Welcome to the Cutting Edge Health Podcast with Jane Rogers, where we discuss science to help prevent cognitive decline.

[00:00:00] Jane Rogers: Welcome to the *Cutting Edge Health Podcast*. I'm Jane Rogers, journalist, health coach, consultant to doctors, and recovering chocoholic. My passion is helping my friends and others squeeze every drop out of life using the latest scientific breakthroughs to make 90 the new 40, extend our health spans by 10 to 20 years and prevent the diseases of aging. I travel the world interviewing leading experts in health and longevity to learn how to live longer, better. Buckle up. It's never too late to ride the cutting edge to grow younger, sexier, healthier, and sharper together.

It's a very exciting time for stem cells. They're being used to rejuvenate the heart even after a heart attack or the brain if someone is mentally foggy. They're used to save a joint like a knee joint from surgery. They're used for anti-aging to rejuvenate tissue, and they have the potential to even reverse aging. This exciting work with stem cells is not happening in the United States. It's not approved here. It is offshore where Dr. Chadwick Prodromos has his clinic.

The Prodromos Stem Cell Institute in Antigua and Monterrey, Mexico. Prodromos is a world-renowned expert in ACL reconstruction. He's practiced for decades in the Chicago area. He's undergrad is from Princeton. He's Harvard and Johns Hopkins trained as an orthopedic surgeon. Dr. Prodromos, I'd like to welcome you to *Cutting Edge Health*. Thank you so much for being one of our guests.

[00:01:30] Chadwick: Thank you very much for having me and for doing this so that people can learn.

[00:01:36] Jane: There's a lot to learn. There's so much to unpack. Stem cells, we've heard about them for a long time, but finally, the time has arrived and they can do many, many things. Tell us about what you're doing with stem cells.

[00:01:48] Chadwick: Stem cell technology has been out there for a little while. It is commonly spoken about as something with a lot of promise for tomorrow and that there may be risks. The reality, the brief reality I'll elaborate is that properly done stem cells are completely safe. They're here today. They can do a lot. I need to say right at the outset that 20 some years ago, there were ethical concerns because people were using embryonic stem cells. These could come from aborted fetuses and such. That technology is nothing that we do and almost nobody does it anymore.

We are using stem cells. They're called adult stem cells. They're either from the patient themselves or they're from the umbilical cord or the placenta of ladies who donate after-term cesarean sections. These are not embryonic or fetal. These are adult stem cells.

There are no ethical concerns. They're the safest treatment pretty much there is. That's the first thing. They're completely safe, properly done, and not embryonic or fetal.

[00:02:54] Jane: What you can get if you have stem cells put into your body in the United States as compared with what you can do outside of the United States. There's a big difference. What is that difference? Explain why?

[00:03:06] Chadwick: Right. It's regulatory. The FDA protects us. They're great people and they do wonderful work. However, their mission, Food and Drug Administration, was to test drugs. Drugs or random chemicals. They take lots of testing because you don't know what these things are going to do so you need to do big double-blind randomized placebo-controlled studies. They need to take place over a long period of time. They cost lots of money in the hundreds of millions of dollars often. That's appropriate and that's good. It keeps us safe.

However, they started regulating human tissue mostly 2005, the FDA in the US and the EMA it's called in Western Europe. The same standards were applied to human tissue as were applied to drugs. In an abundance of caution, I guess you would say, the unfortunate consequence is though that the money to do the studies that are required to meet their drug study standard exists pretty much only in the pharma world. Pharma invests money and they do great studies, then when drugs are proven safe and effective, they patent them.

They invest a lot of money but then they make it back with patents. This technology, not easily patentable. For that reason, there are physicians doing it like myself. The funding needed to do these studies is hard to come by, the studies tend to not get done so the treatment tends to not get approved. That's where we stand now. There are some things that we can do and we do but the treatment that has the most promise which involving cultured adult cells often allogeneic, for example, these can be done from other people, adult stem cells, not embryonic ones, are not rejected.

