Introduction and APOE4 discovery

All right. Hi, everyone. And welcome back to the Reverse Alzheimer's Summit. Great to have you here. And I'm here with Dr. Rammohan Rao. And Ram is a very interesting guy because he has an unusual combination of being an excellent scientist.

And as I'll get into in a moment, have made what I think is the most important discovery about APOE4, but also is an ayurvedic physician. So he's both knowledgeable on the on the ayurvedic treatment side as well as on the basic science neuroscience side.

So, Ram, thanks so much for joining me. Appreciate it. Thank you so much, Dale I am I'm very pleased to be here and I think it'll be a great discussion.

So people may be aware that recently a study out of Stanford came out showing that a specific mutation within APOE4 actually removed the increased risk.

So there's an increased risk of about three fold for one copy of APOE4 and about 10 to 12 fold. So dramatic increases for people with two copies. And as the group from Stanford said, it's never been clear what it is about APOE4 that actually gives you this increase.

And I think Ram's discovery really answers that. Question What Ram found is that APOE4 is not something that simply binds lipids. It actually enters the cell and surprisingly enters the nucleus and interacts with as Ram found and published a number of years ago, 1700 different gene promoters.

And what's very interesting about that, if you look at the groups of promoters, in fact, they tell the story of Alzheimer's disease, it's related to pro-inflammatory effects.

So really, you know, what's going to be anti-microbial would be the people who have APOE4 are better positioned to have a more brisk response which can hurt you in the long run, but is actually helpful so it could help them to survive.

Part of simians becoming hominids 5 to 7 million years ago was a pro-inflammatory response, and not only from APOE4 but from others. But APOE4 was the primordial one for us.

And so I think that the story really is very interesting and that has become more interesting as as was shown. There are multiple Argentines that have positive charges that seem to be involved in binding to the negatively charged DNA and carrying out this transcriptional, repressive effect that was discovered by Ram and his team.

So very, very, very telling and really gives you new insight. And now with the Stanford Group finding that a mutation in one of those arginines removes your risk, it really fits very, very well.

So we'll see where this goes. But I think it gives us some insight and also gives us some insight into what we can do ultimately to reduce the risk of people who are APOE4 positive.

So Ram, let's talk a little bit about in your ayurvedic practice. When you see people who are either at high risk for cognitive decline or just beginning to have some cognitive decline, what what is your typical evaluation and treatment for these people?

Yeah, you know, even though they say that Alzheimer's is a modern condition or a modern disease, actually, if you look at life, you look back at alternative medicine practices, especially I read up even though they say it is ancient or maybe psychosomatic.

Some years ago, medical science was established, but they didn't. Even though they don't call Alzheimer's disease perse. But there's an entire body of literature in the ayurvedic text that actually deals with nervous system and associated nervous disorders.

So for example, now there are diseases that have been mentioned in the literature, and ayurvedic literature the talk about migraine headaches, the number of convulsions, the type of paraplegia, hemiplegia, Parkinson's disease, why they, in fact, often diseases.

Ayurvedic view of dementia and diagnosis

We know that, you know, the first trigger descriptions was made in the age of the textbooks and then it was even description of TMJ, epilepsy, insomnia.

And, you know, these all these conditions were broadly categorized as Vata Vyadhi Vata Vyadhi is a condition where you have increased abundance of space and an element in this condition.

There was there is a condition called prana samana vata vyadhi I mean, this is a mouthful, but basically that description of this disease actually due is very similar to what we have in dementia in the sense. Yes.

Oh for example now in these references, what they talk about is when you have somebody with this disease, they see that there is a loss of intellect and thought process made up.

And that is loss of the part of discrimination or absorption they have. And there's a power, there's a loss of reasoning and discernment, and then there's a loss of memory recall sort of thing.

So these these are mentioned and the interesting Middle Ages looking into some of these text, I don't know. I don't know whether they had these are descriptions of them having imaging procedures are MRI resulting.

