Introduction to Cancer and the Warburg Effect

This is Doctor Talks, real talk from real doctors on the issues that matter to you most. Well, Dr. Mary Hardy, it's always such a pleasure to chat with you.

You bring out such amazing energy and you do so many cool things for your cancer patients. So this is going to be so fun. It always is fun to talk to you.

I like to talk to people who come at this work and still have a sense of wonder and a big open heart. So that's why I like to talk to you. Thank you. And cancer is such a fascinating piece of, I mean, it's an entity in itself that is so complex.

And we try to figure out all the genetic drivers, all the genetic dysfunctions and try to see what can we do to attack them and go after them. And it's helped us some, but not really that much.

I think the war metaphor for cancer, it has served us to some degree for some cancers. Clearly, we have cancers that would have killed people 60, 70, 80 years ago, no doubt about it.

But it usually comes like war does at a cost of damage, destruction, the side effects basically. For God's sake, the tendency to make the second cancer start, right?

So I think we're all looking for a way that we can approach cancer that doesn't leave us in that, you know, fighting, beating your head against the wall.

causing harm while hopefully causing good. So yeah, I agree with you. And we've seen kind of, and this goes back to Dr. Warburg, his discovery, a Nobel Prize winner, in regards to cancer and call it the Warburg effect and recognizing that even though we may look at all these genetic instabilities that may drive cancer, there are some common features that we recognize.

Absolutely. So for me, the way I like to think about it is for a cancer cell to really do its business, it has to release a lot of other things. And some of those things are normal things that cancer cells, that normal cells do.

So, respirate appropriately, not climb all over its neighbors, die when it's your time, instead of becoming immortal and like a freaking weirdo. And the one thing that I think that, but one of the most basic things that cancer loses track of is advanced metabolism.

It starts to lose its higher functions. It's like you forget things and then you start to forget more important things and then you can't find your way around.

It's sort of like it starts to forget some of the basic things that normal cells do. And one of the things that it forgets early on in all cancers that we know about seem to do this is it loses the ability to metabolize glucose normally.

So it doesn't take that simple molecule that's in table sugar. Well, that's kind of fructose, but nevermind. But it takes those simple sugars that come from all kinds of foods and then it burns them in the mitochondria in a way.

And by adding that simple sugar together with oxygen, it makes ATP. That's the higher version. The primitive version is that it just, no, no, no oxygen and a primitive cycle, not very much ATP is made.

A lot of stuff is wasted and a lot of toxic end products build up. So it's sort of like the loss of the evolution of the cell down to these really primitive functions, which then allow this cancer to overgrow and metastasize and cause a lot of problems, you know, cause a lot of problems.

I mean, I can't kind of stop thinking about, I mean, because the mitochondria essentially is an evolution that took place, a cellular evolution that took place that was very symbiotic and that allowed the cells to function at that higher level.

Absolutely. And now it seems like the cell isn't moving into direction pre that event. It is. When the mitochondria doesn't work properly, it loses all the good that the mitochondria gave us, and it devolves down to this really primitive stuff.

Mitochondria, Cell Death, and Cancer Metabolism

Now, if you're goal is world domination, never die, keep going forever. That may not seem like a bad thing, but if you're the advanced part of this equation, you want everybody to live in harmony.

And interestingly, people talk about the mitochondria almost as if it was like another organ. and it got incorporated into early cells and sort of instead of having a separate existence, it has this really interesting, like you said, semiotic resistance.

And then inside the mitochondria, the DNA inside the mitochondria is maternal DNA, which we only inherit from our mother. And that line goes back unbroken to mitochondrial Eve, who we don't know.

But so this is a very complex, kind of a very elegant solution, but it's not infallible. It can break down. And when it breaks down, a lot of things go wrong because I think the mitochondria evolved to handle a lot of higher functions, find a way to make energy without all those toxic end products, develop a hub for cell signaling to start to sum all the signals from the body and decide which way the best way for the body to go was.

how to find cells that were too damaged to continue and, you know, bow out, your time is up, you know. called apoptosis, but it's a very intriguing organelle.

Really intriguing, really intriguing. It is fascinating because in regards to it being kind of coming from your mother, I mean, we know when you have the egg and you got the sperm, the sperm, which is from the father, all the mitochondria is in that tail that's got to make it to the egg.