You can get them as we do from Wharton's jelly umbilical cords. What can be done in the US is bone marrow aspirate and you can help people with that. We published a big paper using bone marrow aspirate. You can take PRP, platelet-rich plasma, which is a blood product. That can be done, and it has uses, but the utility of cultured stem cells or injecting 100 million stem cells as opposed to maybe 100,000 stem cells with bone marrow aspirate. There's just more you can do. We have a foundation that does clinical research. We read everything that's written around the world, and we publish papers about this. We know what's being done.

There's work being done outside of the US, China, South Korea, elsewhere. In a nutshell, we look for areas where there's evidence of efficacy and where there's safety.

We treat and right now, we go offshore to do it which is where many of the best-known centers are because we want to bring the most effective treatments. Hopefully, that treatment will be able to be done in the US. I made a conscious decision that it was going slowly, and I just didn't want to deny people the opportunity to get treated with state-of-the-art technology.

[00:06:14] Jane: In the US, if I were to have a stem cell treatment, it's my understanding if they would take some of my fat, they can't actually grow the fat into stem cells in this country. You can't grow it, but if you go offshore then you can actually grow it to 100 million stem cells or 200 million stem cells. Is that one of the differences?

[00:06:33] Chadwick: Yes, in part. Bone marrow aspirate. You can stick a trocar in somebody's pelvic bone. I said I treated better than 100 patients this way and you can get stem cells. You're right. You can't culture it. We can centrifuge the bone marrow aspirate and get the stem cells and maybe inject 50,000 or 80,000 stem cells. We've done that. That's bone marrow aspirate. That is something that's acknowledged by the FDA as a stem cell treatment, and they allow it. There are certain limitations on how you can use it, but it's allowed.

Regarding fat, fat is richer in stem cells than bone marrow. Aside from culturing them, you have to isolate them from the fat and that involves treating with an enzyme called collagenase to isolate the stem cells. That's the first step. Then, the cells from the fat, they're mononuclear cells or immune cells. Only about 8% of them are stem cells. Is it **[unintelligible 00:07:23]** called stromal vascular fraction and can be effective. I think not as much for many applications as cultured cells. In the US, we cannot isolate the cells and we can't culture it.

Actually, there was a recent court decision that may allow us a window to do that from a few months ago, but to take it a step further, the FDA has actually said they know there are stem cells in bone marrow aspirate but while you're allowed to take fat and inject it for cushioning, the FDA hasn't really acknowledged that using fat is using stem cells. They've said that in our view, the only purpose of fat is cushioning. There are people that would take fat and grind it up but not separate the stem cells and inject it, but they could not say they were doing a stem cell treatment.

Maybe changed a little bit now with this court case. I don't know. Landscapes changed a little bit. Then regarding allogeneic cells, you can take them from a placenta or an umbilical cord and grow them. Separate them with little vials, then you can freeze them in liquid nitrogen. It's easier because you can get a lot of these, and you can treat anybody with them. With the fat or the bone marrow, if you're going to culture them, you have to take it from a person as a separate procedure and then grow. Allogeneic cells are called which results from somebody else are after this last court case notwithstanding are still expressly prohibited.

I want to say too. We are very careful. I have had patients that were like, "Can't you just do it anyway?" I really like to follow rules. Everything that we do in the US is strictly in accordance with the FDA. Even when we are offshore, we have licensure. We're in Antigua, we're in Monterrey and we have formal licensure to do stem cell treatment there. We want to follow regulations and we do.

[00:09:09] Jane: When you say Monterrey, that's Monterrey, Mexico, the second largest city in Mexico, right?

[00:09:13] Chadwick: Right. In fact, it's a suburb of Monterey called San Pedro Garza García. I'd actually never been to Mexico until I started treating there. I knew nothing about it. It's beautiful. It's very upscaled. It's listed as the most upscale community in Mexico and Latin America so we're not going down there for that reason but it's nice if we're going to go someplace to go to a place that's very enjoyable to be in.

[00:09:37] Jane: A nice spot. Let's get to what this can be used for. The people who watch the show are especially interested in preventing cognitive decline, preventing the other diseases of aging, heart disease, cancer, can stem cells be used for that now? Has it come far enough?

[00:09:51] Chadwick: Yes. Tony Robbins, the famous philanthropist, motivational speaker, businessperson, he and Peter Diamandis and some other people started a company called Fountain Life. They treat upscale people for preventing disease and aging and whatnot. They felt that injecting stem cells was an important part of an anti-aging regiment.

