Living Transplant Season 4 Ep 6

Candice Coghlan: [00:00:00] Living Transplant is a podcast that takes you behind the scenes of the transplant program at Toronto General Hospital with the goal to educate, inspire, and fuel your passion about transplant. I'm your host, Candice Coghlan. Thanks for joining us for Season 4. In this episode, I sat down with Craig Lindsay, the Senior Manager of Programs and Public Policy for the Kidney Foundation of Canada.

Craig not only works tirelessly supporting this community, but he's also part of it. Having lived with diabetes, which eventually caused his kidneys to fail. Craig did home dialysis for many years before receiving a kidney pancreas transplant, curing his diabetes. Later, we were joined by Dr. Trevor Reichman, Surgical Director of the Pancreas and Islet Transplant Program and Associate Professor of Surgery at University of Toronto.

He spoke to us about the life saving and life changing innovation behind pancreas and islet stem cell transplants. We hear about the minimally invasive procedure with islet stem cells, and [00:01:00] how the end of type 1 diabetes could be in our near future, changing the quality of life for millions of Canadians.

Please enjoy. Welcome back to the living transplant podcast. Today. I am thrilled to have Craig Lindsey with me here today. Thank you so much for

Craig Lindsay: joining me. Really happy to be here. Candace. Thanks for the invitation. Amazing.

Candice Coghlan: So I've known of Craig Lindsey and known you for a few years now, but for those of us listeners who don't know who you are, can you introduce yourself please?

Craig Lindsay: Yeah, sure. I'm Greg Lindsay. I'm the director of programs and public policy with the Ontario branch of the Kidney Foundation, and I live with kidney disease. I think those are some of the reasons we've overlapped. Absolutely.

Candice Coghlan: Yes. Um, in both of those worlds, right? Kidney disease and the kidney foundation, but I'm wondering if you can bring us back to your life prior to your diagnosis and, and what it was like, you know, before you had that, uh,

Craig Lindsay: diagnosis, I [00:02:00] know most people who live with kidney disease, there's a life before that diagnosis.

Well, I after and I know you well understand everything changes when you sit in a clinic or get the phone call from your doctor or your care team. And I just remember feeling really not well prepared to hear those words, kidney failure. The word I really remember is failure. I think it was actually phrased as end stage kidney disease.

And I know my, my family and I, we looked at that end stage. I very clearly remember Thinking end of what? End of kidneys, end of me, end of my family, end of my hopes. I was busy raising a young son and establishing a relationship. I was working hard. I was moving forward with purpose. I felt engaged with my community.

I was at a strong circle of [00:03:00] friends, but I go back to that moment of hearing that diagnosis and everything else falls away. Um, everything goes quiet. And in your head, you're thinking, what do I do? What can I still hope for? What can I still do? And more importantly, what do I need to do next? There's no manual for this, or at least if there was, I didn't, I didn't know.

I mean, I, I understood what kidneys did. I think I'd heard of the kidney foundation. I had heard of transplant. I understood all that, but in a very abstract sense, none of it. Was real to me. Does that resonate to you with what you understand of hearing

that?

Candice Coghlan: Exactly what I felt as well. My father's mother and his uncle both had kidney disease.

So, you know, it, there was knowledge that it existed and it was out there, but definitely different than when you're being told that it's not out there, it's you. And that word, like you [00:04:00] said, failure is. Almost, you take it upon yourself, like, what did I do to make this happen and how did I fail in a way rather than my body not being able to process toxins and it's my kidneys that aren't working, but you instantly go back and try to, you know, go over everything that you've ever done.

That's

Craig Lindsay: so well said. And I, I'm probably like many people when I hear something from a healthcare. Provider. I Google it. I go home and look it up on the Internet and it was terrifying. I remember Googling life expectancy of someone with diabetes. And with kidney disease and the numbers were terrifying.

And my wife actually said to me, that's just on the internet. It's not real. It's not you. Um, I just remember clutching at straws almost. Where's the information? What can I do to understand? And the numbers were, were scary. I thought four to five years. My goodness. I [00:05:00] hope that's not me.