It does. Yeah, so at the end. Inside this organelle, it's still all maternal. It's not the usual X and Y thing. This is the sort of little package of maternal DNA that handles all this, organizing all this really complex.

It's like, yeah, you know, who puts on the parties at your house? My mother did, not my father. So sort of like set the table, organize the food, invite everybody, make sure they get along, tell everybody what to do.

It's sort of like that, you know? So. I don't mean to be negative. But it's interesting to me that it's almost like the mitochondria, because when you think of mother, you think of life, giving birth.

So that is life right there. But then at the same time, it controls the death switch, like you're saying, it controls that apoptosis. It does. It either says you're so old and senescent that we can't repair you again, or you've become damaged.

And we call those mutations, right? Somehow you become damaged because you've been exposed to ionizing radiation, toxic chemicals, whatever, and therefore We can't repair you anymore, so you have to release and go back to the great primordial soup and try again.

And everything after a cell dies, of course, is harvested and reused. So it's a very effective recycling system too. And it is fascinating then how cancer then knowing that here's a cell death switch that exists there.

So in order for me to be able to continue on, I need to bypass that and I need to figure out a different way to produce energy rather than mitochondria because I know the risk if I step into that territory, I may die as a cell.

Yeah, and actually cancer cells are very, even in their primitiveness, they still maintain this ability. They can actually turn the apoptotic switch off by damaging the mitochondria.

And I don't think we understand that perfectly yet. And there's a ton of research going on now and it's getting ridiculously intricate and looking at all these different kinds of cell signaling and enzymes.

There also are mutations in the basic energy cycle that you thought was sort of immutable when you learned it first in biochemistry. But they're finding mutations even in some of the enzymes that organize this incredibly basic second half of the Krebs cycle.

And some of those mutations actually are what allow the cancer cell to turn off all the stuff that the mitochondria does and therefore allows it to just go on its merry way.

It's a smart little sucker. It's a devious little sucker. It really is. I'd like to think that there's a way that we can you know, rather than think that we have to stamp everything out, that if we can just say, if we can embrace you and transform you, then you're not going to hurt us, you know, and that you've just got off the path.

We'd have to put you back on the path. And then, I mean, it's simplistic and it may be a little bit Pollyanna, but I do think that the other kind of work you do where you try to strengthen the natural defenses of the body and the natural detoxification systems of the body and have inherently strong antioxidants, et cetera.

Putting all the pieces back so that someone can be as well as possible then gives them a chance at creating a good outcome, a good reaction. And I think that the stuff I hope we're going to get to talk about, the Metatrol, But that's a piece I think is really important because I don't know anything else that affects the mitochondria like this.

I really don't. And they're developing drugs. They haven't been any successful ones yet and I haven't seen any even in clinical trials. But this is a hot topic now.

And it's sort of ironic that we have a a dietary supplement that consists of 100 molecules that act synergistically together, I think, and they demonstrated that there wasn't, they couldn't find a single silver bullet, which is often what happens when we look at natural therapies.

And in that little cluster of molecules is things that remind the mitochondria how to be healthy and turn itself back on again and start using oxygen and And that makes the cancer cell less able to do its little dirty deeds.

And that is a key now when we understand, instead of looking at all the thousand possibilities that exist within the genetic dysfunction, then to look at the basic pathways that becomes distorted in a cancer and how can we affect that.

And then that is where we see then, you mentioned metatrol, which is a fermented wheat germ extract. That's where it steps in and shines. And it's natural.

It comes from a food. It's pretty much non-toxic. I've never seen any toxicity. I like to say it's as close to a free lunch as you get in the universe, because mostly if you get something for free, you have to give, you know, there's a cost to it, whether it's upfront or in the back.

But this is really pretty benign. And I think because it affects this, It affects a part of the body that like there's been lots of self studies that have been done that it's active in cancer cells, but doesn't do anything in normal cells because normal cells already have normal mitochondria and already doing all these things.

So it's kind of amazing to have this as the basis of looking at how to normalize a function that's critical for healthy cell activity.

Metatrol Pro and Multi-Pathway Cancer Support

And it's really intriguing. And like I said, I like talking to patients about it. I encourage them to use it because I think it does some very important things without a heavy cost like the war against cancer drugs often do.