He and his **[unintelligible 00:10:11]** came and visited us in Antigua and spent a day with us and went to other places and actually put me into his book, *Life Force*, it's a great book that he wrote. It opens a lot of eyes as to advances in medicine. Their primary interest was in anti-aging and some of the things that go along with it, if you have joint pain one thing or another and the biggest thing with aging is cognitive issues.

What we do and what others do in that regard is we inject these cells, they're called mesenchymal stem cells and we inject them intravenously. I have a 501c3 nonprofit foundation. We treat people, but I've been in academic medicine my whole life, and if we're going to do this kind of work, we like to follow all our results, collect data, and so we do that.

What we've found is that people when they get to be 50, 60, 70, 80 will notice maybe short-term memory loss, brain fog they'll call it, things like that, fatigue.

We inject people, and we have found that in most people who have those issues, they diminish substantially. It's not everybody but most people. We've also looked at people

who we've treated, who didn't have those issues before. About 15% of them said, "Yes, I didn't have fatigue issues or other things, but I feel better anyway." It can definitely help.

Now, we do work with a brilliant physician who is a pioneer, really the only person in the world who's done this effectively of using lymphocytes, and I'll try to explain this.

It's a little technical, but I think you'll get the gist of it. We treat people with spinal cord injury, with stroke, cerebral palsy, with serious neurologic disorders, the central nervous system. Central nervous system basically doesn't heal. Just bear with me here. For people who have definite lesions, so we'll get MRIs on people just talking to a woman in her 50s and kind of youngish, and she had significant brain fog. She thought so we're getting an MRI, and we'll see is this just cortical atrophy with age, your muscles atrophy a little, your brain atrophies a little.

For those people, we just inject stem cells, but we'll find people will have areas of decreased circulation or dead cells, things like that, like little strokes. In those people, we do think a little differently. They usually come to Chicago and I do a lipo aspiration to take a small amount of fat. Then we send it offshore where it's legal to do, in Monterey, sometimes in Buenos Aires. The stem cells are isolated and then they're expanded in culture and then people will go down a month later, and we take lymphocytes from apheresis.

The catheter in your arm, it takes out lymphocytes. The lymphocytes are activated with neural antigens, and they're injected back. They go to these areas of dead tissue in your brain. They whittle away scar tissue there. They're reverting the healing phase back to the acute healing phase, and this makes it amenable for stem cells to treat which otherwise they couldn't. Then we take the stem cells and co-culture them with these lymphocytes which activates them and eject them.

The basic thing is you get apheresis, you get lymphocytes removed, they're treated, they're injected back. This is all intravenous by the way, nothing in your spine, nothing in your brain. You can use stem cells and remarkable treatments. This doctor has treated better than 80 people with quadriplegia, paraplegia, amazing results, mind-boggling results. We're treating people with paraplegia, quadriplegia down there now. We have people down there as we speak. Cerebral palsy, I think you've seen some little videos, we can show you.

Now, why do I bring this up with anti-aging? Because we will take people like this and treat them several times and literally get people out of their wheelchairs. I just treated a doctor in Chicago with a thing called transverse myelitis. For 40 years, he's had half of his body, has had spasticity and whatnot. Something had happened when he was a teenager, and he went down, and he's doing better.

We have adapted this treatment for anti-aging, and we're just in the process of implementing it not just for people with serious problems, but for people who want to, I hate to use the word, but rejuvenate their heart or their brain. We can have them come down, do the apheresis without taking their own stem cells first. You take these lymphocytes out, treat them for a few days, inject them back, and then we can use placental stem cells or umbilical cord stem cells and then activate them with these lymphocytes and then inject them back.

In a week, we can not only inject stem cells, but using these lymphocytes will allow the stem cells to help heal and treat compromised central nervous system cells in the brain, like little mini-strokes that just injecting stem cells by itself won't do. We call it the salamander protocol. After salamanders, which as people perhaps know can re-grow legs. We're just implementing it. It's usable in the nervous system. It's also usable for the heart.

