Leucovorin for Cerebral Folate Deficiency and Synapsin for Growing the Brain: A Compounding Pharmacist's Perspective Transcript

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Podcast Introduction and Guest Welcome

Your genes hold the answers to your family's overall health. I'm Dr. Paula Kruppstadt and on the Get to the Root with Hope for Healing podcast, I sit down with experts in genetics, functional medicine, and family care to explore what's really going on beneath the surface so you can stop guessing and start healing.

From personalized insights to practical tools, we bring you whole family wellness that starts at the root. Welcome to the Get to The Root podcast, and on today's podcast I'm grateful to have Van Tran.

She's the owner and operator of Roebirds Pharmacy, which is a regular insurance-based pharmacy and a compounding pharmacy in the Conroe, Texas area. Welcome, Van.

Thank you, Dr. Kay, for inviting me to podcast. So I wanted to be able to educate our audience a little bit about what a compounding pharmacy is. And also too, I think that your credentials are outstanding and they really serve our patient population well.

First of all, not only are you a PharmD, and could you just let the listeners understand what that is apart from just a regular pharmacist? Sure. So Pharm D stands for doctor of pharmacy.

So a while back, pharmacy school, before they implement the degree of doctor of pharmacy, they have registered pharmacists. So that's shortened as RPH.

RPh and PharmD go through the same pre-pharmacy courses, and they go to the rigorous pharmacy-school program.

What a PharmD and Compounding Pharmacy Do

However, registered pharmacy stops at three years of pharmacist school. Pharmd goes through that extra one year of clinical rotations when we do a lot of the clinical setting.

where we are an integral part of a patient health team to help come up with treatment plans for the patient. So I feel that that one-year clinical setting really helped me in this setting as a compounding pharmacist today.

Okay, great. Another question I had for you is, can you let everyone know what a Compounding Pharmacy is? So compounding pharmacists, you know, we're going to compound pharmacy and we do customize medications for an individual patient that manufacture our commercial products drugs do not meet their needs.

For example, if a patient wants a cleaner product, We can compound the capsule form like oral capsule, form and make it dye-free, gluten- free, preservative free.

And then if the child needs a liquid, we can make it sugar free, diet free. We can flavor it according to what flavor they like. And an obviously preservative free dairy free not free all of that to make into a cleanup product.

Um, or if there's not a commercial product available in a certain strength, compound it into needing whatever the strength that they need or the dosage that you need.

and also compounding pharmacists, what we do is medication review. We work with the team to come up with a treatment plan for the patient. And we do it to collaborate, we collaborate with providers to kind of work the

treatment plans.

So compounding pharmacists do collaborate a lot with provider and the patients as a triad relationship. I love it. very grateful for pharmacists because there have been times in my career where I have recommended something and the pharmacist would give me a call back and say, oh, by the way, this patient is on this medication and that interacts with this medicine.

And so that accountability and like you said, collaboration is very, very helpful. So in the last year, The other thing I think that is so unique about you is that you are certified through the American Academy of Anti-Aging Medicine and also through The Institute for Functional Medicine, and those additional certifications give you the framework from a functional medicine standpoint on working with patients to just understand the processes and the reasoning behind why functional providers do things a certain way.

So I'm exceedingly grateful for that on a daily basis when we work together. All right. Thank you. Yeah. So I wanted to take a little bit of time. There's been a lot in the news over the last year about leucovorin, and leucovorin's has been around for a really long time, so if you were explaining to someone who knew nothing about lucovorine, what would you tell them?

Sure. So leucavorine is known as folic acid. It is a bioactive form of folate. You know, not like the ordinary folic acid, it bypassed many conversion steps to give that folate for the body to use.

So if I'm explaining it to a mom or a parent regarding folates, I just say your child's brain is fueled by fola. And so if there is a deficient in foli, they may not be able to do the regular central nervous system communication like, you know a regular child.

Oh, sorry, my headset keep falling off. And so the Foley, what it does, it builds neurotransmitters in a support myelination in the central nervous system.