Looking at all these elaborate genetics and mutations and stuff, it's developing something called precision medicine. If you're lucky enough to have the right mutation and you get the right drug and you tolerate the right drug, that can be spectacular.

I think treating melanoma now is a whole different game. It used to be such a grim disease. But on the other hand, you can get to the place where they're developing targets for something that's 12% of a particular one kind of tumor.

So yeah, it's a little, I wish we could do both. I wish people would think broadly as well as, but I think that's the work that integrative oncologists do, is think about how to keep my garden.

have good hydration and have the right kind of nutrients in the soil and make the best of the sun so that I'm in my best shape to take my best shot. And I think that's what integrative oncology does, is make sure your garden is doing as well as it could possibly do.

Yeah, I couldn't agree more. And I think the beauty becomes when we integrate, when we bring these two worlds together, where we have the precision medicine that's evolving, and it's with AI, it's evolving at a rapid pace, which is so exciting.

And then bringing that together with then safe natural methods like Metatrol, where we can then impact the energy pathways while at the same time targeting genetic dysfunctions.

I'm a firm believer in both ends. Why would you give up something useful? You want to use it while you minimize the negative side effects. And I think even as powerful as that precision medicine becomes, conventional oncologists, as I've worked with them, tend to forget some really basic things, how to tell people to eat well, how to tell them how to eliminate toxins, how to sleep, how to rejuvenate their psyche, all this stuff that needs to happen.

A classic example, a friend of mine is going through cancer now and we've talked extensively and she was losing a fair amount of weight, like about four, about a pound or two pounds a week.

You can't continue on. Even if the tumor agent's working, that's not good. You can't survive that. And it's usually a sign of really intense inflammation.

So we sort of talked about diet, how to eat enough calories, but also how to reduce inflammation and how to, you know, how to keep all your normal functions going while you're in this other thing.

So, yeah. And I don't think precision medicine is ever going to account for all that stuff. So I think it's not going to, they're still looking for the magic bullet to attack the Warburg, the Warburg effect rather than saying, You know, cool.

We don't have to go to war. We can just teach a cell how to eat again, how to teach a cell how to be normal again. And they're not going about it that way.

They're looking, they're looking for specific targets in the enzyme system and all that kind of stuff. So, you know. Yeah. And I think the beauty with something like Metatrol Pro is, like you mentioned, it's a hundred different chemicals inside of it.

So it's a very complex molecule. And with that, it becomes really hard for an organism or cancer cells to figure out escape pathways. When we use simple targeted chemicals, the cancer can outsmart that.

And it turns out that probably the mitochondrial function being impaired actually makes the resistance to cancer chemotherapy more likely to happen. So it's turning out that also that the metatrol has at least four major ways that

it helps attack or restore the normal function or return the cell, make the cancer more vulnerable.

And so if one if one isn't working very well, the other ones will. So all of that is I'm getting I'm getting a weird thing on my screen. Hang on for a second.

Let me turn my camera off and turn. So these four different pathways, and that's important, I think, is that for people to understand, so here we're using a complex molecule that is very hard for the cancer to really figure out.

And it's going in at the kind of the basic aspect of the metabolic pathway. So here we're literally starving the cancer and if it's not getting the energy that it needs, then it's not going to be able to continue on surviving.

That's activity number one, that you make it difficult for the cancer to get. I'm going to just move a little bit more. Unfortunately, or nicely, it's a long day, so it's still sunny here.

So the first thing is that you can't get your cancer. Your takeout services is aborted. Your Uber eats isn't going to work for you anymore. You can't get the sugar into the cell, number one.

And then when you do get into the cell, all you have available as a cancer cell is this really primitive, not very effective therapy. So you're just kind of, instead of the cancer being able to capitalize on that, you're going to really say, if this is what you're going to bet the farm on, we're going to take that bet away from you.

That's number one. Then the second way it does is it encourages apoptosis, which we talked about earlier, which is programmed cell death. This is a normal function in cells because the body turns cells over all the time.

The digestive tract, for example, is one of the places where cells turn over really fast, which is why it's a place where you see a lot of chemotherapy side effects because chemotherapy affects fast dividing cells and you just hope that the cancer is the most quickly dividing cells.

