



Transcript:

Season 3, Episode 9: Diabetes: A Word, Not A Sentence

Benyamin Cohen:

This is "Hadassah On Call: New Frontiers in Medicine." And I'm your host, Benyamin Cohen, where each month we have a conversation giving us a behind the scenes look at the doctors and nurses who help make Hadassah such a unique hospital. On this month's episode, we're joined by Dr. Avivit Cahn, an endocrinologist who is the head of the Israeli Diabetic Foot and Wound Healing Society. She's a renowned expert in diabetes, and we're so happy to have her on the podcast today. Welcome to the show and thank you for joining us from Jerusalem. How are you?

Professor Avivit Cahn:

Hi, thank you. How are you?

Benyamin Cohen:

Good. Thank you for staying up a little late today to talk to our audience. We appreciate that.

Professor Avivit Cahn:

Hi. Hi everybody.

Benyamin Cohen:

So, I want to hear before we talk about diabetes and all the interesting research and innovation that's going on at Hadassah in that field, I want to learn, I like to ask our guests a little bit about themselves so we can learn a little bit about you. So, tell us, where did you grow up? Did you always want to be a doctor?

Professor Avivit Cahn:

Well, I was actually born in Hadassah. So, whenever somebody asked me where my English is from, I was like, "I'm totally Israeli." I was born here in Hadassah. I just lived in the States for a few years. My father was a doctor, and he was doing his post-doctorate. So, we all lived in the States for a few years. And that's where I picked up English with a vague accent that is impossible to place in case you tried,

because it has no place. I'm Israeli. I guess it moves from a father to daughter. So, I did have a dream of becoming a doctor since I was very young and I started med school at Hadassah and I did most of my training at Hadassah, so I'm totally Hadassah.

Benyamin Cohen:

So, it was set in stone that, that's where you would probably have your career would also be at Hadassah.

Professor Avivit Cahn:

Sort of, sort of. It's always interesting, you ask yourself, am I following my father's way because I'm actually specializing in very similar to what he had been doing? He passed away a few years ago, but I'm really specializing and similar to what he had been doing. So, it's always a question. He never came up and said, 'Avivit, I think you should go and be an internal medicine doctor and deal with endocrinology, diabetes, or more specifically diabetic foot.' So, it was never like that. But eventually this is where I ended up in. So, I guess it's what you assimilate in the house. And he was always very, very dedicated to his patients, and medicine was an extremely important part of his life. And I think it sunk in, so I guess. My daughter is dreaming of becoming a doctor. I had no pressure at all there, but we'll see.

Benyamin Cohen:

How old is your daughter?

Professor Avivit Cahn:

Well, she's currently in national service, so she has a couple more years until she moves forward. Yeah.

Benyamin Cohen:

Wow. So, diabetes was something that you were interested in as a specialty.

Professor Avivit Cahn:

Yeah. Yeah, absolutely. So, for sure, at the time my father specialized diabetes was not so prevalent, but now it's really approaching the sizes of a global pandemic and there's a lot of work to be done out there. That's for sure.

Benyamin Cohen:

Yeah. I was reading, I was doing some research for this interview, and I was reading that there's 422 million people around the world who have diabetes.

Professor Avivit Cahn:

Yeah. And those estimates, those are the IDF estimates, which are actually going up and up as the years move forward. Many people think they even should be higher. And this is really part of our Western lifestyle and the diet that we're eating, which is suboptimal. We're definitely not eating today what our great-grandparents had been eating. There's a lot of chemicals in the food, a lot of fast foods, lot of fructose, a lot of, all the processed foods and much, much less physical activity. So, this is all accumulating to this very markedly obesity pandemic, which is very tightly associated with diabetes.

Benyamin Cohen:

We're going to talk about diet later on in the episode. So where does this rank? 422 million, where does that rank, cancer and heart diseases, is that pretty high?

Professor Avivit Cahn:

So yes, it's pretty high, but it's all interlinked together, because even though diabetes doesn't rank as the highest cause of death globally, but often we do note that diabetes is associated with a high risk of cardiovascular disease and of cancers. So it is affecting global morbidity and mortality very, very significantly.

Benyamin Cohen:

So, it's underlying and almost in tandem with a lot of other diseases.

Professor Avivit Cahn:

Totally.

Benyamin Cohen:

Yeah. So, since we're talking about diabetes in general, can you tell us about the different types of diabetes? I had a friend growing up who was a kid who had diabetes, and I know that's different than when an adult gets diabetes. So can you tell us a little bit about the differences?