Leucovorin, Folate, and Cerebral Folate Deficiency

So, and LucaBorne is FDA approved for a condition called cerebral Fole deficiency, ACFD. And what is does is in theory, autistic kids tend to have issue with not having enough Folee in their brain.

where CFD, you don't have enough Foley in the brain, but you have normal blood Foly. So that's the condition that leukoboron is FDA approved to be dispensed for.

Now there's also another condition, that is called a threat. Fole receptor alpha auto-antibodies. And so you go through that test and if the patient tests positive, That means leukovorons can be very beneficial for them.

because there are antibodies at the folate receptor in the brain that will not allow, you know, the full late to be utilized in brain. So the patient is test positive.

There's a lot of clinical studies that, and also randomized trials that say leukoform is gonna be very, very substantially beneficial for these patients.

I kind of, give them an idea of what that does. And you see great improvements in attention, cognition after, and then also language and also behavioral responsiveness.

In, in clinical setting, I talk a lot of parents that after they start taking the leukoborne, either liquid or capsule, just within a week, they can see a great difference.

I presented to you a taste of a mom that texts me and she said a van, oh my God, on Mother's Day, my child came to me. And start speaking and he was nonverbal previously.

And I was so amazed and she said it's because she got on our local warrant that she noticed a great difference.

And the father was just amazed as well.

The father said, this should be a father's day gift for me as. Well, uh, but he started to express himself, um, you know, to them that he wants this and that.

and then hopefully in the next few months, I can hopefully, You know to hear from you, they're going to visit you again in a few and hopefully there's going be more and more improvements from that Yes.

What's so remarkable specifically about this particular little patient is that he had been prescribed Leucovorin from a regular pharmacy. And I believe that they were taking a tablet and crushing it and mixing it with water and they did not receive any of the benefits.

When they started using the Leukovorin that you made into the liquid for this child, it was absolutely 180 degrees from the way he had been behaving. And observing this kiddo in the exam room, it was as if he just couldn't speak.

He was blocked, but he was listening and comprehending what we were doing. But he could not get those words out. So now what does the acronym PCCA stand for?

The Stanford Professional Center, Compound America. And so they are based in Wilcrest in Texas, Wilquest Drive in, Texas. We're very fortunate to have them in our background, our home here.

They've been around for a long time and they're a company that does, you know, API active pharmaceutical ingredients. and, they also created their own bases.

they've, been, around, for, a, long, time as consulting. consultants for compounding pharmacists. And they were in the first wholesaler around when compound field actually started.

Yes. The ingredients are extremely pure and that has been so very, very helpful. Okay. So Leukivorin, basically vitamin B9, a bioavailable form, folinic acid.

And it's very interesting what you were talking about the frat testing where you can have binding proteins or blocking antibodies to those folate receptors in the central nervous system.

There's a difference between using something called 5-methyltetrahydrofolate versus folinic acid. And if a body is still very, very inflamed, If you try using five-methyl tetrahydrofolate, you'll see a lot of anxiety.

So that's where you hear people say, well, I can't handle methylation. I'm over methylated. And what my clue is, is there's still a fire in this body and we have to dampen it.

The advantage of the Luke of Warren is it doesn't do what 5-methyltetrahydrofolate does. If the body's inflamed, you don't get that kind of a response.

So just a little dabble, do ya? And then, slowly increasing it to see how someone does, so thank you for making those clean alternatives. And you can make liquid, like you said, a capsule.

What about a chewable tablet also? So there's no studies on a chewable tablet yet. And then also as well as trochee, you don't want to expose the gorgon to heat.

So PCCA has tried to done a formulation where it's a chewable and it involves like a troche you put in the mouth to dissolve in a buccal mucosa. They said that the potency that came out is not as great, so they decided not to put it in that formulation.

Now, going back to that mom that you mentioned about getting the tablet and they crush it. and make it into a liquid form, I see two problems with that.

Number one is the tablet does have lactose gluten, and some generic company may have dyes in it. So I don't recommend taking the tablets and making it to the liquid for the kids, like the Luca Warren compound.