Sometimes it is and sometimes it isn't. So if you get to the place where you get the cell remember how to get rid of damaged cells, that's apoptosis. That's a really good thing, because the cancer cells are very damaged.

A lot of the DNA is repetitive. It doesn't work well. It's all kinked up. It's just nasty. So if you can let regular apoptosis recur, that gets rid of a lot.

Couple of ways to do that, but one of the major ways is through the mitochondria, which controls that normal cells. So I think that's a really, that's a really important thing.

That's the third way. And then the fourth way is, oh, no, this is the third way is it helps with immune surveillance. It improves immune surveillance.

So the cancer has a couple of different ways that it hides. So NK cells, natural killer cells, are produced as part of the innate immune system. And the innate heading over, that's one that happens every time you get exposed to an infectious agent, something weird that you don't, some weird guy hanging around the neighborhood that you just call those, you call the patrol and you go, there's some weird guy hanging around here.

Can you get rid of him? And that's what the NK cells, they come up and they take that bad cell away. So if you decrease, if the NK killer cells would decrease, which cancer does, then there's not that many people to come when you call that something's wrong.

The second thing that happens is that they also, there's a couple of mechanisms by which the cancer tricks you. It sort of says, you know, I'm not the droid you're looking for.

It puts out markers that are false flags where it says, I'm a normal cell. You don't have to worry about me. And it does that by inhibiting a protein and enzyme that put the regular cells out.

So if you strip that off, then the cancer cell is exposed and it's more readily to be able to be found by hopefully the increased number of NK killer cells you have.

And so Metatrol helps make more NK killer cells and it helps strip off the camouflage. And then the fourth big way is that it rescues the mitochondria.

So that's the reinforcement for all these other things that when all these things happen and the mitochondria becomes normalized, the mitochondria says, I got this now, I can take this over.

And a healthy mitochondria promotes differentiation and inhibits cell growth. So that's the name of the game. That's what you want. And it inhibits metastasis.

And you and I have talked about this before. People generally don't die of their primary tumor. I mean, there's some tumors where that's true and they do, but they often die of the metastasis.

And so if you can prevent that spread, that's really quite useful to do that. And so as we're going through the process, how the metatrial is benefiting a cell and also has impact in the cancer cell, and hopefully if the cancer cell is salvageable, maybe we can then shift it back into normal functioning.

That has been reported in cell lines that there has been return to normal cellular anatomy and cellular architecture. So it's possible. And we don't know on a whole person level, we don't know exactly all the time what's happening at a very deep level.

But we assume that has happened because we see The one thing that's particularly nice about meditrality, it looks like if you take it as a person for about a year, either during your conventional treatment or after your treatment's over, that somehow that nice long period of time when your cancer is either beaten down or not in ascendancy, that that helps reset your system.

And so most of the clinical trials that look at survivors five years later, they found that a one-year treatment increases five-year survivorship by a significant amount.

So that's interesting because that means that, for example, you have a triple negative breast cancer. conventional Western medicine can't offer you very much after its first attempt at chemotherapy.

And the chemotherapy that's probably the best for triple negatives is pretty harsh. So then you tell somebody, you know, you don't even get an estrogen modifier.

You don't, you know, you just good luck and, you know, God be with you. It's like, But I think I've given this to my patients in that position because I've seen it reset.

Like in the old days, it looked like it reset melanoma tumors. Not all, not everybody, but half the people. And that's a big improvement over none of the people.

So that's huge. And I just like to kind of interject, you know, so people understand kind of when you say patients, you exist, you set up integrative clinics or centers, you know, within major hospitals.

Oh, yeah. So do you mind just naming? So people understand, you know, the Yeah, I was the witch doctor in some really strong conventional settings but cedar Sinai is one and UCLA is where I spent probably the last 10 years of eight years of my career.

The results of thinking this way and acting this way and supporting people this way got the attention of the conventional therapists because my patients did better.

They didn't have to have treatment reductions. They didn't have to have treatment holidays. They were pretty much in good spirits. And most of my recruitment came from new patients, came from my patients in the chemo rooms

where other people would say, how come you're not sick as a dog?

Why aren't you throwing up? They'll go like, well, let me tell you a little story.

Integrative Oncology and Clinical Experience

And, and so that's where that was, that was the, the nidus of how this grew because I would read, think about something, try something and I would see what happened.