But it does say that in the brains of these patients, they say there is presence of phalakam phalakam in sanskrit actually means plaques. And then they talk about they talk about another condition, achadanam achadanam actually means bound and or tangled mass. Like some tangles And then they talk about this characteristic phenomenon is also associated with root that they go to actually means destruction of the information gathering channels.

So think about it. And that's synaptic dysfunction. Yeah, yeah. Get that. There's another term that they call what's kundalita that's actually been out it isn't what the explore they said circular or oval and that's the less like structure is present in the nose so so looks like they did have a condition similar to memory loss of dementia and they were trying to explain that in terms of the losses that accompanies these.

And of course, what they did was now thinking about with description about how to manage this. So now the question is how do you manage it? I mean, what did they have?

It's very interesting, Dale, because, you know, in the OMICS field we have several different ometer now. The latest one that we've that everyone's talking about is the Phenomics Phenomics is where you studied different traits of the individual.

Okay? And then you come up with the response, you come up with a big database. The database includes data that the individual response to lifestyle, diet, genes, environment and other influences.

Now the beauty about ayurveda is it was a Phenomics like science. They were collecting all this information about how these people respond to different kinds of diets, how they respond to different kinds of influences, whether they had a good amount of physical exercise, whether they had a good sleep patterns, whether did you know, whether they had mental exercises, how long, how long, how was that available?

So all these things put together, they got a huge let's say let's put it this way, a huge data, which then they

analyzed all that. They said, Now what are we doing for this person?

So it was a multi-sectoral approach back 5-10 years ago. Interesting. And did they actually do neuropathology then? Did they look at the brains directly?

You know, that's very interesting because I looking at some of the textbooks do and I didn't find them. I mean, there was an entire bad batch of surgery present.

Sushruta actually Sushruta or mentioned in the Sushruta Samhita about various aspects of going into a person's body and dealing with their day or night brain or where it is.

And they come out with various things. But I was puzzled. It did not come across in imaging studies. But here's the thing, Dale They've been so then they talked when they said about therapeutics, they said they approach it more like the genome based approach.

So they had what they call trivedi pariksha, trivedi pariksha is where you catch the person and then you observe the person for their traits and then you question them.

Okay. And then based on this, then what they did was they went further along and then they talked about eight different ways of examination. So they did pulse diagnosis and then they had urine assessment that had stool assessment, they had tongue assessment by the construct account as the thumbline, the thumbnail sketch of the entire body.

And then they took speech and voice assessments. They touch their skin to find out the skin assessment, they assess the eyes and then this is the entire body.

And then based on that and then after this that we talk about diet, their daily routine sleep, digestion, appetite, elimination, their five sensory responses speech sound touch sight taste and smell and then exercises and then of course, their brain, their mind, body emotions.

So it's sort of the spiritual aspects based on this deal got a huge amount of data and then they were able to, you know, put forward their recommendations.

Now, did they talk in the ayurvedic texts at all about improving cognitive decline? Yes. So the question is, once they had this data, so so there's the thing, Dale, they never delineated the mind, the emotions from the body.

They said if you have to treat a person even if it even if it's non dementia later but more so for any kind of neurodegeneration you have to treat at all levels, body, mind and emotions.

Okay. The respect with respect to the person's age, the person that does season, the climate and the overall environment. And then they brought up and they brought in the aspect of diet.

They brought in the aspects of their elimination patterns, physical exercise, keeping all the fights to all those elite mental exercises, sleep and developing positive responses.

So emotions. So based on this became part of it. So so if you notice here, Dale, this was Bob. I would say probably about 70 to 70% of their body hugs.

Even though we talk a lot about herbs and supplements and supplements, it's only like 15 to 20% of the entire Pitman modality. And and of course I'm not.

And the hope that they prescribed was very popular in our minds but it no one's to strengthen the functional activity of the nervous system and to restoring our memory.

And now we know based on evidence based studies, we know how these hubs act, why they act the way they act,

you know, their pharmacological activities that anti-inflammatory properties and amyloid thickening properties, anticholinergic properties, hypokalemia epidemic effects and ulcer defects.