Professor Avivit Cahn:

So, we used to call this like pediatric diabetes and adult diabetes, but now it's, since we know that what we used to call pediatric diabetes, which is actually now called Type 1 or autoimmune diabetes can develop at any age. So, we moved away from the restrictions of adult and pediatrics. So, Type 1 is basically an autoimmune form of diabetes. And if we take it as in its pure form, not in any confounding. So it's generally occurs rapidly within month usually. And it progresses fast and leads to complete destruction of the beta cells. Now, of course, there's some heterogeneity here between different populations. Some people have it slower, some have it faster, but that's the basics of Type 1 diabetes. And then we have-

Benyamin Cohen:

If I could just interrupt one second, and that's a type of diabetes that it's not something you could, it's not a diet. It's something that happens to your body without you doing something "wrong."

Professor Avivit Cahn:

For sure, for sure. For sure, it's an autoimmune disease, like all autoimmune disorders, but we do know that the prevalence of Type 1 diabetes is also very significantly increasing worldwide. So there's also something similar, but this is like many other autoimmune diseases, which are all also increasing in their prevalence.

Benyamin Cohen:

Do we know why that is?

Professor Avivit Cahn:

So, we do think this is more like environmental factors, or inflammation, or exposure to different antigens, but there's still a lot of study going on. And there's also a lot of difference between countries. For example, this is much more common in Northern Europe countries and much less common in Africa. So, there is some epidemiological study needed over there to understand that better. And then other than Type 1 diabetes, we have the prevalent diabetes that's Type 2 diabetes. And that's where a lot of study is ongoing because it's a what you call trashcan diagnosis because whoever's not Type 1, so he ends up in being Type 2 and that's almost all of your millions are Type 2.

Professor Avivit Cahn:

So we clearly, there's clearly a lot of research ongoing to try and differentiate that huge, huge diagnosis of Type 2 diabetes, because the people don't all look the same, they're very different one from another. So, some of them very obese, some of them are not very obese. Some of them get it very young, some of them get it much older. So, there's a lot of understanding here, how to redistribute that huge basket of Type 2 diabetes. And then we have a small, a tiny basket of others, which is monogenic, or others, or after pancreatectomy or other.

Benjamin Cohen:

Is Type 2 diabetes something that might be, is that preventable as opposed to Type 1 diabetes?

Professor Avivit Cahn:

Sure. For sure. Yes. As opposed to Type 1 where... They're also preventive efforts to Type 1, but that's not comparable to what we're doing with Type 2 diabetes, because Type 2 diabetes is basically the interface between the genes and the environment. So, the genes cannot be altered, but to some extent, but the environment is something that really can be modified. And there's a lot of effort ongoing to try and improve people's diet, lifestyle, habits, because we know that obesity predates Type 2 diabetes in many, many of the cases.

Benjamin Cohen:

It seems to me that nowadays, as opposed to, I don't know, 30, 40 years ago, more and more people are "living with diabetes," it's not necessarily a death sentence. I know some people get, I don't know what those devices are called, the insulin pumps that are attached to their body and things like that, which make it more easy to live with diabetes, is that true?

Professor Avivit Cahn:

For sure. But that's mostly appropriate for, or used by patients with Type 1 diabetes, they have complete insulin deficiency. And then basically the technology nowadays is trying to mimic that insulin deficiency and then provide insulin appropriately. And the pumps are, that's a very expanding technology with the most recent pumps and sensors actually interconnected in a way that the sensor can read your glucose and the pump can respond, what we call closing the loop, having an artificial pancreas hanging right out there. So, we're almost there. The technology's really developing, but that's for people with Type 1 diabetes mostly. People with Type 2, for sure, they live to very long ages. It's a chronic disease like hypertension and dyslipidemia, but it needs to be managed.

Benjamin Cohen:

Can someone who has diabetes, let's say in their family, I guess that you were talking in the first Type 1 diabetes, is that something that could run in your family, like if your parent had diabetes, or if your aunt and uncle had diabetes?

Professor Avivit Cahn:

So from a genetic perspective, both types of diabetes are hereditary, but Type 2 has a much stronger genetic component, or I would say hereditary component. Because most of the patients with Type 2 diabetes, I would come in and say, okay, who has, I don't even ask, do you have diabetes in your family? I say, who has diabetes in your family? Because it's for sure, the mother, the father, their sister, the uncle, the grandparent. Somebody out there's got diabetes. With Type 1, it is slightly more common, if a person has Type 1 diabetes, his kids are slightly more likely to have it than somebody else in the population. But again, it's not such a strong hereditary effect like Type 2 diabetes.

Benjamin Cohen:

Yeah. Is there a gender tendency for men or women to get diabetes more?

