported opinions which are part of Dr Marshall’s continued attempt to promote his unconventional concepts and the use of the “Marshall protocol” as an acceptable treatment for many chronic diseases. I would note that I believe that Dr Marshall is completely sincere in his beliefs and that he is not trying to make money from promoting his hypotheses and treatments. However, he would have more success in convincing others of his concepts if he could provide some reliable science to support his opinions. He provides no data from epidemiology, animal experiments, immunological studies or valid clinical trials.

Furthermore, it is also essential for him to counter the voluminous and diverse data which support the concept that diseases like MS and rheumatoid arthritis are autoimmune diseases rather than bacterial infections. For example Dr Marshall claims that vitamin D supplementation suppresses the immune system and thus helps to drive autoimmune diseases by allowing the bacteria to flourish. He neglects to mention that immune suppressant drugs reduce disease symptoms rather than exacerbate them as his hypothesis would demand.

It also concerns me that the press release contains a number of statements on topics which are not addressed in Dr Marshall’s opinion piece and most can be dismissed as having no scientific support. The statement “Marshall's research has demonstrated how ingested vitamin D can actually block VDR activation, the opposite effect to that of Sunshine” has no basis in fact and the claimed research is not discussed or referenced in the article. It appears the press release is simply another vehicle for Dr Marshall to promote his speculative hypotheses regarding vitamin D and disease. Unfortunately such information is often perceived by the public to be reliable science, especially in a case like this when the author passes himself off as a university professor and makes misleading statements such as “our research has demonstrated”. He is a charity director and there is no acceptable research which demonstrates any of his claims - only speculations based on speculations.

In summary, we currently have two opposing views on vitamin D and MS. The view held by most MS researchers and by me and supported by a large and diverse database interprets that vitamin D deficiency is a significant factor in MS and that supplementation may well be of value. Dr Marshall's view is that vitamin D intake promotes disease progress and that any supplementation may be harmful. This view is not supported by any credible science. In closing, I would again emphasize there is no certainty in science and the best we can do is make the best interpretation with the available data and take the appropriate actions. I suggest each person look over the two opposing interpretations and choose the one which seems most reasonable and well supported.