A lot of these now we know from from the hope that they were giving for these patients. Yeah, that's one of the things that's so exciting. And it really shows that they are addressing the very things that are causing the decline.

Some are impacting the neurotransmitters and you are impacting the blood flow. You I think, you know, vascular status and blood flow and oxygenation and all these sorts of things. Very, very interesting.

So I want to go and I want to come back to the to the critical herbs and things like that, because there's been so much learned from the either Vedic physicians or those.

But I want to go for a moment to another interesting observation that they that they had shown years of thousands of years ago, as you said. So back in 2015, I published a paper saying, oh, if you look at people with Alzheimer's, will you see that there are these subtypes?

So there's an inflammatory subtype which is called type one. There's an atrophic subtype where they just don't have enough support, enough hormones, enough growth factors, enough nutrients.

Then there's a Glencoe toxic kind where you've got you got a little you got some inflammation and you've got some atrophic because you've got insulin resistance and protein glycation then there's a toxic form, a vascular form and a traumatic form.

Ayurvedic treatment principles and lifestyle

And so I thought, Wow, this is really cool. This is the first description of these subtypes of Alzheimer's. It's really going to help us. And then you pointed out to me, no, no, but 5000 years ago, the diabetic physicians had already subtypes of dementia, and they came up with somewhat similar findings to what was published, you know, just nine years ago.

Right. You talk a little bit about the subtypes that the Iyer Vedic physicians described. Yeah. So they they actually when I went back and looked into some of those older types, what what's interesting is they they said dementia comes from Ford.

So they had to be in that aspect of dementia and go for subtypes. Okay. They called it the first time they got into what I thought that subtype is very similar to a toxic cocktail in the sense that they say that it comes more predominantly with age and that's where you have more.

So basically what they say is this is a characteristic, the characteristic feature of these individuals is there's more of it in space. Now you can think about that.

So there's disruption of the neurons. So naturally there's more space being destroyed. And then they talk about, you know, the other aspect is degeneration.

And there should be no now that's in the erotic diet, you have the withdrawal of hormone. So there's a lot of interesting support in the John example.

And then that said, in addition, you have people coming in early in the mid-stage of life having dementia as well and they call it the inflammatory type and they associate that to more of a stress phenomenon because that's the time when people are involved with work.

That family, they have children, they are work. And so they are always under stress. And then they said this stress is accompanied by inflammation and they don't take care of that.

This inflammation will attack their brains and will cause later destruction, resulting in memory loss. And then they

describe the and that as the inflammation and dementia.

And by the way, all the information that they put in there is very similar to what we are seeing in the sense we talk in terms of getting up at 5:00, in terms of interleukins, they talk in terms of CRB.

They didn't see all those things, but they said prominently, there's heat. There is there is fever and there is then just the person's brain. You find that there's a lot of heat generated and this heat that shows up in the form of memory loss and then the third type, which is very interesting, again, they say that cathartic inflammation comes out of dementia.

And this this said associated that with increased obesity, people with obesity, people with type two diabetes, people with metabolic and hormonally on mono deficiency and all this point out to what, you know, you can talk about with that topic.

We can you know, in our case it would be like 1.5 and. On the. Right and then lastly, which is very interesting and you know, it makes sense because those are the days when countries like India and the Southeast Asian nations, they were mostly because they were tropical countries, they were, you know, inundated with all kinds of, you know, let's say toxins, not only toxins, but pathogens.

And so they said the fourth type of dementia comes from creamy. Creamy is actually parasites. And they talked about microscopic parasites not included as virus or think or as more not think about as fungi or bacteria.

And now we have an and that and that classification of dementia coming from parasitic infections. Yeah, very, very interesting. All right. So let's talk a little bit about what to do about it.

So let's say you're seeing someone in your eye or Vedic practice and someone is coming to you. And, you know, they had their they've got mild cognitive impairment, say a, you know, MOCA score of 23.