Professor Avivit Cahn:

No, not really. Women tend to get it postmenopausal more likely than pre, but no, it's more dependent on, you can see racial disparities sometimes, some races are more likely to get it. And then some women are more likely like in Israel, obese Arab women are more likely to get to diabetes than others. But it's also a mix of genetic and cultural issues.

Benjamin Cohen:

Why is that, with the Arab women?

Professor Avivit Cahn:

Well, it's a lot about the diet and the lack of physical activity and a lot of stay at home and not enough education. So, there is a lot of effort in Israel put in some specific programs, like there was a very large program in Natzeret, for example, for the prevention of diabetes in the Arab population, with the great focus on the Arab women, because they are a really high-risk population.

Benjamin Cohen:

Just because the diet and things like that, like you were saying.

Professor Avivit Cahn:

There also a genetic component, and Arabs tends to have high rates of diabetes, but it's also a lot of a culture and the nutrition and awareness for physical activity and for how to eat properly.

Benjamin Cohen:

Some of your other colleagues I've talked about where they've done, Hadassah has done outreach in Arab communities for all sorts of different health awareness issues. But is there something on the opposite side of the spectrum? I was reading that Yemenite Jews famously didn't have diabetes. Was there something unique about their diet, or their genes?

Professor Avivit Cahn:

So again, "was" is the correct statement, because it's just like, the Yemenis and the Ethiopians, when the Ethiopians immigrated Israel, the prevalence of Type 2 diabetes, and interestingly also Type 1 diabetes, was almost nil. They came in with very, very low rates of diabetes, almost nothing. And they are a very high-risk population here in Israel. So, the theory goes, the common theory is the thrifty gene theory. That means that populations which were raised in regions where the nutrition was lacking, so their genetic makeup has been evolved to saving energy. And then when you reach a country where there's too much energy and you start excessively saving it. So, that's when these populations develop diabetes. So actually, the Yemenites and Ethiopians are high-risk nowadays for diabetes, they develop it thinner and often at younger ages and often needing insulin earlier. And it's really this change of nutrition and culture that altered their diseases and not for the good in this case.

Benyamin Cohen:

Yeah. So, but anyone, regardless of family history or cultural background, anyone can get diabetes if you eat the wrong types of food, or if you don't have physical activity?

Professor Avivit Cahn:

It's a mix, it's genetic and environmental. So, the strongest, strongest risk factor for diabetes is age. People are often surprised when I say that, but that actually makes sense, because with aging, the beta cells and the pancreas, which make the insulin: so, they age and they produce less and less insulin. And then it's a question of how much insulin is required, that's what we would call the insulin resistance of the cells. So, if you're really obese, or you eat poor diets, so you're increasing your insulin resistance and then the insulin requirements increase. And that's where the genetic fits in. And that's the question of how good is your pancreas and can your pancreas actually respond to meet demands?

Benyamin Cohen:

Interesting.

Professor Avivit Cahn:

I often see patients before bariatric surgery, they can have a BMI of 50 and no diabetes at all. So I'm like, wow, they have an amazing pancreas. They have a great genetic background, and their pancreas is dealing just fine with this immense and some resistance, but gradually the insulin reduces with age, with the aging of the beta cells. So with age, we see a lot of diabetes ages. I guess if we would all live till 120, then the vast majority of us would develop diabetes irrespectively.

Benyamin Cohen:

My dad, who's about to turn 80, got diabetes recently, he was pre-diabetic for a while and then-

Professor Avivit Cahn:

Right. But the clinical significance of that is not very large. That's probably not going to modify his life dramatically. We call that mild age-related diabetes, because it's generally mild and it doesn't progress really fast. And these people usually manage just with a couple oral medications. So that's not the major morbidity that we see with diabetes, not at that age.

Benyamin Cohen:

When we return, Professor Cahn talks about what symptoms you might notice if you are pre-diabetic, and what foods you should avoid, including one item that you may find quite surprising. All that and much more after a quick break.

Benyamin Cohen:

If you're enjoying this episode, you'll want to check out our previous conversation with Professor Yoram Weiss, the acting director general of the Hadassah Medical Organization. We covered a lot of topics about new technologies and his vision for the future of the hospital.

Professor Yoram Weiss:

I would like to be a hundred times better than we're now. I want us to be within the 10 best hospitals in the world in five years. That's where I want Hadassah to be.

Benyamin Cohen:

You can find that episode of "Hadassah On Call" on Apple Podcast, Google Play, or wherever you get your podcast. Or on the web at hadassah.org/hadassahoncall. That's hadassah.org/hadassahoncall.