And then if it worked, I did it more. And if it didn't work, I would put it on the side or think about how to redo it. Um, and before people start calling, I'm not seeing patients anymore right now in an active way.

I gave up my practice when my husband got sick with leukemia because it was like, I couldn't do both. I couldn't be a doctor and a caregiver. It was, it was, it was made me too crazy.

So, and then that was also during the pandemic and I think a lot of things. So I still teach like this and I still, I'm teaching fellows and other doctors and integrative oncologists about this.

So that's how I'm still contributing. Yeah. Yeah. Yeah. So yeah, just wanting people to understand the settings that you operate when you talk about patients, you know, that, yeah, that they know that it is a, you know, it's not a, I mean, maybe you're called the woo doctor, but it's not in a setting, you know, they, they wouldn't let anyone in.

Oh, no, no, no, no. And my credentials are, you know, solid. I have very lovely credentials, you know, board certified internist, yada yada, many years of practice.

And I also, the reason why I think it works so well was because the conventional oncologist knew that I wasn't an either or person. I was a both and person.

And so I would say, tell me what you're going to do. Let me see what I can do that won't get in your way. And then I would do the supporting thing from, you know, and if I want to do something that I was a little bit concerned about, we would talk about it.

And, you know, even the most conservative physicians came to understand that what I was suggesting was in some ways good common sense. you know, it wasn't esoteric, you know, I wasn't putting people, I didn't do hyperbaric oxygen.

People have and it's been useful, but I was really saying, you know, before we get fancy, let's just make sure we do all this basic stuff really, really well.

And then we'll see if we need to go on from there, because I have referred patients for that kind of work. But that was after I think we made all the changes we could that would give them support to reassert, not only do we want the cancer to act normally, we want the patient to feel normal and want them to act normally.

So everything we could do to support that was what we did. So in this kind of setting, which was obviously a very traditional oncology, you felt very strongly about Metatrial Pro, the fermented e-germ extract, and you talked about studies.

I mean, so Are there just, I mean, is this a heavily studied type of substance? It's interesting. If we're talking about a new cancer drug, no, but there's billions of dollars in potentially new cancer drugs.

So they can spend hundreds of millions of dollars developing cancer drugs. So I want to say that, no, if you look at any conventional person will tell you, well, that's not really as good as XYZ.

However, However, for a natural product, this has actually got way more research than I've seen in many other natural products. And I like that it's gone from cell culture work, in vivo work, looking for mechanistic stuff, to work in

animals.

And there's a nice body of human studies as well. So that gives me a lot of confidence and makes me feel good that what I want to do is going to be healthy and helpful for my patients and not cause problems.

And we talked about the Nobel Prize winner, Dr. Buber, but there's another Nobel Prize winner that really fell in love with fermented wheat germ extract, which is what Metatrol Pro, a Hungarian Yeah.

So yeah. So he was the, he was the person who discovered or isolated vitamin C and he actually was early in the 20th century. So he had experience living through the first world war.

And most of the damage that was done in the first world war was done by, was done by a gas mustard gas and things that have been, have been purposed into chemotherapy actually horribly enough.

but they were very, very damaging and they were really hard on people. And he said out of that pit of horror, he came out with an idea that he wanted to develop something that would be, instead of making harm in the world, would make good in the world and would be looked at less as this sort of anti-cancer, negative, negative, negative thing and more like Again, Otto Warburg was his teacher.

So he said, knowing what Otto Warburg knew, what other compounds I, as a very good biochemist, know that would turn off some of this pathway in the abnormal cells?

And he came up with a compound called benzoquinones. and he thought that fermenting wheat germ, which fermenting is a very interesting process. It's sort of like you put everything in the bottle, you shake it up, hocus pocus, because it breaks everything down, and the yeast actually metabolize stuff.

So you don't just get a simple chemical bond breaking or conscious, you get sometimes novel things are done. And so he took the benzoquinones out of that process, that was a good way to produce them, and he felt that that would be an anti-cancer drug.

Now, unfortunately, this is about the time that you know the war against this and the war against that was getting very popular. So he sort of lost the race, because he wasn't talking about war he was talking about changing something very basic.

So that whole research got put to the side, unfortunately, until another Hungarian, after the fall of communism, there was a lot more intellectual freedom.