You know, they're well on their way to dementia. What do you typically, you know, what do you like to see them taking four best outcomes. Right so so then we've been involved the nicest patients when they come for I've got recommendations.

So again it's a mixed bag, it's often are mixed based approach or we don't give them one specific all by monthly supplement. We say that won't work. So we approach them through, you know, a multi-pronged therapy to first of all, we we address the diet and we have very sure that and our dietary commendations are very similar to our keto diet accommodations because we insist, we insist on having a at least a 16 to 18 hours of fast.

And I made it very clear they said very clearly not to indulge in too many frequent snacking. They say if you keep a 4 to 5 gap between two eating events, that you end up you having only two or three meals a day.

That is what they want. Then they recommended very strongly book three meals, not more than that, especially for dementia patients. And they said, try to break your fast around in 930 or ten and try to make that your your main meal of the day and then they said, don't have another meal at least for 4 to 5 hours of gap and then try to have your meal just when the sun is setting.

So which means I don't. 637 So look like. You to have one when the sun is high. So the first one would be had been the sun time because at the time in the forties it is because the sun being at the high peak or 1130 or 12 and up in the noon, they said coincides very well with our digestive what not because it has circadian rhythm.

The digestive clubbed is this the they read that they say your stomach back to the sun and now you know we know why that happens. So appetite and hunger is big on the time.

And so video, wherever you go in this part of the world, everybody drops down around 1130 to have their meal. And then they said the same thing in the sun.

And everybody knew sitting down, they said, your hunger levels are going to go down. And we now know that the blood are not very active or on the 630 and seven.

Now by saying that what they did and then they said sleep by 1030 11. So now automatically you're giving yourself 4 to 5 hours of gap between your dinner and.

Yeah, and that's what I mean now for people. So, so then it comes and then they said eat what is present as per your season. So they said seasonal foods because because probably they knew that in this global world you will have food coming from all over the world, which means that you're going to be all kinds of food that doesn't matter season and but they said they in certain seasonal foods because now we know summertime you know what kind of crops grow and that's what's good for your hand and then they said always try to prepare fresh meals that to make sure that it means they're warm and then they'll they said chewing very, very important, they said, to be mindful.

In fact, that's what they say mindfully eating. That is, they said chew at least for 25 to 30. And they said very clearly that in order for you to choose your food, you have to count, which means that you cannot have any distractions, which means and you cannot sit in front of the TV and eat your food.

So by saying all this putting on this guidelines, they made sure that people did a good job in terms of their dietary practices. And, of course, then they talked about the microbiome, the microbiome in a way that is is called the digestive fire.

And what they said is that they justify it is good, then your brain is good, your body is good, your emotions are good, your elimination is good, your blood values are good, your lipid values are good.

They said all of these will turn out to be good only if you have an optimal general neuro digestive fire. So they said practice is to make sure that your digestive side is very good sleep that I read up, we put a lot of emphasis on sleep, good quality sleep.

They tell them at least to have 6 to 7 hours of good quality sleep alone. So we tell our patients to have that and then we have a detoxification procedure.

So this is mainly for people who have not just the creamy that that is the doctor Box intact, but even otherwise we tell them to have detoxification procedures where we bring in a lot of therapies, detoxification therapies.

And it's interesting, Gail, they didn't say about the Nexus, but they knew that there's a brain skin nexus. There's a brain knows nexus, there's a brain nexus.

And so they said to act as a brain, go to these areas. So transcranial therapies was very good, was very prominent. So we had, you know, they used to have or liaison therapies where they drop oil on your forehead, on the skin and did the massage.

And now we know I mean, people people have done proteomic studies. They showed that the brain scanner got similar coping machinery and then they say probably that's the reason why people are more calm, you know, do a massage.

And once they are calm, then the emotions also become more balanced. So those are the different types of controls. And then they said some of the herbs can be recommended.

So the reason why I'm surprised, even though they didn't mention about imaging therapies, imaging procedures, they knew that is a black bean barrier. And so what is it is anything to do with the head and the eyes and the head?