Also, some places may use a water soluble formulation to make the Luka Warren into the Liquid. And I do not recommend that either, because Lika Warren is deactivated in water after about seven to 10 days and a lot of these patients are on it for at least 30 days for the prescription and so it may not work as well.

So what we do is we use an anhydrous suspended phase from PCCA. They just recently made it I think within a year or so and we used it to make leukoborne and you can make the dating all the way to three months because there's no water substance in there.

So the leukogen is very stable in that anhydrous suspended base. There's a difference in the formulation when the kids use it. Yeah. Well, I just learned from you about the longevity of this anhydrous base, so that's an excellent tool in our arsenal to have.

Why Clean Liquid Formulations Matter

All right. And also, one more thing, the an hydro suspended is preservative free and it's sugar free. I think the sweetener they use is monk fruit and then they also free of dairy nuts and all that stuff.

I've looked it up just to make sure it is good for our patients. Yeah. Yeah, so the big deal about gluten and dairy is both gluten in dairy make gluten or gliadin makes gliadorphin, casein which is in diary makes casomorphin and those are short-chain opioids and indirectly through a series of steps not only do they bind to opioid receptors and that's addictive that and the food industry knows it but also they bind to the cerebral folate receptors and block the ability of the benign to bind those cerebral foley receptors.

And you know, we check blood for this and you'll see one of two things, you will see greater than 20 a folate in the bloodstream, but the patient is not on any folates in any form whatsoever.

And it just means that it can't get into the cell. It's in blood. Or we'll see it incredibly low, like two or three. And that means they're so globally defeated of folate, no wonder they feel so poorly.

So we try to give the leucovorin or these forms of vitamin B9 twice a day so that there's a consistent production of dopamine. And dopamine is just this beautiful balancing neurotransmitter between the excitatory neurotranmitters and the calming neurotrasmiters, but also it just drives so many processes in the body.

And specifically, as you said, when we place a child on leukoborin, many times we'll see improvement in language. improvement in presence, a decrease in their stimming and repetitive behaviors because you're giving them the folate to make the dopamine and they don't have to do things to create that dopamine fix.

So I just love it. I feel bad what, you know, When people say, can't this just go to a regular pharmacy? And I use all the same arguments to just say no, it's not clean.

You're not going to get the effect that you would be getting unless you have this beautiful, clean formulation to fuel the brain and the body. All right.

Well, another thing I wanted to bring up. Now you're here in Texas, and so Van can provide through RoeBirds Pharmacy throughout the state of Texas. Or if the patient flies in and if they're still in town, we'll have them go up to Roebird's to get their products before they leave the State.

And so she takes care of everyone that's here, in texas. Another compounded formula that we find incredibly helpful is synapsin. And I'm just going to pause because everything we do here at Hope for Healing is traditionally based on what the patient's unique genetic footprint is.

So we use something called the Hope for Healing Wellness Blueprint. It's a proprietary genetic panel that Fagwan

Genomics has allowed us to make, and everyone's genetics are unique.

If you have two or three children from the same set of parents, it's kind of the luck of a draw. You know, you've got four different choices from each parent, so you can have a lot of variability among siblings.

So, SYN1 is a genetic marker that codes for some enzymes that help with the ability to create new synapses within the brain and also with what we call synaptogenesis, brain growth.

And also, there's these cells in the brains called microglia. And it helps them kind of, they're like little Pac-Men and they help clean up the brain.

So there's a patented ingredient within it, but can you kind go over what's within synapsin? And I'd also love it if you teach our listening audience from the perspective of you as a pharmacist explaining what synapse does.

So it's a great product. Synapsin actually was discovered back in the 1970s at Yale University.

Synapsin for Brain Support and Cognition

It was first found there, not until years later, a compounding pharmacist called Jim LaValle, he patented synapsine and it contains a few ingredients in there including RG3, which is ginseng, it is derived from Panax genseng.

So, a neuroprotective and anti-inflammatory effect in laboratory. And so they use that to hopefully help with the brain function and the synapses. Then the second ingredient is nicotinamide riboside.