Jane: We've talked about the brain and how the lymphocytes can go and actually help regenerate some parts of the brain.

Dr. Chadwick: Can do the same thing with the heart. There is evidence that we've seen where scarring in the heart diminishes, it goes away and can regenerate new myocardial cells. The same thing is now being done in joints. The Holy Grail has been thought to be growing new cartilage, which hasn't been done elsewhere, but is being done now. We're treating patients. It's done in the clinical trial here, but it's being done now.

We're treating our first patients in a couple of weeks doing that. In addition to growing new cartilage-- What people get with anti-aging, they get cognitive issues sometimes, they can get heart issues, and they get joint issues and people get arthritis, and aches and pains. Just injecting stem cells is pretty good at getting rid of aches and pains in most people, but in people with serious arthritis, they get so scarred and so stiff that it doesn't work as well. With stem cells and lymphocytes, we're able to get rid of some of the scarring.

It turns out it's more complicated to treat a joint than it is the brain or the heart because there's multiple types of tissues. There's cartilage, there's synovium, there's ligament, there's tendon, but it's the same technology and some joints, we had no success. We have good success with stem cells, even bone-on-bone knees and shoulders, but bone-on-bone hips, we hadn't and they got very stiff and it just didn't work. I stopped doing it, but with this technology, by getting rid of scar tissue and allowing greater mobility, we are able to treat them as well.

Jane: You must be so excited to have been practicing long enough to see this happen and to be able to help people in a way that you weren't trained to do this back when you went to Harvard and Hopkins.

Dr. Chadwick: You're right. Interestingly, when I was at Hopkins between my freshman and sophomore years there at med school, I did research on MS actually. I wanted to be a neurologist before I wanted to be an orthopedic surgeon. I wound up going to orthopedics, but honestly, one of the things I liked about orthopedics, so you can do surgery and help people. I developed some techniques about the ACL and such and wrote this textbook about it and whatnot, but the main thing I think is to get people better. In orthopedics, especially back then, this is the 80s, there was a lot of interest in non-operative techniques.

The field has gotten to be less non-operative, more surgical, but I was old school, always thought surgery should be a last resort. I started doing PRP, platelet-rich plasma injection, after reading about the late Kobe Bryant who had it done, started doing that. We had good success. I thought, "Wow, this is great." Most of the things that we see don't get helped by doing surgery. Some do, but most don't. This is a great tool to help people. This is 2010 we started doing that.

Then I was actually solicited by a doctor who was doing stem cell work. He wanted me to join him and got involved with that. It's similar technology and getting people without surgery. There are some things that you need surgery for, but most things you don't. We just didn't have other tools. It's a fantastic tool. I started off doing just osteoarthritis and then expanded to inflammatory arthritis, like rheumatoid arthritis. Then, I told the very bright people working for my foundation, I said, "Let's look up every paper out there on stem cells and see where it works and where it doesn't."

This took us far afield. We found out there was some evidence that it helped autism. We started a clinical trial with autism. We've done eight people with autism. All of them got better. One of them didn't get better for very long, but the others have gotten better and stayed better, and it's very simple, and it's something that you can't treat other ways. We're doing EEGs on people. We enlist other people in these areas to work with us. You're right. I wasn't trained to treat autism, but mostly what we do is we treat people, we enlist other appropriate specialists, we follow them up, so we know how they're doing. That's really the main thing is follow up and collecting data.

Obviously, I do a lot of orthopedic things, but for example, back issues. I'm not a spine surgeon. I was a knee and shoulder specialist, but we treated a few people with back pain and had just amazing results and people with horrible backs. We published one such paper. The person who had 13 years of back pain, and he had neck problems too, and he had an artificial disc put in his neck, and he had weakness of his arm, but weakness got better.

He had some residual neck and arm pain, but he had back pain and had pain pills by his bedside every night for 13 years. He was our first patient that we treated in Antigua. I hypothesized that if you just stick the stem cells into the epidural space, they will hone to

where the damage is, and you won't have to be very invasive. That's what we did. We rejected his facet joints and five days later, he called and said, this is amazing. My pain is mostly gone. After 13 years, I can sleep.