Please make sure that your therapies are including the nose or the nasal orifice, and now we know through the nasal orifice, but they're not addressing that around that area.

So whatever you get to the nose and does get to the hippocampal areas in the brain. And so they said try putting

oil based therapies. And then they knew oil being hydrophobic, it can easily, you know, get absorbed in your nose and enter the brain.

And so they said, put your medicines in a hydrophobic like like like environment and put it into the, you know, to the to the intranasal method. Yeah.

Now it's turned out that, you know, intranasal, insulin, intranasal, nerve growth, that intranasal peptides, this is going to be, I think, one of the best ways to get these intranasal glutathione, intranasal nad all these things have been used.

And of course in the lab we looked at intranasal natron one, although that that doesn't get in the brain very well, but peptides related to it do so I think it's fascinating that what we came to through all these years from the test tube has ended up looking very similar to what the Iyer Vedic physicians said.

All those thousands of years ago, which is remarkable. And they again, you know, they didn't just stop there. Now they knew about mental and brain bending exercises.

So this little people people I mean, the 45 I tell my patients to, in addition to doing all this, make sure that your mind is very active. So one way for them to make it might not do this.

It tried to learn some skills, some skills even at the age of 60, 78, that they tried to learn a new language, they could learn some new musical instrument.

And in order for them to be motivated, they would say, go to the temple, because at that age everybody would like to go to temple. They said go to a temple, but make sure that you either sing an entire song dedicated to the Buddha, to the Lord, or you play a musical instrument.

Why did they say that? It's not because of religion base, it's only because they have to. Now learn those things. They learn the song like a true London musical instrument, which now gives them time with some sort of a mental exercise.

So in addition to yoga and yogic exercises, they also said How to keep your brain active. In fact, there's beauty, space and other beautiful things. You know, they said if you can learn artistry and sculpture at that age, you can prepare portraits of gods and portraits of various nature.

So now what happens is now they not only buried the skill set, but in the process of doing it, they are in the door behind a meditative zone.

Key herbs for cognition and inflammation

So which means it's like a meditation. They don't have to have a separate meditative practices, just doing their skill set allows them to keep their mind focused.

Interesting. Okay. So let's talk about a little bit about the various herbs and things that and their mechanisms and how they can be helpful. So let's start with the COPPA, because that's used so frequently.

Do you like to use the Copa for people who have cognitive decline? And if so, do you have a favorite sauce? Do you like Banyan Metta, Gen-X? Do you like Gaya? Do you like others?

Well, I mean, you know, there are there was a time deal when we didn't have any of these iconic products. But now, thanks to you, I mean, so much just information now.

And so what's happening is a lot of companies out there are coming out with very good organic products. You know, fair trade practices are being are being used.

And so any company, Banyan is a good company. Marriott is a good company. Light is an insult to the actually has some some some good habits. So yes, I have something.

Yeah, yeah, absolutely. And so if you think about this data, so the question is then what what exactly would you be would be recommending? So most of the hubs have been you know, inside with the practices they've been defined as either nutraceutical or cognitive tickle in the sense that they are not critical, in the sense that the either for judicial purposes to improve the digestion or to improve the nervous connection, to improve the conditions are to improve the memory.

And so if there have been a lot of clubs that have been recommended for this purpose, but the first one that comes to mind is, as I said, books are brand meat and it's extremely good.

And they talk about that as improving the longevity, intelligence and memory usually be recommended by ten milligrams per day for a twice a day, twice a day.

And you take that either in the final 40 or even taking the form of a whole herb in the form of a dish or a tablet or a capsule, or you can actually put it in a suitable aisle and take it into an easily.

Okay. And then what about ashwagandha? Ashwagandha. Yeah, that's a great note. Tonic adaptogen. That's how they define that adaptogen for things which are which have to be optimally improved or increase something that does that.

But things are already elevated, it brings them down. And so it's an adaptogen. And, you know, a lot of people, the cosmos have a lot of stress conditions and I should say is known to calm them down.