So that is an NAD plus precursor, and it is a B3 derivative. NAB plus is the oxidized form of NED. What it does is it helps with cellular energy production.

Not only that, it supports DNA repair. And it also help with mitochondrial dysfunction. It helps with the neuroplasticity, which means that it's the brain's ability to form and strengthen connection of the neurons.

So it is not so much of a brain grow larger or we form new region of brain, but all it does is it helps to protect, you know, decrease down the neural inflammation and support the function.

Helps with my mitochondria and the energy. Also, compounding pharmacists put B12 in it, and we like to ask the provider to write it the synapsin with methylated or hydroxylated B-12 because the FDA considers synapse as an inactive drug.

So they won't let the providers prescribe it alone, so we have to add it with B 12. But it's good because B2 helps with methylation and also with nerve function.

We usually ask a provider prescribe a 0.5 to a one milligram per ml with the synapsin five or 10% and make it as a nasal spray or an oral suspension. But we love it.

I mean, it protects the brain. It helps with cognition, also in adults to help with memory. You see kids having better attention and energy in general.

So synapse is a good product. One of the best ones that we compound for autistic kids. Yes, I think initially when Dr. Lavalle, Jim Lavall, or I don't know if it's Laval or Lavally, when he patented that, it was used for traumatic brain injury and concussions, and not that deficiency of SYN1, but it is just absolutely phenomenal.

So as you said, neuroprotective. neuroinflammation and helps the mitochondria, which are the batteries of the powerhouses of cells, make ATP or energy.

So what I've seen directly is what parents tell me is that their children are able to engage in critical thinking when they've received synapsin. And so, for example, a young man brought out, he was autistic, and he brought a

toothbrush and a tube of toothpaste.

And he got his mom's attention and said, Mom, I want you to go to the store and get more of this, so that I can do this. Brush his teeth. and the connections.

She hadn't seen that. So those little victories are fun things to share. I've also just seen more spontaneous language, more vocabulary. Much of the time when we think about people that have neurodevelopmental challenges.

It's as if they're in there and they need to be unlocked. And I just see Synapsin and Leukovorin as just amazing, great tools to do that. I appreciate your explanation as a compounding pharmacist.

The other thing I thought that we could talk about, just very briefly, is amantadine. You know, amatadene is a plant-derived drug that I think came to market back in the 1960s, and initially it was for influenza A.

And I'm just going to let you talk about how you see a mantodine used, and then we can talk a little bit about some other ways that we like to see it used or just as another tool in the toolbox to help with focus and concentration and calmness.

So I'd love to hear what you have to say about a Mantodin band. Sure. I'd like to thank Fagran Genomics for sponsoring our podcast. Without knowing what your precision genetics are, you don't have a roadmap.

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Salmanteine, like you say, it was actually developed at first for as an antiviral, and then it's also being used for Parkinson's disease as well as drug-induced movement disorders, but it is off-label use for autism.

Now, a lot of clinicians use that for impulsivity for patients, you know, in kids that have a hyperactivity, impulsivity. What it does is it increases the dopamine activity in the brain.

It works on the neurotransmitters as well. And besides that, it doesn't glutamate signaling via the NMDA receptor antagonists. So it has several mechanism of actions, but it's often used in autism.

There's not a lot of clinical studies, But there was a big one back in 2001, I believe, that they did it for autistic kids and they see improvement in speech and decreasing in hyperactivity in these patients.

So a lot of clinician functional medicine practitioners out there use amantadine as an add on for kids, especially if they have a of impulsive, you know, acts as well as behavioral aggressiveness and things like that.

And it does help, calm them down. Yep. Yeah. Now, one thing that one, thing you might want to also look at is it does really excrete it and metabolize 80 to 90%. Um, so we need to make sure that we titrate the dose up.

Amantadine for Focus and Behavioral Support

We also looked at the renal function before putting the patients on a mantidine and also do a titration schedule to slowly increase based on their sleep pattern, their, you know, cognition over time and their behavior.