He went back and picked up this research because his professor had been a student of St. George's. So this was sort of like passed hand to hand. And so he started developing the product that became the first version of fermented wheat germ.

And it was really hard to take. It tasted terrible. It was a large volume. It was spray-dried on fructose, which I didn't like because I didn't want to give my patients that much fructose.

And it was just, you know, when people have an alteration in taste, it was really asking them to be really heroic about this. And so then developments have come along with the company that now sells metatrol.

The first ones to take this, freeze, dry it, get rid of a lot of stuff, make it a bit more compact. And it was not totally horrible, still not optimal.

And then the guys from American Bioscience read an op-ed in the New York Times and it was by It was by the one of the discoverers of the structure of DNA, Dr.

James Watson, who was Dr. Crick, developed it, discovered, although, you know, we won't go to talk about anything else right now, we're just going to let it go with that.

And so, so So he wrote a letter saying, back 80 years, why are we doing this war on cancer thing? Why don't we exploit the Warburg effect? Why isn't anybody developing that?

Because every cancer has that. And so then these gentlemen from the American Biosciences had their Metatrol, which they'd already been developing research on, going back to Hungary.

And they said, funny, you should say that, because we have something that we think might do it. So they started working in a lab with this really eminent scientist and his team.

And they developed a fraction out of this whole big mess that is the smallest amount that contains close to 100% of the activity of the total. And it's two capsules now.

It's like, woohoo, life is so much easier. So it means that you can take this even if you don't feel really great. You can take this even if your taste is very changed.

And you can take this if you couldn't gag down another glass of water, you can still take this, which I'm very grateful for. So it made it more available to a lot of people much more easily.

So yeah, that's sort of the pathway. Yeah, which is fascinating. So just with two pills a day, because you were mentioning that when you do this for a year, there's like a reset and the survival rate dramatically increases if you do this for a year.

That's what the research suggests was they looked at metastatic cancer patients, head and neck cancer patients, and they gave a metatrol. And so during the active treatment, they had less symptoms, and they were using, especially in the melanoma patients, they were stage three.

So if you know the staging, that's usually a bad stage to get it, because that's the stage in which it's able to go to the lymph nodes. And once it gets past the lymph nodes, all bets are off.

20 years ago, there wasn't a good treatment. So this was using a, we would call now not a very effective treatment on more advanced patients. And so they got a much better response rate.

And at five years, 50% of the people were still alive. And all they had done was take this stuff for one year. similar kind of thing looking at the head and neck cancer patients.

So I can't say that the literature proves, but it's a reasonable conclusion to draw that would be nice to do some more testing on, but it seems that way to me.

So when a person starts this, I ask them, to continue this at least for a year and not go on and off. Stay on it so that you get the benefits. It's long enough.

It's almost like the body remembers how to be healthy. Any funky stuff that's still around gets cleaned up. And I'm talking very non-precisely now, but I think you understand what I'm saying.

And then, so I, my own sister got breast cancer and she used this for a year and then a year after. So I can tell you I'm voting with the life of my sister.

She did conventional treatment, but I'm voting with the life of my sister. And I think it's almost the five years now and she's fine. Yeah, that's amazing.

And yeah, I mean, this is a product that I use for many, many years in my clinic and I think it's a phenomenal product. So I can't say enough about it.

And so I think as we were talking about, you also mentioned that cancer is not really the tumor, the initial tumor, it's a metastasis that kills people.

I think so. So we're looking then at what happens, how we can prevent metastasis by blocking the metabolic pathways within the cancer. Yeah. And again, renormalizing the mitochondria is one way to do that because the mitochondria are pretty good at turning off metastatic pathways.

Research, Survivorship, and Patient Outcomes

They also, they build up those adhesion molecules between cells. So if a cell can't sneak between, it can't go anywhere. If it can't build new blood vessels and you need a certain setting to be able to build new blood vessels.

And that's obviously inflammation with all these other chemicals that allow new blood vessels to form. And the cell, the cancer cells, absolutely depend on that because it doesn't have a normal blood supply.

It has to kind of grow with some blood supply. So if you don't keep the blood supply coming, the cell dies because it just can't, you know, once it gets past a certain size, the middle of the tumor can't be fed.

And so it dies. So if you don't keep the blood vessels coming in, and also metastases are clear for the blood vessels, and then they get to where they're going.