Benyamin Cohen:

And now back to our conversation about diabetes with Professor Avivit Cahn.

So I want talk about diet, or lack of diet in this case. High fructose corn syrup, you mentioned it earlier is prevalent, certainly where I live in America. You have a similar issue in Israel?

Professor Avivit Cahn:

So, not so strong, not so strong, but it's totally there. I don't think, the rule says that if you take something and you look at its ingredients, so if they're more than four ingredients, you probably should not be eating that. And then if you take the average American bread and take a look at the ingredients, so they're like what? 20. And most of them are all chemicals that are unknown to man or have not been known to man for centuries.

Benyamin Cohen:

Yeah.

Professor Avivit Cahn:

And we're eating all that stuff. Okay. So, it's clearly, adversely affecting our health. And I think the US has a much more, I would say advanced food industry for the good and for the bad. So, you've got a lot of those chemicals out there, and they're causing diabetes and obesity, be it directly or indirectly, but they're definitely a major issue of this pandemic.

Benyamin Cohen:

Is it healthier, you were just talking about chemicals, if I bought a loaf of bread from a bakery, as opposed to prepackaged from a factory?

Professor Avivit Cahn:

Well, I don't know what the bakery are putting in there, but let's say if you grew the wheat and you raised it and you cropped it and then you know what's in your bread, so that's better. Yes, for sure. For sure. But if you buy a bread, that's got those 20 ingredients, they're not good for your health.

Benyamin Cohen:

What about sweeteners? We all know sugar's bad and high fructose corn syrup is bad. I'm certainly guilty of this. I put sweetener in my coffee because I think I'm trying to be healthy, but are sweeteners, could they eventually cause something like diabetes?

Professor Avivit Cahn:

Well, sweeteners are also a major focus of many, many studies nowadays. And some of them have been shown to increase the risk of insulin resistance. But I usually ask people, "What's your alternative?" If a diabetic comes to me and he says, "Well, I put two spoonfuls of sugar in my coffee because sweeteners are unhealthy." So, I'm like, "Well, I don't know to what extent sweeteners are unhealthy, but I'm quite positive that sugar's unhealthy for you." I'm not encouraging high intake of sugar at all, not for any individual. But the sweeteners are chemicals, just like all the chemicals that we're eating in the bread. So, if your alternative is to drink Coke, or Diet Coke, or water. So, I would say how about water? But if any, so I would say, well, I would prefer that you add just one more chemical and not increase, not have a high intake of sugar. But of course, preferably just drink water. I guess.

Benyamin Cohen:

What other foods should people, are dangerous when it comes to diabetes, what foods should people try to avoid?

Professor Avivit Cahn:

Well, you started with those numbers of the global pandemic. So, let's think what were people eating 200 years ago? Well, they were eating less processed foods, because processed foods are really not good for us. And they were eating a lot of grains and whole wheat grains, and lots of vegetables and lots of fruits and not a high intake of sugar at all, white sugar I think was not so common a few centuries ago. So, I guess we should be going back there and try to eat the things as natural as they come with a minimal amount of chemicals and preservatives and sweeteners. And, of course, minimize sugar intake and fructose intake. And all this should be extensively cut down for sure.

Benyamin Cohen:

So I eat a lot of fruit, but doesn't fruit have a lot of sugar in it as well?

Professor Avivit Cahn:

For sure. So, the questions always, what is a lot? I could tell my patient, well, in Israel we have, the summer season is always challenging for my patients with diabetes because of the watermelon and the melons and the grapes. So, somebody could say, well, I eat one fruit a day, I have watermelon, one watermelon a day. So, it's all a matter of quantities. Fruits are good for you. They have lots of vitamins and assuming that they're, I wouldn't go to saying organic, but assuming they're not preserved fruits or processed fruits, but they're coming off the tree. Okay. So fruits are good for you. But again, not in excess. I would say if you're eating more than two, three fruits a day. So, that's beginning to be a significant source of sugar.

Benyamin Cohen:

I do eat-.

Professor Avivit Cahn:

You eat 10.

Benyamin Cohen:

I have a big fruit bowl almost every day. So yeah. Okay. I'll have to reconsider that.

Professor Avivit Cahn:

So, always the question is what's the alternative? If instead of the fruit bowl you're going to have a bowl of Corn Flakes or Krispies or whatever's considered healthy and is totally not. So stick with the fruits I guess.

Benyamin Cohen:

And I assume it goes without saying that exercise is also important.

Professor Avivit Cahn:

For sure, for sure. And that's something that's really missing. And we know that both aerobic and anaerobic exercise, those are both important and both are good to stick to have your regular routine.