Yeah, that explanation is very good. I think that our colleagues in the mental health world, I thing a lot of psychiatrists use this as another tool in their arsenal too, but if we find on our genetic panel that a child or an adult has something called GAD1, glutamic acid decarboxylase 1. It's like you said, there's that receptor called the MDA receptor, and there are excitatory neurotransmitters and calming neurotranmiters, And glutamate is one of those excititory neurotransmitter.

And it spikes through the roof when you have head injuries, traumatic brain injuries concussions, things like that.

And a lot of times in the functional medicine world, you'll hear people for a leaky gut, they'll just say, use L-glutamine.

Well, a lotta times that will make people incredibly anxious. And it's a tool, but for people who have GAD-1, you don't want to give it to them. Same with their maybe an amino acid supplement.

If it has a lot of L-glutamine, it will make them crazy. But what I hear, and we do a lots of titration, is we start at a low dose, And we have parents give about 25 milligrams twice a day.

and then do that for three days, and go up to 50 milligrams twice a day, do it for 3 days and keep going up. Typically, the max that we use is about 100 milligrams, twice per day.

But I've heard people say, this includes individuals who are neurotypical, but they struggle with inattentiveness. Even my children told me, She was doing dual credit for high school and college.

And she said, mom, when I take a hundred milligrams, I feel like a zombie. But when i take 50 milligrams I can focus, i can concentrate, i can get all my work done.

I felt great. I can wrap it up. So it's just like you said there's that, that sweet spot and. hormesis is a word that we use. It's like the Goldilocks effect.

We don't want too little, we don' want to much, We want it to be just right. And I think with a lot of our medications or compounded things, that's something that We see.

So I have heard literally within a day of a child going on a mantidine, they've given it To their kiddo in the morning before they go to ABA therapy. that's Applied Behavioral Analysis for Autism.

And the therapist said, so-and-so had a great day today. They were much more attentive, they were a little more focused, and the parents are like, oh my gosh, this stuff is like a miracle.

So the right amount, yeah, the amount the time. So just as an aside, so you mentioned a troche. Can you explain to people what a Troche is? A Troke is an oral dosage form that you put in the mouth that dissolve the medication slowly dissolve over about 10-15 minutes and you cut it between your cheek and your gum.

It dissolves the medication through the buccal mucosa, and then it gets into the bloodstream. And we do that a lot for hormones in general, but you know, we can compound any medication.

Obviously we have to look into formulation and stuff to make sure it is stable into an oral dosage form for them to do. It's not so much chewable, it dissolved over time.

And as far as like topical creams and things like that, you have a lipodermal base. Now, what is a lipo dermal based? What does that mean? So PCCA cream, that's one of the bases that they developed a while back.

It's called Lipoderma and you apply it into the skin and it gets under the scan goes into, the bloodstream. And we use that a lot in pain, gel, compounding prescriptions.

And then anything that you want it to penetrate under skin, go to a bloodstream. We use that. Now there's other bases that we use for hormones that is tested, you know, by them and developed by then that it's specifically for.

So we just have to see what kind of drug that, we need to make, and then we're going to decide which base fits best, for that particular active ingredient.

Okay. So there's a hormone base. And then you all also have certain, we do this evaluation for people who are losing their hair. We call it our alopecia panel.

That's like a hair loss panel, and then, you're also able to formulate either like an oil base or a cleaning base or a conditioner type base where people can rub it into their scalp or they're losing their hair and they are not guessing instead of logging onto Nutrafol and saying I want this, I wanted that.

It's not like everything works for everyone, it's unique and so having those choices are pretty cool. I know I've called you many a time and said, what do I do about this?

What can I use here?

Troches, Topical Bases, and Pharmacy Collaboration

That kind of a thing. So I want to thank you, Van, just for the outstanding customer service that Roebirds Pharmacy offers to our patients, especially for families of children with autism and for some of our adults with the autism that are still, they're dependent upon the guardianship of their parents.

And also for providing just amazing, I don't want to overuse that word. I'll just say high quality transdermal hormone bases, hormone cream bases just consistently across the board.