Interestingly, we were treating his low back. His neck pain was gone too and the pain in his arm, the residual pain, and we didn't expect this because we just put the cells in his lumbar spine. What happened was these stem cells, if they were in that space, they home to inflame tissue all the way up to his neck. Now, we have people with neck problems. We do a lumbar epidural injection, which is very safe and very easy. I have a terrific pain doctor who does this for us. Anyway, so we've done 40 plus people now with back problems.

One person who had a fine fusion got infected. They took out the hardware, it was still infected. They operated again, got the infection cleared up but he had chronic pain for years and we treated him, injected his disc and he got a little better after one month, little better after two months, a little better after three months. By six months, pain's essentially gone and he's maybe a year now, has no pain. The back thing has been remarkable in an area where it's tough to treat. Back surgery can help some people but there's a high complication rate, bad complications often so we do a lot of that. We do arthritic joint. We do autoimmune diseases.

[00:20:38] Jane: Autoimmune diseases. Tell me about that.

[00:20:41] Dr. Chadwick: This doctor had developed, because he's a little older, because I'm 69 and he's 70. He got involved doing this work when it was legal every place and developed a vaccine for MS in the '90s and treated people. Now, I'll explain it to you. He figured out how to do it and had people would go away completely and he has one lady who's 22 years later and once it gets gone, it seems to not come back and works well over 80% of the people.

[00:21:08] Jane: What a blessing.

[00:21:09] Dr. Chadwick: Let me explain this. What happens in MS for example, there are T-cells and the T-cells go rogue and they attack the patient. They shouldn't but they do and so they attack cells called oligodendrocytes that make myelin, which makes the coating on nerves like insulation on a wire. The myelin dies, the nerves don't conduct as well, and people have MS and they have weakness and other issues. You can treat people with simple stem cell infusion, which I was doing and it suppresses the immune system, like cortisone but without the side effects and that can be useful, but it doesn't always work and even when it does work, it comes back.

He would do apheresis as I described before, take lymphocytes out and then challenge them with antigens for neural tissue to activate them and then kill them. radiate them and

kill them and inject them back a week later. The spleen sees them, the spleen cells, the thymus that these are invaders, this is a classic vaccine like the soft vaccine for polio or other disorders. It induces the body to reign in these rogue cells so your thymus, the T for thymus, T for T-cell, your thymus makes a set of what are called T regulatory cells.

These regulatory cells reign in the cells that are attacking you and they don't, and the disease goes away so how many doses of vaccines? He did four or five, but then it came back. He found if he did 10 to 12 doses, it didn't come back so he's been treating people like this. I actually had a patient who I treated the way most people with stem cell treat, just giving it IV and I had some success, but this patient didn't got better for two weeks and it came back and I was bummed, it's expensive and didn't work.

I talked to him, and I said, "Do you think you can help?" He said, "Yes," and so we treated her. She's being treated as we speak and is doing really well so that's that. Now, this can be adapted to other diseases and is being done. We have a patient with a disease called polymyalgia rheumatica. It works well with scleroderma. We have a scleroderma patient with lung lesions that have gone away. I want to say we try to be evidence-based. These MS patients get MRIs later and you can see the lesions go away, so it's more than just subjective.

There's objective evidence. We got a CAT scan of a scleroderma patient and other autoimmune diseases and treating a patient now with ulcerative colitis, so this technology is being expanded. It has no downside. It has no side effects. It's just injected IV. It's a very different paradigm because we're used to use drugs and how often can you use it and their side effects and these are stem cells. This is what have been adapted by nature through millions of years of evolution. They can't be unsafe, or we'd all be extinct.

There have been adverse events with stem cells, and we've made it a point to study them and seek them out all over the world. We've read every paper that exists on this stuff and the only serious adverse events we've found, when I say serious, I mean, something beyond low-grade fever for a day or two or a headache or something like that have either been with bad cells or doctors who maybe weren't experienced doing it which can occur with medicines too but properly done using cells from a reputable source, it is extraordinarily safe.

[00:24:12] Jane: That though begs the question, how can someone tell they're in the right practice if they go offshore? There are some people like you who I'm very confident have the skills and ethically able to handle this responsibility. Some others aren't. There are some shysters in the business so how do you know if you want to get stem cells that you're going to someone you can trust?