Candice Coghlan: So how did you move from that?

You know, all of those questions and, you know, being in this state of shock to that, what's next and, you know, is it dialysis? Is it transplant? Is it, you know, how do I live with this reduced function? Where did you go next?

Craig Lindsay: I leaned heavily into the people who are managing my kidney care. Kidney care, at least in Ontario, I think is, is very well.

The people that were before me, the, the nurse in the pre dialysis clinic, the social worker, the pharmacist, and the nephrologist, they were all immensely approachable and respectful that looking at me, I'm sure they said, this man looks terrified. How do I give him information? That's going to let him go forward today, tomorrow, and in the coming weeks and months.

But, um, I think I remember my, my nurse in the predialysis clinic [00:06:00] saying, this isn't the end. This is the start of a journey. And all you need to know, all the need, all you need to worry about is the next step. Don't worry about what's down the road, far, far away. We need to get you ready to think about dialysis.

And here's what we want you to know. When you decide how and when you want to start dialysis and we understood it wasn't the same for everyone. We listened and they said, you'll know when it's the time to start. And I felt terrible. I was confused. I was carrying a lot of fluid. My ankles were small and I had trouble breathing.

Sometimes I couldn't walk up a

Candice Coghlan: hill. And how old was your little one at this time

Craig Lindsay: too? He was three, I believe. Um, and we didn't even think of how to introduce No three year old should have to hear that their father is living with kidney failure. Um, we parceled out that information in small bite sized chunks when it was appropriate.

And you well understand the complications. Diabetes [00:07:00] caused my kidney failure, as it does for so many people, and I was struggling to manage diabetes. And everyone I spoke to said, We got to get your diabetes under control, because you're going to need to be your best self when you approach dialysis. And, uh, it was overwhelming, but I will say as I, I'll come back to this.

Everyone I needed to speak with, I did an endocrinologist, a diabetes educator, they understood that I needed to be the best me coach dialysis. And when that conversation comes about dialysis. Again, you look online, but we were given lots of choices truly person centered. care. What's important to you? Do you like to travel?

Do you like to swim? Um, do you like to do things at home? Do you like to come into the hospital? I remember all those questions and my wife and I sat and thoughtfully answered all of them.

Candice Coghlan: And that's a big decision to make, not knowing really what any of them are [00:08:00] or how to decide.

Craig Lindsay: We thought about this and I can share the We thought about what's important to us as a family.

Um, I understood that it would be hard to travel, and I was really not interested in travel until I started to feel physically better, but... We thought a lot about do I want to do dialysis in our home with a three year old in that space and what would that look like to him, and we talked to other people living with kidney disease who ended up doing home dialysis and in center dialysis and ultimately it came down to, I think we can do this at home.

It was really important to me to not have to leave. Uh, the home three times a week for four or five or six hours, I really wanted to be at home and I thought I could manage all the complications, the storage space, where to put the machines, where to plug things in. And most importantly, what that would look like to my family, I didn't want my home to look like a hospital.

I wanted it to look like a home, [00:09:00] where dad did dialysis and we ultimately decided that peritoneal dialysis was the way to start, we gave it a lot of thought. Um, we asked a lot of questions and ultimately we were really happy with the choice we made. I do remember hearing the term kidney brain. When you're living with kidney disease, everything in your body is out of whack.

All the things that your body should be getting rid of. It's not. And I remember just thinking, I said, My wife, Audrey, I said, I'm really confused. I don't even think I can decide this. You got to decide for me. And she said, that's okay. Um, you let me know when your head's clear enough, you're, you're right.

You don't realize how sick you are until you actually start dialysis and think, you know, kidney disease chips away day by day, takes away a little energy, a little focus, a little motivation. And you think, am I really thinking clearly, but when you start dialysis, Why didn't I do this earlier? Everyone knows when it's the right time for them.

It really didn't mean I [00:10:00] had to start it, but I wanted to feel better. I wanted to think better. Yeah.