Very good as a stress buster. It's also categorized as a cyanide rejuvenating herb. It has antioxidant properties. It's scavenges free radicals, and it has it has the unique ability of supporting the immune system as well.

And we normally recommend them recommend that it be taken, find an MG twice a day with the meals again, you know, again that can be taken. I mean, of course now these days I see ashwagandha, even the whole foods that come as ashwagandha smoothies and all that, I wouldn't recommend smoothies, but as you get into whole hog or as a whole up is a very good on as a combination.

Usually what happens is some of these that come as a combination, you know, the mind formula and so in the combination usually it'll, it'll be like thousand milligrams, which is great.

Which is good. Yeah. Yeah, great point. And, and what time of day do you recommend this? I know people argue some people like to take ashwagandha in the evening.

Other people say, no, I'd rather take it in the morning because it can keep me up at night. Other people say, Well, I like to be. It tends to relax me, so I recommend that people take their ashwagandha.

Yeah, it's very interesting because I think that the term adaptogen that the reason why they mention that is because for people who are extremely stressed out, it actually does have a calming effect.

But I think that that amount of it that it lowers may not be sufficient. And so these people are continuing to be in a high state of stress. And so walking normally recommends that if you are going to have your dinner by six, 630, thank you.

Have your natural been that by that time? Yeah. Okay. Giving enough time for you to, you know, when you're being able to sleep so it doesn't it doesn't keep you away in the in fact, in the in the traditional classical idea, the text of I actually recommend recommending that for people with insomnia.

But now we know that, you know, usually people with insomnia that people look at a lot of stress as well. And so that's the reason why ashwagandha may not be helpful for some people.

But if you keep a 3 to 4 hour gap between dinner and sleep and if you take your sugar with your dinner, then it should be fine. It's interesting. And so, of course, drug companies have spent billions and billions of dollars developing anti amyloid therapies to move amyloid.

And of course, that has a some effect, too, to help remove. But one of the things that's always been intriguing to me is if you look at curcumin has a wonderful anti-inflammatory effect, but it is a remarkably tight binder both to the amyloid and to the fossil, to the Tao, a tangle.

So and it's much more gentle than trying to rip it out with a monoclonal antibody. So I've always been intrigued by the fact that here's a great way to reduce the inflammation and to slowly start remove amyloid.

You want the amyloid to be there as part of your innate immune system when it is needed, when you've got exposure to these various pathogens. But as you're now improving things, you want to slowly remove it because it also has this effect to essentially a synaptic plastic effect, pulling back on the synapses.

So how do you like to give curcumin? So today, you know, it's interesting you say that because I am not once talking to my uncle about this. And he said, you know, the one of the ways that they were looking at people with dementia, the classical or metal, was to look at their eyes after giving after giving turmeric milk.

And he would say 66 hours later, when you observe the eyes of these patients, he would observe a different coloration. Which always binds to the amyloid in the in the retina.

And he said that coloration is not present in normal individuals, but only people with memory loss. I know what I'm going to find. That was a case. Now it makes sense because, you know, as you said, it's a binder.

It's by Sharma life. It doesn't let it out immediately, but slow, gentle removal. But for them to catch it by when they're looking at the eyes. And so, you know, so so so Dominic Millet was a was a very good way of of incorporating turmeric, you know, curcumin these days.

It comes as as as as a, you know, in the form of tablets are in the form of capsules. But traditionally they would give it in the form of a root, turmeric root.

Usually they give like I was in mg but you know, either in the past or minute group, it has a little slower absorption. You ever take it with other spices for it to have maxed out the option?

But you can take it easier to make a route, or you could take it as a given supplement. Both are really good. And you know, the best thing about turmeric is whatever subtype of Alzheimer's you have that they you're talking about models the way we define it all the way diabetic definition of dementia the of dementia turmeric is one component that is good for all the subtypes.

And so it becomes a very good spice for, for, for these people. And on the same note, Dale, there's another one concept in, I think our go to cola, it's equally good like turmeric binds to amylase, binds to Tao.