Benyamin Cohen:

How easy is it for diabetes to go undiagnosed?

Professor Avivit Cahn:

Well, when it's Type 2 diabetes, we do often see that, a person who never had his lab. In Israel it's not so prevalent because people are more keen on doing their labs because... It's very unlikely. We do see that, but infrequently people who haven't done labs in 10 years and then they're symptomatic and then they do their labs and they're diagnosed with diabetes. That's not the common thing. Usually, people tend to do labs every few years and we usually do see a trend of diabetes. Once we would've said almost half of the patients are diagnosed already with prevailing complications, but nowadays the numbers are going slightly down because people are not diagnosed so late. But, of course, it's very important to diagnose early so that you can treat it on time, because the complications stem from the high glucose. So, it's the long, how many years were you exposed to the high glucose levels? That's what matters actually.

Benyamin Cohen:

And so, what are the symptoms that someone might see that they should probably get checked out?

Professor Avivit Cahn:

So, going to the extreme, that would be what we call polyuria and polydipsia. That means that the person has, he drinks a lot, and he needs to pee a lot. So, that's a sign of diabetes, because the body's trying to get rid of all the sugars. And we would also see a predilection for developing infections. And if it's very severe diabetes, then weight loss is also possibility, because people who are losing a lot of glucose tend to lose weight in the earlier years and months.

Benyamin Cohen:

I've been diagnosed with a chronic autoimmune disease, I have Crohn's and I remember being diagnosed with it and the doctor telling me, "This is an incurable disease, and you're going to have this for the rest of your life." What is that like for you as a doctor, when you have to break the news to someone that they have diabetes?

Professor Avivit Cahn:

Well, I would say in a sense, unlike Crohn's, I usually tell the person, well, you're in good company, half a million of people in Israel have diabetes. So, that's a bit less intimidating. Though I have to say the Type 1 diabetes, which is maybe a better analogy to Crohn's is a bit more challenging for people, because that's more to deal with because they have to upfront start with injections and multiple daily injections and checking their glucose. That's very different from the Type 2 diabetic. I tell them, okay, so take this pill twice a day, watch what you eat and you're going to be okay. The Type 1, you make it light, but it's not really light. It's a burden, I'm not going to say that it's not, it's very challenging because it really alters your lifestyle. So I can't say that, it's challenging for people.

Benyamin Cohen:

What would happen if people decide not to take care of their diabetes for whatever reason, if they go undiagnosed, or if they decide not to listen to the doctor, what would happen?

Professor Avivit Cahn:

So in the case of Type 1 diabetes, it's not really an option. You can't ignore it. It's there. Because they develop a complete lack of insulin, and that leads to ketoacidosis. And they get admitted to the hospital. And it's a dangerous condition, it can lead to death. So Type 1 diabetes cannot neglect their disease at all.

Professor Avivit Cahn:

Type 2 can, if I'll phrase it this way, sort of get away with it for a few years, but it's not a smart thing to do. Because their body is building up complications. So since their glucose is not so high, they may not be symptomatic, they won't be admitted with ketoacidosis, they still have some insulin, but their body is sort of building up complications because of the continued exposure to high glucose. And then you get the complications in the kidneys and the eyes and the nerves and the heart and, and sometimes it's too late, because sometimes once all those complications have built it up. After 20 years of poorly controlled diabetes, there's really limited efforts that we can do. I mean, there's a lot to do, but still, there's a lot of damage already behind already done.

Benyamin Cohen:

And it's probably irreparable damage, I'm guessing?

Professor Avivit Cahn:

So those are really strong words, but we do believe that the body can rejuvenate at some sense. But, yes, some of this damage is irreversible. There are lots of good medications nowadays, which can help I would say stabilize or even reverse, for example, kidney damage or reduce the risk of cardiovascular

disease. So good glycemic control, even if you get to it at a later point. It takes years to get benefit from it, but it does help so there is what to do. There is what to do. We don't have to look at it all pessimistic but it's not something I would encourage. I think diabetes should be controlled early on and as soon as possible and should be maintained on good control.

Benyamin Cohen:

I want to talk just for a moment about how diabetes can affect other parts of your body. I've heard people can have, let's say have a foot amputated or something. What's the connection between diabetes and your foot?

Professor Avivit Cahn:

So diabetic foot is an end-stage of multiple processes of diabetes. It stems also from nervous complications to the foot. So the foot is in sensate and we know that sensation is a gift of God, the sensation of pain, because once you feel the pain, then you can avoid the damage, but a person who's lost the gift of pain. So, he can put on his shoe and have a little stone stuck in his shoe and walk on it all day. And then he ends up with a leg ulcer even after just a few hours, because he's been walking on that stone all day, all morning even. So, that's the first major trigger.