They sneak out of the cell, but they take with them the ability to build more blood vessels wherever they end up. I think it's important to think about the metastatic disease because that's where the tumor burden really gets big.

That's where inflammation really gets kicked off. A person starts to not feel well, not do well, lose weight, be weak, and then they can't respond to the therapies that we want to give them.

And that's scary. I think that's an oncological emergency when people start losing weight. It's usually a bad sign the tumor's active and very inflammatory.

Yeah, it is an inflammatory condition. I mean, truly. So, you know, one of the things that, you know, to think about also that I'd like to touch on is, is that the tumor microenvironment that's created, you know, as a, as a byproduct from the metabolic activity within the cancer cell and by blocking that metabolic pathway, how we then also then are able to control the tumor microenvironment.

Yes, yes. So we talked about, just I'll give you one example that's pretty simple and straightforward, that when you use that non-aerobic glycolysis, you end up with sort of a half completed process.

And the end of that process when it dies out is lactic acid. And it's what makes your muscles hurt when you over exercise because you've exceeded the capacity of your muscles to process oxygen and keep you going.

And so when the cells make that lactic acid, they also make a lot of junk and that junk. It's not inactive junk. It's junk that favors the cancer environment to de-differentiate, go from a higher functioning cell to a lower functioning cell, and then grow and metastasize and spread out and forget all of its manners and butt into someone else's territory.

and then take its bad act on the road. So if we can find a way to just shut off, for example, that one thing, then you've taken away some of the major drivers for that.

Cool beans. That's great. Such a powerful and ingenious way to go about it out of Warburg, back in the early 1900s. Very early. Yeah, that's amazing. And it's kind of sad that it's taken this amount of time to circle back to what he was talking about at that time.

Well, you have to realize a couple of things. First, we're all the products of our environment. The way we learn something, the way we structure something is how we think about something.

We're from the West. We think very hierarchically. We think pretty linearly. We don't think like a Native American does who's thinking about the whole before they think about the pieces, etc.

And that's both a blessing and a curse, right? The blessing is it's allowed us to develop incredible technologies, you know, like you can repair a heart.

You know, who would have thought that you would be able to develop the machinery to keep someone going, et cetera. You can do very precise genetic work, et cetera, et cetera.

And then using AI to take a baby, screen a baby who looks kind of funny and figure out within 12, 18 hours, 24 hours, what's the metabolic problem here and where you can address it before harm is done.

There's some really terrific things. That's the good news. And then, like I said, no freelance in the universe. On the other side, it's left us really addicted to more detail, more refinement, push, push more, more, more, more, more.

And when you get so enthralled by the trees, you never take a step back and say, wait a minute. what can I do to improve the health of this whole forest?

And I think that's, like again, I said, integrative oncology has the capacity to do that in part because we didn't decide to become oncologists, we decided to become people who, gardeners, who can do this other thing.

And it's a very useful skill. And it's really something that your patients should search out somebody who knows how to do this in their local area. and get them to help them support themselves during their treatment.

So yeah, for sure. And for example, your clinic does that in your local area. I think you take people to come see you and get started and then continue work at home.

Just like if you wanted to get a high grade second opinion, you might go to Sloan Kenning or MD Anderson and then Take that knowledge back and do it in your own, you know, have your own oncologist.

That's a great gift. And I think people should take advantage of finding people like you either come to you or find you in their local environment and, and get some, and get some of this stuff addressed.

So, yeah. Well, thank you. And I, and I. I agree. I think the beauty of bringing the precision medicine where the scientific advancements utilizing that in addition to the holistic approach, looking at the forest as a whole and looking, so you work from inside out and outside in at the same time.

It's a great, it's a nice way to frame that. I think that's a really good way to frame it. And like, you know, most women I know like to go shopping. They love a sale and they love a BOGO, two for one, buy one, get one free or get one half off.

So this is kind of like, don't pass up an opportunity to like, you know, get a good deal here. And that's why I think, you know, and also most oncologists, and this is, and I really want people to hear this compassionately.

most oncologists hate hurting their patient. It makes them feel terrible when their patients are really suffering. And I firmly believe that that's why they started this work.