[00:24:32] Dr. Chadwick: Yes, and you know, it's a supply and demand thing because people know about stem cells and the promise of stem cells and they seek out stem cells,

doctors want to provide stem cells and we think we do good work. We're not the only ones doing good work but it's maybe tempting to embellish a little, so I call our institute the Prodromos Stem Cell Institute to put my name front and center. I did that because what's really on the line is my credibility and so I want people to research me, this other doctor as well.

There are some other places that are doing good work offshore and I wanted to do my own work. I've got one of the best pain doctors in the world who injects spines so we're in places where we can do our own work. There are some other places where it's hard to know who's treating and that's not to say that they're not doing good work, but I think the thing to do is people should just do their research and we are very transparent. We don't embellish our results.

For example, we get asked about ALS all the time and it just doesn't help us. We get patients who have been treated, spend a lot of money and it didn't help and so we just don't do it. Alzheimer's, same way. Maybe someday but not right now. We tell people real data that exists from our practice and also from the literature looking at data, so I think you just have to do research, talk to people, make yourself comfortable. That's pretty much it.

[00:26:02] Jane: When you say it doesn't work for Alzheimer's, but it does work to help with brain fog, it helps to rejuvenate the brain, so your brain presents as younger, but not if you're in full-blown Alzheimer's. Is that what you're saying?

[00:26:16] Dr. Chadwick: That's right. The brain fog can be like cortical atrophy and just like your joints can function better, we get some people who put on muscle mass, it can help you feel better and then when we use lymphocytes, if we have people that have areas of low blood circulation or little mini strokes, and then there are other things besides so that's why people who have more than just minor problems, will get brain MRIs to see and look for pathology so we can do that. Alzheimer's is a specific dementia where this cal protein is laid down. Just as you said, it doesn't affect and if it's full-blown Alzheimer's, we don't treat.

[00:26:53] Jane: For other things that you do treat with stem cells, with PRP, when I've tried that before, I find I have to keep doing it again and again. It just doesn't hold. Do stem cells hold?

[00:27:04] Dr. Chadwick: Yes, that's longer for sure. Now, you see the thing with doing long-term studies-- We do PRP studies, you've got a database of 5,000 people. I had a paper that presented a big meeting, International Cartilage Repair Society in Berlin and 568 knees, three to seven-year follow up. These studies are really hard to do, and they take a long time. We've got them for PRP. It'll take us a long time to do them with stem cells.

We haven't been doing them nearly as long and so we don't know, but I will tell you what we have seen is that when it works, it seems to last at least a couple of years, probably longer but we don't know, even with the back, we've had spectacular results and it's safe. Our longest patients it's maybe 18 months, so I don't know how long it's going to last, and we tell people we just don't know. It lasts longer than PRP and for more severe problems but exactly how long, we don't know. I will tell you though, particularly for orthopedic problems.

See there are a lot of misconceptions about this in that people think, well unless you regrow cartilage, and now we have the capacity to do that but unless you do that, it's not going to help but actually the reason that joints hurt isn't a lack of cartilage. There are lots of people running around with absolute bone-on-bone knees with no pain and we orthopedic surgeons know this.

Hardly anybody else knows this so what happens is that people get a secondary inflammatory response to this bone-on-bone knee, and so what the stem cells do is they recalibrate your immune system a little bit where this is concerned, and we don't understand the mechanisms and detail actually. We get people where the cartilage isn't regrowing, and they get a lot better. It isn't like taking a pain pill. There's no inherent reason why it would need to get bad again. Maybe it will but it doesn't have to.

[00:28:47] Jane: Did I hear you say that you were on the verge of regrowing cartilage with stem cells?

[00:28:52] Dr. Chadwick: Right, so this other doctor I mentioned has done it. He's demonstrated it.

[00:28:56] Jane: Whoa. That's new.

[00:28:58] Dr. Chadwick: It is new, and people ask me all the time when we're doing stem cells, just injecting, or even PRP, they say, "Well, you're regrowing new cartilage, right?" And I say, "No, we're not. We're modifying your immune system. We're getting rid of the inflammation, we're helping the tissue that's there get healthier." At least I think we are but we're not regrowing the cartilage. There are people that say that they are, maybe embellish a little, but nobody has three to four, but this is and it's a little more involved because you have to do this thing with lymphocytes and probably do it a couple of times and it's a little more expensive, so we don't do it routinely.