Professor Avivit Cahn:

And then those nerve issues lead to deformities. And then if the shoes are not adjusted and the foot is deformed, so that also leads to abnormal pressure points and then ulcers. And another cause, which is also of increasing prevalence, is poor blood supply to the foot. Just like we have issues with blood supply in the heart and the brain, and then you can develop a myocardial infarction, or cerebral vascular event. So just like that, it's the same vessels. And then the blood supply to the leg declines. And then once the patient develops an ulcer, then he cannot heal the ulcer as good as would be expected, because of the poor blood supply. So it's really a combination of multiple issues that leads to foot problems.

Benyamin Cohen:

And I was also reading that dental care is important for diabetic patients. What's the connection there?

Professor Avivit Cahn:

So, it's really a bidirectional thing, because we know that poor oral hygiene and periodontal disease, that's an ongoing inflammation in the body. So, that's an ongoing stress in the body that increases the blood glucose levels. And inversely also high blood glucose levels cause and poor risk of healing and more inflammation. So, it's bidirectional. So, people should take care of their periodontal disease because it would get their diabetes to be poorly controlled and then exacerbate their periodontal disease. So that's really part of diabetes care and management.

Benyamin Cohen:

We're still obviously during, we're in a different phase now of the COVID-19 pandemic. And I remember when it first was making news and they were talking about people who have preexisting conditions are more susceptible to COVID, and one of those preexisting conditions was diabetes. So it's almost, I have a two-part question. Why is that why was diabetes a preexisting, harmful to get COVID if you had diabetes. And number two, have you seen any lasting side effects or symptoms from your patients that maybe have long haul COVID because of this?

Professor Avivit Cahn:

So, the answers are yes, yes and yes. So, that's easy. Okay. So, first thing we do know that people with diabetes tend to have worse of any disease. Their pneumonia would be worse and any disease they develop is worse than if they had not had diabetes. So in a sense, COVID is similar. It's just a strong inflammatory infection. And therefore people with COVID and diabetes tended to have it slightly stronger. And then again, there are several issues of post-COVID. So first of all, we have the post-COVID, which occurs to everybody. And it's possibly more prevalent in people with diabetes. In Hadassah they actually have some post-COVID clinics also for the rehabilitation, also with the focus on the lungs, and I do refer my patients to those clinics often, if it's prolonged symptoms, whether they're pulmonary symptoms, or more like a cognitive symptoms or functional symptoms.

Professor Avivit Cahn:

So, they really get a lot of help in those clinics. And another emerging topic is actually new onset diabetes, which is becoming clearly more prevalent in people with versus without COVID. So it's probably also Type 1 and Type 2 diabetes, which are slightly more prevalent post-COVID than not post-COVID. So, that's also a topic now under research and the answer's probably yes, there is an increased prevalence.

Benyamin Cohen:

And so you just had to tell those patients to just be more cognizant and more aware during lockdown and things like that to stay safe.

Professor Avivit Cahn:

No, for sure. Look, and during lockdown it's very challenging if you have diabetes because people gained so much weight during lockdown, it was amazing. I think once I calculated how much my kids gained weight, I said, I think my kids gained a total of, I don't know what, 15 kilograms, I have few kids, but it was a high total altogether, because even though we were trying to eat a healthy diet, still everybody's home, everybody's not doing exercise properly, not eating properly. So it was just lots of weight gain. And my patients with diabetes, it was so depressing to see them post-COVID, post-lockdown, and everybody gained weight, lost control of their diabetes. I was like, oh my God, you owe me those three kilos. You better lose them now. So it was challenging. It's really challenging for a patient with diabetes to be stuck at home in lockdown. And I really hope we're not getting back there again.

Benyamin Cohen:

When we return, Professor Cahn talks about her research, what makes working at Hadassah special, and the story of a patient she'll never forget. All that and much more after the break.

Benyamin Cohen:

If you're a fan of this podcast, we have an opportunity for you to meet the doctors you've heard on the show at an upcoming event. Hadassah is hosting its 100th national convention in Jerusalem this November. You can join other friends of Hadassah to get a behind-the-scenes look at the cutting edge research being done at our hospital. Plus, we'll have special guided tours around Israel to explore the country's art, history, and, of course, food. Get more information and register for your spot at www.hadassah.org/100convention. That's hadassah.org/100convention.

Benyamin Cohen:

And now back to our conversation about diabetes with Professor Avivit Cahn.

So I want to pivot a little bit now and talk about some of your research that you're doing at Hadassah. Can you tell us a little bit about, I was reading something about monogenic diabetes research, what's that about?