Candice Coghlan: So once you started that, um, dialysis, how did that, uh, impact your health and, and your lifestyle? Once you started at home,

Craig Lindsay: it was a gift. It was a gift of energy. It was a gift of not. Being tired, walking up steps at the end of the day to read my son a bedtime story, it meant having the energy to go outside with him to the park and to the splash pad and be a dad.

And I remember my son being really, every time you're able to do something that you weren't sure you had the energy for, we felt we made the right decision. And to be clear, it's not for everyone. There shouldn't be any judgment about not doing dialysis at home. Whatever works for you and whatever you're capable for.

Well, that's

Candice Coghlan: great to hear. And, uh, you know, you're, you're living on dialysis and managing and feeling better. At what point after all of that [00:11:00] information download about dialysis was transplant brought into your, your

Craig Lindsay: view? Yeah. I mean, With respect to kidney brain, I'm not sure of the exact intersection of transplant, but it came up pretty early.

I was, I mean, not young, but I was in my 40s when I understood my kidneys were failing and we sort of weighed the option of doing dialysis for the remainder. of my life. Transplant seemed immensely appealing. And I can't say I understood exactly what was involved in getting a transplant or how to get on the transplant list and how to approach it, how to think about living donation and what it meant like to have a piece of someone else's body put in mind.

But we, we identified early enough, given my relatively young age, transplant was our goal. That's what we were working towards and everything. Related to dialysis everything related to managing my diabetes was to get me healthy and [00:12:00] keep me healthy. When a transplant became

Candice Coghlan: available, was the pancreas brought up as a, as a potential, um, transplant at the same time, or, you know, was it discussed kidney transplant will be next, um, look for a living donor, or, you know, how did that kind of go?

Because I know when it's a kidney pancreas, most people get them together, um, and the pancreas is transplanted with the kidney, but, um, so I'm wondering, you know, What that conversation was like about the KP, or sorry, the kidney pancreas transplant.

Craig Lindsay: Yeah, I, that's a great question. And I, I think the way it was framed by my care team was, you need a kidney.

There's no question about that. And we would like to get you a pancreas too, because there's every reason to think that if you get a kidney, a pancreas will protect that kidney moving. forward. I, I think the assumption was my wife and I thought, Whoa, kidney pancreas was available. And you probably appreciate how many people know you can get a [00:13:00] pancreas transplant.

There's very few people with a kidney pancreas. And I'm curious. Candace, which, which was more transformative to you, a pancreas or a kidney? I often hear people say pancreas is a bigger

Candice Coghlan: deal. And so I actually didn't have a pancreas transplant, but I have so many friends who have had both of them and the fact that they no longer have to rely on insulin changes so much.

I'm wondering, what about yourself? You know, was the, that the, the face of it?

Craig Lindsay: Yeah. I mean. Kidney disease really, it was present in my mind and in my family's reality when I was on dialysis. I know there's a lot beneath the surface when you choose to eat appropriately for kidney health, when you choose to exercise, when you choose to manage your blood pressure.

I would say diabetes intersects every decision. Every decision. Diabetes is [00:14:00] tough. There's, there's no getting around it. And when you lay that on top of Kidney disease. It's a wonder anyone managed that manages that. Well, we do the best we can in the moment, but to circle back. I mean, we knew both a kidney and a pancreas would be transformative.

And the only thing we thought about was one after the other or simultaneous. And we understood the surgery is it's certainly become more routine with many years of research. But one surgery was enough. I was willing to wait for the kidney. If it meant getting the pancreas, Two, if that makes sense.

Candice Coghlan: It does make sense.

So how long did you dialyze before you got a call, whether it was the, the call, the first call or, um, you know, did you have multiple calls?

Craig Lindsay: We, uh, and I say we, because my whole family dialyzed together, that's the way we approached it. It was a team effort to be clear. No one does it alone. No, I think I dialyzed in total about four and a [00:15:00] half, five years.

I did home peritoneal dialysis. until I lost my catheter to peritonitis. I reverted to in center hemodialysis, essentially a crash start back into in center hemodialysis. And then as we worked through it, and I struggled to leave home every day to go to the hospital, not every day, three days a week to go to the hospital to do dialysis.

