

Bruno Bytes - January, 2015

Stem Cell Therapy is Not for Polio Survivors 1/31/2015

Dr. Bruno – “I have been getting e-mails asking about stem cells so I thought I'd post this again...”

Stem cells are remarkable, embryonic “baby cells” that will grow up to be any kind of cell that the body makes. With all the excitement about stem cells curing spinal cord injury, many polio survivors are asking if stem cells could cure PPS, or even reverse the damage caused by polio itself. The hope with spinal cord injury (SCI) is that stem cells, injected into the spinal cord, would “bridge the gap” in cut spinal cord axons, which are like long telephone wires that connect brain motor neurons to spinal cord motor neurons and allow the brain to “tell” muscles to move again. This notion requires intact motor neurons below the cut in the cord.

Here lies the problem with stem cells “curing” polio or PPS. Even in “mild” cases, the poliovirus killed off least 50% of neurons throughout the spinal cord. Stem cells injected into a polio survivor’s spinal cord would not have to just bridge a gap, but have to become new, functioning motor neurons. What’s more, those new neurons would have to send out their own axons to find and activate the specific muscles that were paralyzed when the original axons disappeared 50+ years ago after poliovirus-infected neurons died, by burrowing inches, or in the case of the leg three feet, through the tissues inside the arms and legs.

Finally, the brain's motor neurons would have to send out new axons as well, since the brain’s neurons and axons also died. These axons would have to burrow through the entire brain, the brain stem and down through spinal cord to get to the newly-implanted motor neurons, indeed a tremendous tunneling task!

So, the idea of rebuilding a polio-damaged spinal cord would require a “hat trick” of creating new brain and spinal motor neurons, new axons tunneling from the brain to the spinal cord and from the spinal cord to the muscles. Reconnecting a spinal cord that has been cut, would “only” require the physiological “goal” of bridging the gap between cut axons. Yes, a possible use for stem cells would be to inject them into the brain, as is done in Parkinson’s disease (PD) patients, where they could produce the main brain activating neurochemical, dopamine, which is decreased in polio survivors and causes post-polio fatigue. But, such injections are not widely accepted even in PD patients yet.

So, if stem cells aren't the answer, is there anything polio survivors can do to help their remaining poliovirus-damaged neurons? Recently, there has been research on “neuro-protective” drugs (medications that protect neurons’ innards from overuse-abuse that causes post-polio symptoms). Several studies have focused on degenerative diseases, such as Parkinson’s (PD) and Huntington's diseases (HD), which involve damaged dopamine neurons. Minocycline, a common antibiotic used to kill a variety of bacteria, and creatine, which helps to provide energy to muscle cells, have been given to PD patients, who showed a less rapid a decline in function compared to those taking a placebo. However, a study comparing creatine and placebo in 60 PD patients found that, while their mood improved and their need for medication decreased, their symptoms did not lessen. Vitamin E has been found in eight studies to have some neuro-protective effect in PD, while vitamin C and beta carotene were not helpful. Some research even links coffee's ability to limit blood vessels from opening to protecting neurons against PD, with one cup a day cutting the risk of developing PD by as much as fifty percent. Another dietary supplement, coenzyme Q-10, is being tested to see if it protects PD patients’ neurons.

Huntington's disease patients have also benefited from potential neuro-protective drugs. Huntington's patients given minocycline had slower progression or no decrease in physical ability, thinking and memory. Creatine had similar beneficial results in HD.

Should polio survivors take minocycline, creatine and Vitamin E, or order a Starbucks' Grande, three-shot cappuccino to prevent post-polio brain fatigue? Not yet. There aren't enough studies to prove that any of these is truly neuro-protective in Parkinson's or Huntington's disease, let alone helpful for polio survivors, in which these substances haven't been studied at all.

Double-blind, placebo-controlled studies of potential neuro-protective medications are warranted in polio survivors. For now, the only neuro-protective that we know works in polio survivors is:

“The Golden Rule:” If anything causes fatigue, weakness or pain - **Don’t Do It** (or) Do less of it.

On Exercise and Blood Sugar issues 1/17/2015

"Today my glucose level was low and my legs gave out and I went down twice, I hate the fact everyone says more exercise ... the whole world doesn't understand. It's so defeating... I don't know what to do."

Dr. Bruno's Response – "No exercise and you need a specialist in diabetes to deal with your blood sugar."

[Additional Information on this topic - \(Click Here\)](#)

Blood Sugar Can Be Too Low in Post-Polio Diabetics 1/13/2015

In 2000, we measured polio survivors' blood sugar and gave them the same tests of attention and memory that we'd been using to study polio survivors with fatigue. We found that the lower polio survivors' blood sugar the worse they did on the most difficult attention tests. Attention was about 20% BELOW normal for those whose blood sugars were around 80, which is the bottom of the normal range for blood sugar. In fact, polio survivors' ability to pay attention with a blood sugar of 80 was actually WORSE THAN IN DIABETICS with a blood sugar of 65! In terms of focusing attention polio survivors' brains act as if they are hypoglycemic, with blood sugar levels in their brains about 15 points LOWER than the measurement from their doctors' lab.