Professor Avivit Cahn:

So, I think as I mentioned in the beginning, so we have a little bit of Type 1 diabetes, a lot of Type 2 diabetes and all the other. So, the other are, a substantial amount of the other are monogenic diabetes. That's people in which we know there's a single mutation, if you were going into CRISPR in single changes, so that's the uncommon form of diabetes where there's a single mutation that is actually the major cause for their diabetes. And then it's usually hereditary like any, usually autosomal dominant mutation.

Professor Avivit Cahn:

So, people with atypical diabetes are usually referred to my clinic. We see them together, we discuss it. And then we have an excellent collaboration with our genetics department. So, we have developed a monogenic diabetes panel for these patients. And since we're in the same hospital, so there's a lot of crosstalk between myself and the geneticists because the answers are not always so clear cut. This is genetics. So sometimes you get a mutation you're like, okay, a hundred percent. This is it. And bingo, but sometimes you get mutations and it's not so short. Is it that? is it really a mutation? Is it just a variant? So that's why we have a very good collaboration there. And for example, one of our patients we're still exploring his mutation because it's very genetically complex and he had a very atypical type of diabetes. And so that's really the benefit of a collaboration with the genetics to understand these things better.

Benyamin Cohen:

I've noticed that with a lot of the doctors I've interviewed at Hadassah is that, obviously it's a huge hospital, but everybody knows each other and works together across fields.

Professor Avivit Cahn:

Yeah. So, I think that's the real benefit of being in a large tertiary center and academic center, because if you're just in your single community, or single clinic, so you're less exposed to other things. And in this case, if I see a patient with something which is unclear, I have who to address and we talk about it together and we can think about it together. And that's the real benefit of being tied into an academic center.

Benyamin Cohen:

And what other research projects have you been working on?

Professor Avivit Cahn:

Okay. So, beyond that genetics project and the diabetes unit, we've been involved also with clinical research. So, as I mentioned, we've had the SGLT2 inhibitor, which is the dapagliflozin otherwise known one as Farxiga or Xigduo, I'm not sure what's the name in the States. I think also very similar. So, the Hadassah diabetes unit has collaborated with the Harvard Med School and with AstraZeneca, the

pharma company, to lead the cardiovascular outcome trials of this agent. So that was a very successful trial, very important clinical trial. And together we've been leading the analysis and the subgroup analysis and post talk analysis. And so, there's a lot of interesting research and data going out there. And I've also collaborated with other groups for big data research and for real world data research, which is also very interesting. It lets you see how things work outside of the clinical trial setting also in the real world.

Benyamin Cohen:

Such as? What would be an example of that?

Professor Avivit Cahn:

So, I had some collaborations with Maccabi Healthcare Services in which we studied, for example, the prevalence of acute kidney injury, following SGLT2 inhibitors. And we demonstrated, we were one of the first to demonstrate a reduction even before the clinical trials actually showed it. I've also had other collaborations, for example, in analyzing predictors to diabetes. If you take a population of people with pre-diabetes and then looking at their electronic health record, so you can actually identify who are those, who are most likely to progress to diabetes and then score them and rank them and choose those in which preventive efforts should be more directed to them. That's the types of machine learning and algorithms that are developed to try and identify those who may benefit from prevention the most.

Benyamin Cohen:

I'm always fascinated that, Hadassah is not just a hospital that sees patients, but it's also a research institution. How does that make Hadassah different from other hospitals when it comes to diabetes specifically?

Professor Avivit Cahn:

So, I think you phrased it right, because once the hospital is also involved and research, and also we have the med school right next to us, and we were also involved in a lot of teaching. So that obligates you to stay totally on your toes and be updated with the last cutting-edge clinical research. And I always find that involvement with students is also something that, they always ask you very interesting questions and thought provoking, and then it's, you can always see beyond just the patient, if there's something that doesn't strike you as right, or something that you want to study beyond. So, we have the facilities, there are excellent research collaborations also in Hadassah and the hospital side of Hadassah. The diabetes unit is involved in a lot of basic research, I would say even cutting-edge basic research beyond the clinical research that I've discussed earlier. And there's also a lot of collaboration with the university basic research.

Professor Avivit Cahn:

So being in such a place actually really stimulates you to, for example, we've seen a patient and thought of trying to understand the mechanism. And this is something that we moved on further to study in the lab and understand the mechanism, which caused alterations in glucose. And then you study that in the lab and then you can move forward with that. So, this crosstalk is really something that's very, very, very interesting and very, I would say promotes Hadassah having the med school right there and the collaboration with the basic research.