And again, it's a gentle binder. It moves it slowly and you know, in conditioning. I always said that people who to struggle would have difficulty in maintaining their focus or maintain their attention.

Game go to cola, of course not in separate in isolation, but in other pain in one minute rather hops but go to cola, they said is very good for this purpose.

So that's fast. And of course Cat's Claw is another. Great one and also. Binds to amyloid. And this has a very interesting effect. But you brought something up really interesting about the go to cola because if you look at the neuropathology, as has been pointed out, yes, early on, you lose your end to renal cortex, which is feeding into the hippocampus.

So therefore memory issues. But what actually seems to be the first site is the locus truly is the brainstem. And this

is where you have the projections of the nor epinephrine.

So it is it's essentially a a waking a wide eyed sort of look. And you see a lot of passivity in people as they you know, they often look to their spouses for answers, to questions and things like that.

And so this is why some people take Adderall. They actually get a short term improvement. So my question is, what do you like to use for improved attention?

Because it seems like Go to COLA is one of those things that seems to improve people's focus and attention. Yeah. So, you know, it's interesting because what this what they really what they said is that good is very good for intelligence, longevity and memory.

And along with Coca-Cola, they said give some push, push and push business. Great job again to improve learning memory and attention. And they said if you give those two in combination an extremely, extremely good and allow me that.

So now the question is just so what they said is both critical and some of which they also have an effect on the they said something about how it improves neuronal branching.

So I think that's why that's where they got all this branching, but a lot of little branching. They also said, but at the same time, you don't want to have other areas of the brain degenerating.

And so they said it's very interesting because usually what happens is along with go to push B they also give retina like didn't deal and now they have seen that this resin actually contains specific acids called shoemaker acid and folic acid.

Oh yeah. Antiviral and other. Besides, they are very good for parasitic infections and so this said gave this along with go to cola and and some pushback and brings down all kinds of infections which will then improve the neuronal branches and so they gave go to class and Kaposi was given in combination with another in lectin called synergy and it is now known to have huge concentrations of chemicals in folic acid.

And so it became a powerful and defective detoxify. And of course, it also dilates because it's a very prolonged it's a very powerful Clayton as well.

So probably the allies realize that, you know, there is some amount of mental toxicity. So one way to bring down the male is to have selected to collect all these metals as well.

Very interesting. And then what about saffron? Do you use saffron in your practice? Saffron use saffron again. It's very good. But, you know, the problem is saffron.

You need to have huge amounts to have its effect. And so that's the reason why they always and, you know, it's it's very expensive. It's supposedly in those days, in fact, they were treating it.

They were they were getting saffron along with gold that it was that expensive. And so what they did what they said at the same time, they said they didn't want to lose the power of saffron.

So what is it is exactly some quantity of saffron along with these herbs. And so once again, the saffron was given saffron actually daily, even though people don't talk about this is a very powerful anti inflammatory.

So you call it a cooling heart. So it's very good for for people with a bitter type of Alzheimer's because it brings down zombie inflammation. Interesting. Okay.

And then when do you use when do you like to use rhodiola? Oh, we don't use so much of Rhodiola Dale in our in our practice mainly because, you know, we have so that the ones that we normally use are, you know, saffron.

So it's a combination that we normally have is me go to cola I smoke and and then don't worry, we've got it as a carrier and in saffron we can do that as a, as a cofactor, but they call it a cool factor.

So usually our mind formula will have these five or six formulas. We don't have all the line that formula. And when do you want to add shine push B then.

Oh it's along with this. It is okay. Along with this. And then it must move to the gut for a minute. Could you talk a little about Triphala? It's like.

Use Triphala for your patients. Right? So even though they say, you know, people generally use it for for the minute people people talk about different they say it is very good for elimination.

So people who have constipation and we know people with dementia have constipation and all that. And you know, I would I would out that there's a close link between the brain and the colon and then they say the colon actually, they say, is the second brain in I'd rather be called the second brain.

