No, COVID mRNA Vaccine Won't Cause Alzheimer's or Prion Disease

By Alex Berezow, PhD — February 19, 2021

The coronavirus pandemic has spawned an equally concerning mis- and disinformation pandemic. The latest myth is that mRNA vaccines may trigger prion diseases like Alzheimer's.

Like the universe, the internet appears to be governed by a set of (admittedly tongue-in-cheek) "laws." The most famous is Godwin's Law [2], which posits that "as an online discussion grows longer, the probability of a comparison involving Nazis or Hitler approaches 1."

There are plenty of others. The coronavirus pandemic has put on grand display a lesser-known but far more important "law" known as Brandolini's Law [3], which claims that the "amount of energy needed to refute bullsh** is an order of magnitude larger than to produce it."

This, of course, is absolutely true. The reason is that people who spread lies are, by definition, not constrained by the truth. Making stuff up takes little effort while doing the diligent research necessary to arrive at the truth takes tremendous effort. That's why, as the adage goes, a lie can travel halfway around the world before the truth gets its shoes on.

The COVID pandemic has made this painfully clear. Among the most pernicious myths [4] is one that claims the mRNA vaccines made by Pfizer/BioNTech and Moderna are a form of genetic engineering, a lie that is being perpetuated by none other than fraud doctor Andrew Wakefield [5].
Now, a new myth has reared its ugly head. A paper [6] written by a well-known anti-vaxxer named J. Bart Classen [7] and published in a scientific journal -- if we can even call it that (because it's not indexed in PubMed) -- claims that the mRNA vaccines that target coronavirus could cause prion diseases like Alzheimer's. It's total garbage.

A Primer on Prions

In order for proteins to work, they must be folded properly. An unfolded protein is useless. By analogy, think of origami. An unfolded protein is like a piece of paper, and a folded protein is like an origami crane [8]. A misfolded protein is also no good; it would be like breaking the crane's neck or wing. Again, useless.

Sometimes, misfolded proteins are dangerous. A particularly dangerous one is known as a prion. When it misfolds, it causes other properly folded proteins to misfold. Imagine if the origami crane with a broken wing caused all of its origami crane friends to develop broken wings. That's what prions do. The most famous prion disease is Mad Cow Disease, the infectious form of a rare neurodegenerative condition called Creutzfeldt-Jakob disease.

Increasingly, evidence indicates that other neurodegenerative conditions like Alzheimer's, Parkinson's, and Huntington's are caused by misfolded proteins that trigger misfolding in other proteins. In the case of Alzheimer's, the proteins are called beta-amyloid and tau.

No, COVID mRNA Vaccine Won't Cause Alzheimer's

So, what does this have to do with COVID mRNA vaccines? Absolutely nothing. But that didn't prevent Classen from speculating that these mRNA vaccines might trigger the misfolding of two other proteins (called TDP-43 and FUS) that are also associated with Alzheimer's (as well as amyotrophic lateral sclerosis).

His evidence is non-existent. In the methods section of the paper, Classen writes, "The vaccine RNA was analyzed for the presence of sequences that can activate TDP-43 and FUS." How was it analyzed? What software was used? Did he examine any controls, like cellular mRNA sequences? He doesn't say. He simply tells us that the COVID vaccines contain various RNA sequences that may trigger TDP-43 and FUS's misfolding.

That's it. It's entirely speculative. There's no actual evidence.

Yet, from that, he concludes that the vaccine may be worse than the disease. For good measure, he mentions that the coronavirus and the mRNA vaccines both might be bioweapons released by the U.S. government. Hopefully, he notified Fox Mulder.

One would think that this conspiracy is too kooky to go viral (no pun intended). But we've already seen people burning 5G towers because they think they spread the coronavirus. So, it's better to debunk it now before the Andrew Wakefields of the world get ahold of it.

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