Today's NY TIMES article shows the danger of one-size-fits-all treating of older diabetics that can cause hypoglycemia, brain brownouts, accidents and even death. How much more should this warning apply to diabetic polio survivors whose brain may already be hypoglycemic! Talk to your doctor about allowing your sugars to run higher.

http://www.nytimes.com/2015/01/12/opinion/when-diabetes-treatment-goes-too-far.html?ref=todayspaper&_r=1

Here's a definition of the A1C test, by the Mayo Clinic

<http://www.mayoclinic.org/tests-procedures/a1c-test/basics/definition/prc-20012585>

Is the Enterovirus D68 a Strain of the Polio Virus? 1/9/2015

Question: "There is news about lately about the Polio-like illness that evidently has hit well over 1,100 cases and 13 deaths. The articles I read refer to something call "acute flaccid myelitis (AFM)" and then to "Enterovirus D68 (EV-D68)". One or both are referred to as "puzzling" by the CDC.

Is there any definitive information about either or both of these being any related strain or mutation of a Polio virus? It seems this is bigger or more widespread than Ebola yet it is hardly being mentioned in the mainstream news.

Dr. Bruno's Response: "D68 is *NOT* Polio"

The mainstream media covered this story to death all summer long proclaiming a new "polio epidemic" unless the vaccine was found for this "mutation of the poliovirus." When the season for this type of virus was over in October the story went away with the virus.

D68 is no more a mutation of the poliovirus then a nectarine is a mutation of an orange. There are more than 100 "polio – like" viruses in the enterovirus family, that is viruses that grow in your intestines. Something like a dozen of these viruses are able to cause damage to the brain stem and the spinal cord just as the three polioviruses do. D68 is one of those and we're only talking about it because it was found in a few children who had muscle weakness and even fewer who had paralysis. There is still no direct link between D68 and these children developing "polio – like" symptoms. I would not be surprised if it turned out that D68 did cause the symptoms. But thousands upon thousands of children developed respiratory problems due to the virus and had absolutely no muscle weakness, let alone paralysis. The only thing that's unusual about D68 this year is that we saw more than usual cases of muscle weakness and paralysis, which is certainly disturbing to those who were affected and their parents, but not the hallmark of the new "polio epidemic," as one media-crazed neurologist said out in California.

A mutation of type I poliovirus was found in the Democratic Republic of Congo, and it is disturbing because it is not very effectively attacked by antibodies generated by the vaccine, affects young adults and has a 40% death rate,

versus about a 15% death rate during the US polio epidemics. If we're going to worry about something it's the new strain of poliovirus that should focus our attention, not D68.

[An Interesting Study on Restless Legs and PPS](#) 1/5/2015

The authors studied one of two different conditions that are always confused by doctors: restless legs syndrome vs. periodic leg movements in sleep. RLS is a need to move the extremities because of discomfort or disagreeable sensations to relieve the discomfort. PLMS is where your legs and other muscles twitch and jump on their own, which our study found in

50% of polio survivors. <http://www.postpolioinfo.com/library/grm.pdf>

We don't know the criteria for the diagnosis of PPS in this study. But, the findings about RLS show the importance for all polio survivors of having a sleep study to diagnose MORE than just breathing problems!

Conversation Continued (1/11/2015)

Question: I have these symptoms except my arms and legs are wailing violently while I remain asleep.

Dr. Bruno's response - Ask your doctor about starting 0.5 mg of alprazolam 30 minutes before bedtime and being able to increase the dose to stop your legs from twitching.

[An Interesting Article \(from the NY Times\) – Shots vs Pills for Knee Pain](#) (1/5/2015)

(Posted by Dr. Bruno)

http://well.blogs.nytimes.com/2015/01/05/shots-beat-pills-for-knee-arthritis-relief/?ref=todayspaper&_r=0

[An interesting Conversation about the "Truth" to the existence of PPS](#) 1/3/2015

No polio survivor experiencing overwhelming fatigue, new weakness, pain, sensitivity to anesthesia, difficulty sleeping, breathing and swallowing is being "forced into thinking that they are ill." It is absolutely true that PPS is not a disease or syndrome, nor a "flare-up" due to the poliovirus becoming active again. It is absolutely *unquestionable*, after 30+ years of published research, that PPS is real and does not have symptoms that would be experienced by a person aging with any disability. If you don't accept that PPS is a real condition caused by the failure and death of poliovirus-damaged neurons that have been overworked for decades? Perhaps it is because you have not read the enormous amount of research available.

PPS is a real process that has a cause and can be treated! (1/4/2015)

Conversation Continued (1/7/2015): As Senator Daniel Patrick Moynihan said, everyone is entitled to their own opinion but not their own facts. The reality of PPS is a scientific fact, not an opinion or a "belief," as in doctors "not believing that PPS is real." Having the opinion or belief that PPS doesn't exist is like having the opinion that gravity doesn't exist. You're entitled to your opinion about gravity. But when a weak leg gives out, you fall and break a hip, scientific fact -- and your orthopedist -- trump opinion and belief by those who are uninformed.