And your customer service at the pharmacy is so refreshing to me. Many times I will call and it will ring once or twice, someone answers the phone. And I just really appreciate that.

I wish I could do that at our office. Instead, we have to go through the phone tree because there's not enough people to answer the phones. So I find that just very refreshing.

There's a lot of pharmacies out there because of the same volume that we do also, but You know, I had the choice of making it into a voice recording and they would just dial the options, but I'm like, no, the patient needs to get to us right away.

So I decided not to do that and just have a live body, just answer the phone. And that's one of the things that PCCA stands out also is that when we call, they pick up the call without going through those voice recordings like the other wholesalers.

One of things I want to add also regarding PCC, you asked earlier, We do work with a few wholesalers. Now all of those wholesailers are based in the U. S.

and we only selectively pick certain ingredients and bases that we use and use all bases from PCCA. But what I like about PCC or a similar wholesaler is that, we make sure that they go through their in-house third party testing before the powder gets to us.

And that's very important because the certificate analysis of these ingredients in bases are super important for us to look at to make They pass the potency that they say, they pass a microbial load, and then also certain testing for endotoxin, things like that.

Because if they don't do any of those testing, you don' know what you're putting inside your body or on your, yeah, for a long time being on these drugs.

And all these kids and adults that you are seeing, They do want cleaner products because they're pudding inside them. They want to detox. If you not reusing the right product, your putting more toxins in your.

So that's extremely important to us. you know, for our patients. And I appreciate you as well in your clinic because I see the challenges you're going through every day, you now, helping these autistic children as everybody's body is different.

So they're sensitive to different things. As you proposed one thing, You've got to customize it to the child. You got a tweaking, adjust it according to how they respond.

If you don't do it right, they may have side effects. Like you say that hormesis, That, that, you know, we talked about too much is not good. Too little is good, so everybody responds to different things.

So you just have to start somewhere and adjust it. And the patient just has to be patient, or the parents just to have be patients. Majority of the time we get lucky and the kids feel better right away, and sometimes they're not.

Use our pharmacy is the first, they can call us anytime to ask any questions. If we have any challenges whatsoever. will represent the problem to you, but we are here to advocate for you and the patients.

Yeah, well, we're exceedingly grateful on a daily basis. And also, as our team of medical providers at the office, the freedom to call and ask you or Mary or some of the other pharmacist questions, it's so very helpful because there are just these details and things that we just don't know or that we need you to look in your database to see if there's any interactions or other things.

I know patients ask me, can I use this? And I'm so grateful. And, I looked it up and I am like, no, you shouldn't because you're on this blood thinner in this particular supplement that you are reading about on social media thinking, oh yeah, should use it.

It's contraindicated and it could lead to spontaneous bleeding and problems and things in you own body. So, that's what you do for us as a pharmacist.

And so, all right, the chemistry lab or the symphony of our bodies. So well, Van, thanks again for helping answer some of these questions and for talking about leukovirin with me, synapsin, and amantadine.

and how these particular medications can so uniquely affect the body. And you know, before we go, I just find it so interesting. Many times I have people that come to me and say, well, it's a drug.

Don't you want to do things without a drugs? And I'm thinking, these are so safe in many ways. It's so much safer than, say an antibiotic, for example.

If you look at what an antibiotic does, yes, it'll kill the infection, but it can disrupt the entire gut microbiome and the longstream effect of that and trying to rebuild the gut micro biome.

So, you know, there's a time and a place for everything. And especially when we can drive our medication prescribing with precision. And so thank you for being a part of the team and so very, so, very important for educating and reiterating certain things because repetition is the key to learning and I'm so grateful for RoeBirds.

So thanks again, Van, for on today. Yes, ma'am. But thank so much for having me on. Right. Well, take care. Thank you. Thanks for joining us at Get to the Root with Hope for Healing.

If this episode helped you, follow and share it with someone who needs it and leave a review. It helps others find us too. For a free consultation, visit our website at gettotheroot.com with a number two and schedule a welcome call.

We'll see you soon.