A very forward thinking nurse, actually my pre dialysis nurse, Audra, my wife reached out to her and said, Craig's not doing well. He's struggling. He comes home from dialysis more tired than he, when he went there. And she said, what do you like to do home dialysis? That was the last, what we call modality. I was living on home dialysis and doing really, really well.

Um, when the call came, I live in Toronto, very close to a transplant center. I know that's not the case for everyone. Um, for some people it's a great distance, but I'm [00:16:00] literally a 12 minute cab ride. from a transplant center that was going to do the life changing surgery. One morning driving Audra to work, she works in a hospital in Toronto.

I got the call, probably hear these stories a lot, but you go and sit, sit in the waiting room and I was the backup. There was a primary recipient and if everything worked out, they would get the kidney. If it didn't, I would be tested as well. It didn't work out, but it was like a test drive. Um, we had the bag packed.

We were ready to go. Um, as it turned out, the next day I got a second call that I was first up. Um, and I, I spent the day down at Toronto General Hospital, the transplant clinic, and It worked out. I went into surgery late one evening, uh, and woke up the next day with a tremendous gift of life.

Candice Coghlan: Wow. That's incredible.

I mean, that must have been an emotional rollercoaster for your family. [00:17:00] We were,

Craig Lindsay: we had become resilient over the many years of managing diabetes and kidney disease. We were. Well ready. We knew when that call came, I was healthy. I was motivated. I had my family around me. My friends were cheering for me. It trusted my healthcare team.

Let's do it.

Candice Coghlan: What did it feel like to wake up and know you have a new kidney and pancreas? And it's working.

Craig Lindsay: Well, it's terrifying, isn't it? I don't know. You wake up and there's so many tubes sticking out of your body and electrodes and machines beeping. And I don't know what I envisioned I would look like.

I would wake up thinking that I would leap out of bed and go do a triathlon, but I felt exhausted. Did you? It felt like a bus hit me. I

Candice Coghlan: did the first day and I don't remember a lot about the first day, but I do remember the second day feeling like I had [00:18:00] never felt like that. I just couldn't remember feeling that good.

To be honest. Yes. I was in a lot of pain and I'll tell you, I don't think I realized how much pain I would be in. So the pain was a lot more than I expected, but for a lot shorter time. Okay. When the nurse came in to say, all right, time to get up and walk around. You want me to move? Like my I'm stapled up, but things are going to fall out.

Like how is this supposed to work, but, but yeah, very quickly, I was shocked at how good I felt and how that kidney worked so quickly. It was amazing. I'm

Craig Lindsay: so glad to hear that. And I understand for the most part, people. Kidney kicks in right away. It starts doing what it's meant to do. Mm-hmm. , mine was, I think they call it a sleepy kidney, a sleepy

It, it just needed a little time to get used to where it was. Mm-hmm. . Um, and the pancreas, it's a longer surgery, certainly for kidney. Yes. Pancreas. I say that like I, I understood that I was asleep for it, but Right. [00:19:00] Yeah. When I woke up, Um, I do remember feeling sore and, you know, the post transplant care is comprehensive.

They, they know when your eyes open, you're in a new world and everything is different. You may be in pain, you're hurting in places you didn't know you had, but. And, and I do remember feeling every success was something that was disconnected from my body, whether it was the urinary catheter or the cardiac electrodes, um, or one of the many, many IVs.

Every time something was withdrawn, I felt like I was being liberated a little. And there's nothing like the feeling of getting up and having someone help you take a shower. Yes. You feel like yourself again, right? Oh my

Candice Coghlan: gosh. There's nothing better than a shower.

Craig Lindsay: I wonder. I sometimes ask people who have received any sort of transplant, I remember being a little bit afraid.

Do you remember that as well?

Candice Coghlan: I mean, afraid there's, there's layers to [00:20:00] that. For me, it was afraid of, is this going to work? Um, you know, someone has, has given me this incredible gift and how am I going to take care of it? You know, side effects, medication, you know, it's like you said so well, it's a new world that you're waking up in.