But they also have to kind of, you know, again, the heroic Western physician, they have to steel themselves so they can keep going because, and they have to believe that the other end of this rough pathway will be a cure or amelioration or prolonged life, they have to really believe that.

And so they're trained that what they do is toxic. And nothing should interfere with the effect of this stuff because you're paying a heavy price for it.

You know, like, God forbid that we give you something that you then take something that makes it less effective, but it still remains toxic. That's where they're coming from.

So hear them with compassion. Let them tell you, no. And then you can like say, okay, okay, let me just have you

calm down. Here's a couple of papers, read these, think about it.

And sometimes you have to be a teacher for your doctors. It happens instead of going the other way. It could be a two way street. But they're not acting out of, some people are acting out of egotistical rigidity.

Clearly. I mean, I've had oncologists that I've really, when I've seen them with patients, including my family, say, really? Are you going to honestly say that to me like that?

Just like that? Just like that right now? So some of them are egotistical. And that's why they're saying, no, it's, I don't know about it in my worldview.

Therefore it doesn't exist or it's not useful, but you have to figure the most, most people really started out with the right intentions and they really want to do good.

So yeah, explain to them how this is extra good and it's not going to be bad. It's not going to hurt anybody. So I think. Sometimes you don't fight with people.

You just say, yeah, I really hear you. And I understand I certainly wouldn't want to do that either. But let's just think about this. Don't you agree your patient needs to eat and gain a little bit of weight?

Yes. And don't you think the all ice cream diet is not very nutritious? Well, I guess so. So could we maybe do something that's a little bit more sophisticated, like extra protein and these various different ways?

So you can kind of make it used to and they know you're not going to interfere with things. Then you can, you can be a bit more assertive. You can say, well, this I think really is going to do and, and there is research here.

There's research to look at. So it's not like this is complete pie in the sky with nothing backing it up. So there's probably a hundred studies overall over the last 15, 20 years on this.

So. Not all of them are human, but six for eight of them are.

Closing Thoughts and Episode Outro

And a lot of them, you're talking about being able to do this at the same time as you do the chemo and they haven't seen any kind of negative effect doing them at the same time.

No. In fact, I'll tell an anecdotal story, which I don't think is always the best research because it's just one story. But if something can happen once, it's natural to think, well, it could happen again.

So I had a patient who came to me and this was when the really good checkpoint inhibitors were just starting to be tested for melanomas. So we still didn't have really good melanomas.

The patient came to see me. He had a Melanum with a big metastasis in his lung was pretty big. It was about two and a half inches. So it was a significant metastasis.

And so he talked to me and we went through the whole thing. I put him on what was available then, which was the albumar. And he religiously did this and he did it for like three weeks or maybe six weeks.

And he went to see his conventional oncologist who called me up like yelling, what did you do to my patient? I thought, oh my God, okay, well, let's just take a step back.

You know, like, what do you mean what I do to your patient? Like whatever it was, I'm sure it turns out that his metastasis had completely vanished in six weeks.

Right. And this guy was upset because now he didn't qualify for the clinical trial. And I'm like, yeah, I think there's

another message we can get here too.

Don't you think? And I said, so here's what I did. Here's this stuff. I can send you the best. I had the papers sent in. I had samples sent in. And I'm sorry to say, I don't think he ever pursued that.

You know, we all tend to, instead of being curious and like some of these old naturalists were, you know, the really old who said, gee, the world is a mystery and I don't know everything.

And something unusual happens. Let me think about that a little bit more. Let me investigate that. He was just like, no, I can't test my fancy-dancy drug.

And he's right. It was a great drug. It made a difference. And I get that. But it's like, yeah, but so did this, you know? And I don't know how durable that response was.

I really would have liked to have found out. Yeah, I love it. Well, Dr. Hardy, always such a pleasure. It's so wonderful to chat with you and thank you so much for sharing about this wonderful tool that anyone dealing with cancer can benefit from, but anyone not dealing with cancer can benefit from.

So thank you so much. And I want to give a real thanks to you for allowing me to have access to your very broad audience so that I can fulfill my wish, which is that I can tell people about things that will make them better, make them feel better, be better, and get through this tough time with as much grace as possible.

So thank you from my heart. I really appreciate that. Thank you. Thank you for tuning in to Doctor Talks. We hope today's episode has enlightened and inspired you on your path to optimal health.

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