Additional herbs, intranasal therapy, and closing

And we now know that the movement of the on the fetal material that the nervous movement, the ways that that that that that caused the movement of difficult material.

It's very similar to the alpha, alpha, beta gamma waves that that happens in the in the in the neurons. And so they said it's very important that you maintain the colon function.

And of course, liver actually was a very important organ for people with dementia. And so they said liver and colon function can be maintained by taking people on a regular basis.

To full is actually a combination of three herbs and one of them Gale, which is how do you take it is actually a very powerful and they inject it and so they knew about that and of course, you know, I'm a lucky supposed to be very good for inflammation and people taking is supposed to help with the insulin production.

So it's very good for people taking diabetes. So, you know, it helps the people with diabetes and obesity. And so they it's like a it's like a formula.

We address three or four different subtypes of Alzheimer's and not the most of dementia. And so they become a very important, rejuvenated part. But now we know that a lot.

In addition to having these properties. It's a very powerful detoxify. Yeah, so very powerful anti-infective. It's a powerful anti-inflammatory. And so people actually deal was given.

So you had the main formula and the main formula was taken along with you for love but different that they always said take it. You know, during the night time they said probably during the dinner time and they were they were recommended thousand milligrams as a capsule.

You take it are you take the three hops powdered herbs, put it in warm water and drink it as a as a tea. And so very good for liver, very good for colon and of course, for the brain.

Gotcha Okay. Are there others? What are what are we leaving out here? What are others that you like to use for people with cognitive decline, anything for anti mold, anti fungal, those sorts of things.

So, so there is one more Dale that that that's not normally spoken of, but I use it in my practice very good. It's very good. It's called guduchi or Tinospora Cordifolia Tinospora Cordifolia is a very powerful detoxifying club, so it's very good.

It cleans inside, comes from good liver tonic and the lung tonic as people we know, people with emphysema,

dementia people do do have issues with the respiratory system.

They have a big issue with liver. And so guduchi are very good. Tinospora very good in terms of strengthening the liver and the lungs. Plus, it is a very powerful anti-inflammatory and so the it and you know, Dale the good thing about this is even though we don't know whether that help can enter the brain, but we now know that some of the bile component of these helps can easily enter the brain through the blood brain barrier.

So, you know, Tinospora is a good example of such a thing. People have seen the bio component of stiffness are actually present in the brain. And so they now know that one of the reasons why it's not only a liver and lung strengthening, but also strength of the brain is because some of the components of Tinospora actually enters through the blood brain barrier into the brain and can support the nose as well.

So that's another great help that we normally use. Okay. And what things do you give intra nasally? Oh, so usually what happens is the mind formula itself is given in several different ways.

One way is where so usually all these formulas, depending on the amount of variable there are, how you're going to give the the proportion of the amount increases.

So if you're using it on the skin as a massage tonic, then you increase the amount present can be in the aisle massage so that you can get a good massage. Don't forget skin.

If you're doing a transcranial therapy, then you use the same oil with a different proportion of all these components. And then you, you, you, you add it on your hand or you add it on your, on the on the perineum.

If you're giving it intranasally, then it's a little more concentrated because the amount that you're giving it through intranasal is probably about 100 microliters to about going to make leaders across this and that main formula can be easily given deal and people have noticed remarkable improvement just by doing a intranasal intranasal it normally would do three times a day on morning, afternoon and evening and the last one is around given around six or seven in the evening up dinner so that by the time they're ready to sleep, Dale they'll be like, they'll have a nice sleep and you know, it makes them want to get up.

They don't complain about headaches. Normally they complain what it takes, but after being intranasal therapy, they don't complain about that at all. Very interesting.

All right. Fantastic. Well, Dr. Ram Rao, thank you so much. Your background of basic neuroscience and the ability to translate it and into your ayurvedic practice is really an unusual combination and one that's really helping to advance the field and, you know, give us better treatments for cognitive decline.

So thanks very much, Ram. I'm going to. Thank you, Dale. Thank you Very much