Even PRP, I get people asking me about stem cells. We get people calling and saying, "Can you use stem cells for my bad knee?" And if it's just a bad knee, I say, "Yes. I can do PRP and it costs 10% as much and we get good success." We try to spend as little of our patients' money as possible and be as little invasive as we can but as I mentioned for bad hips, bad hips we just haven't been able to help and I tried in a few cases it just didn't

work. We're using this technique, would not only regrow new cartilage but gets rid of some of the scarring so the joint moves better and you can get maybe more space between the bones.

We're doing that with hips. We're doing it in some people with terrible joints, including a first-degree relative of mine who's on a plane as we speak, who's going to be rejuvenating his heart. Some brain fog issues and terrible joints. We can do all of this, by the way. It takes a couple of weeks but we can do all of it simultaneously.

[00:30:26] Jane: Let's talk about costs because I think a lot of the listeners will be saying, how much would this set me back? Approximately? What are we talking about?

[00:30:33] Dr. Chadwick: For anti-aging, a hundred million stem cells or so. IV which is pretty quick and easy going when you come back, it's about $18,000. Then if we do more than that or get other doctors involved, it goes up some from there.

[00:30:47] Jane: As we have this technology around for longer, that price is going to come down, isn't it?

[00:30:53] Dr. Chadwick: I hate that it costs what it does but we're in a situation where we pay our bills. Will it come down? There are two issues. One the costs coming down, two insurance reimbursement, and even VRP which is legal and ethical. We do, lots of people do it. It's still not insurance reimbursement. I don't know if it's going to be, so if we could do this in the states, we could do it for much cheaper as a separate issue.

It still gets to be expensive though just because the technology to grow the cells is for example, take MS. There are people spending 50 or insurance companies paying $50,000 a year for drugs for people with bad MS. We'd like the cost to come down and if we're allowed to do it here, it will come down. It won't come down to nothing but in the total scheme of what's spent on healthcare, and for what it can do helping autism patients. What are you going to do for autism?

[00:31:50] Jane: It's a tough one.

[00:31:51] Dr. Chadwick: Lots of money spent on therapy and counseling. It's great and great people doing great work, but there's very little else that actually affects the underlying disorder, so it'll be cheaper. I don't think it's ever going to be free because cellular technology's inherently expensive. For sure, it'll be cheaper if it's ever able to be done freely here.

[00:32:08] Jane: As we wrap this up, look to the future. You're already talking about all these new things you're doing, but where are you going to be in a couple years from now? What's going to be happening with stem cells? Dream big.

[00:32:20] Dr. Chadwick: Well, no for sure. There are some disorders like Alzheimer's, ALS, terrible diseases and I'd like to think that hopefully, we'll be able to make some inroads there. Every patient that we see is part of a study and we collect data, and we pester our patients. We call them periodically and ask them how they're doing to no gain for us.

I just pay for this so it's expensive but anyway, as we get more data like that, we're able to better refine where it works and where it doesn't.

I think that if you take autoimmune disorders, if you take degenerative disorders, it's doing what we're doing more efficiently, and you never know what the future will hold. To tell you the truth, our biggest struggle is spreading the word about what it can do now because the medical establishment in the US doesn't necessarily understand a lot about this and what's legitimate and what isn't.

Our dreaming big as Tony Robbins wrote a **[unintelligible 00:33:15]** about me in his book *Life Force* and said that the public health implications of being able to treat arthritis without surgery, not all arthritis but a lot of it or MS or other things is crazy, anyway. Maybe some things are genetic disorder. We would just like to see the technology get better known. I think our immediate short-term goals are just to get the word out when people call, and we don't charge to talk to them and just to explain information.

[00:33:41] Jane: Dr. Prodromos, thank you. I've loved this interview. Thank you for your time. It has been just a pleasure learning about this and talking with you. You have a great evening, okay?

[00:33:53] Dr. Chadwick: Thanks, you, too. Bye-bye.

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