Benyamin Cohen:

Do you have a story, I always like to ask the doctors, if they have a story of an inspiring patient or a memorable patient that still sticks with them?

Professor Avivit Cahn:

Well, I have lots of patients. One of who stick with me already for many years, but one of the, dealing with monogenic diabetes or I've been dealing with Wolfram syndrome. Wolfram is a bit more common in Israel because just like their Ashkenazi mutations for CF and Tay-Sachs. So, there's also an Ashkenazi mutation for Wolfram. It's often undiagnosed because people just think it's-

Benyamin Cohen:

Is Wolfram a type of diabetes?

Professor Avivit Cahn:

Yeah. So, in Wolfram, it looks like Type 1 diabetes, but it looks a bit like a weird Type 1 diabetes. So, often these patients are referred to me and I'd say, when I make the diagnosis of Wolfram and deliver it to a patient, it's challenging because it's just like, I recall the first patient I delivered that diagnosis to her. So, I was like, she came to me, she was like, "I have this diabetes, nobody understands my diabetes. I really need help. I really need to understand what I have, because nobody can treat me properly." So, we did genetic testing and then I told her. Well, we met again. So, I said, "I have good news and bad news. So, I have good news, you have a diagnosis." Finally, she can understand what she has. "And the bad news is that it's Wolfram's because it does have additional symptoms." They're not so strong in the Ashkenazi mutations, though she had a mix, but they're additional neurological alterations and other symptoms. So, it's challenging to accept.

Professor Avivit Cahn:

So I'm saying in a sense, of course, it helps you to know what you have, because suddenly everything falls in place and people know how to treat you, but it's also some bad news. So it's a combination of both.

Benyamin Cohen:

Yeah. But not having a diagnosis, like you said, I know friends who have spent years trying to figure out what's wrong with them. And that's almost worse.

Professor Avivit Cahn:

No, absolutely. Absolutely. With monogenic diabetes, I've had multiple patients where you finally, they come and they say, nobody understands my diabetes. You make the diagnosis, you sit and explain it. And then the treatment changes and then their whole perspective changes. And it's really very important.

Benyamin Cohen:

If you and I were to have this conversation, if we were going to record another podcast in five years or 10 years from now, where do you hope to see diabetes research going?

Professor Avivit Cahn:

So, I think the main focus of diabetes research is what we call precision medicine, or personalized care, because we have this huge, what we call wastecan diagnosis of Type 2 diabetes, which encompasses nearly all our patients with diabetes. And it is so clear that they're not the same. So I think this is really where research is going and where we're all studying this also to try and bend those people into more specific categories and then to adjust their treatment more specifically, more personally also based on their genetic data and metabolomic data. And then, you could tailor the treatment much more specifically. Because now we're more or less, not getting into details, giving people more or less the same medication. And it's not really the way it should be done. You have this one-way algorithm for everybody, but people are so different.

Benyamin Cohen:

Do you foresee a time when there might be a cure for diabetes?

Professor Avivit Cahn:

Well, that's a huge question. It's just like, almost like a cure for cancer.

Benyamin Cohen:

Yeah.

Professor Avivit Cahn:

So again, Type 1 diabetes, I think where the pancreas just is not there, the beta cells just simply don't function. So having the mechanical artificial pancreas is almost there, but it's still a lot of technical issues. And then the issues would go into transplantation of beta cells, or of stem cells, or all sorts of progress ongoing in that direction. But Type 2 diabetes is such a complex disorder and it's something that mankind broke, but does not know how to fix because it was not prevalent many years ago and it's there in our food, and it's there in our genes and it's there also with aging. So I don't think we're going to have a real cure for it. We're just going to know how to handle it better, how to prevent it, how to delay its development. But it's always going to be there. Optimistic. Right?

Benyamin Cohen:

Well, optimistic but realistic?

Professor Avivit Cahn:

Okay.

Benyamin Cohen:

Yeah. I like to always end my conversations with, is there anything I didn't ask that I should have asked?

Professor Avivit Cahn:

No, I think you were fantastic.

Benyamin Cohen:

I wasn't looking for a compliment.

Professor Avivit Cahn:

No, I think we covered the basics. I think we covered the basics, but there's always lots of talk about diabetes.

Benyamin Cohen:

Well, Dr. Cahn, this has been really, really educational. So many of us either have family with diabetes, we know people with diabetes, so this has been super informative. So thank you for your time.

Professor Avivit Cahn:

Great. Thank you. It's been a pleasure. Thank you so much.

Benyamin Cohen:

Yeah. All right. Take care.

Professor Avivit Cahn:

You too.

Benyamin Cohen:

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