And how am I going to adapt and am I going to be able to perform all of these things that I have to, to keep this incredible gift going for as long as possible, right?

Craig Lindsay: Well, I look back at all the educational material around a transplant and I think it's all there. My wife and I well understood that you're not going to come out of this, as I say, leaping off the bed, like you've never been sick before.

Before I was told it could be different. It could be surgical complications. It could be a while until the kidney wakes up. And always with the assurance that we can manage that if there's early signs that the kidney is not working or some form of rejection, we have a plan for that. But I, you know, the information was there, but as a patient, you're thinking, I'm only [00:21:00] hearing the good things.

I'm going to get a transplant. I'm going to get my life back. That's the end of the kidney journey. You and I know, and in the people we talked to, that's not really the truth of it. It's a step. It's a stage in a lifelong journey. But I do remember thinking, is the kidney going to work? Did someone Donate that kidney and pancreas in vain because something in my body isn't going to allow it to happen.

Candice Coghlan: What did you do with that fear? Like, how did you get over it? Or I know maybe it doesn't, maybe never really get over it as a transplant recipient, you know, with all of the layers of other things that come along. Right. But how do you manage it? I guess is the better question.

Craig Lindsay: Yeah, I, it's different for everyone, but I put it in its place.

I'm honest with my, my wife and my care team. I say, I'm not sure this is working the way it should. And there's something I could do. Is there something I haven't done that I should be doing but ultimately, if you ask the questions, and if you get the answers and [00:22:00] people who are smarter than me, say, it's okay, this is not uncommon.

It's okay to be afraid. This is a life changing. surgery. I just learned to put things in its place. And they said, what do you need to think about today to get through? Just refocusing on what I could. Do, and, and letting go of what I couldn't do and trust that other people were going to manage that. Does that make

Candice Coghlan: sense?

That's huge. Yes. Yes. Letting that go is, is difficult for a lot of us. We talk about that mental aspect of, of kidney disease and, and kidney failure. And I remember it so vividly when the kidney foundation launched the not so easy chair. And I remember thinking, I don't think I've ever seen. Marketing that is more brilliant than this, you know, the dialysis chair is the not so easy chair and failure is not an option.

And just, I felt power in, in that whole campaign, because for so long, you know, the [00:23:00] verbiage that's used for kidney disease is always so negative and it almost makes you feel guilty. And, you know, you've got all of these feelings that come through. Um, and the foundation has done such an incredible job of, of.

Making us feel empowered and, um, knowing, you know, where to reach out and, and what to do. I'm wondering if you could talk a little bit about the kidney foundation and that work that you've done in transitioning from your former career into the kidney foundation. I

Craig Lindsay: think when I regained my health and understood I wanted to return to work, I saw really strong alignment.

Between my lived experience of kidney disease and those really important intersections where I needed help and what the kidney foundation offered. I ultimately that the overarching need was to feel less alone. I need to feel connected to a larger community and right from the start. My predialysis, my [00:24:00] dialysis, and my transplant journey, uh, the Kidney Foundation connected me with people like me.

I leveraged that a lot when I needed to understand how to manage symptoms, when I needed to understand how to ask questions at a clinic appointment, and ultimately, when I needed have hope. When I started working for the Kidney Foundation, it was primarily because they were there for me. Most importantly, it was their binder that got dropped on my bedside table in the clinic.

And interestingly, my renal program actually had a kidney walk in its community. I'd never felt more connected than when I showed up at a kidney walk with all those people, and not just the patients, but their families. My family was there with me walking. My value is just to make them feel a little less alone, that there is information, there are resources, there is very good reason.

Ultimately, if, if someone calls and wants to know how to manage [00:25:00] kidney disease, and that's the last I hear about them. That's great. Right. If they never experienced kidney failure, but just they know we're, we're here for the lifetime journey. I have a transplant, but I may outlive it. I I'll need the kidney foundation long

Candice Coghlan: into the future.

Do you have advice for anyone who is living with? Kidney disease, living with chronic illness of any kind, or who's going through that journey. Um, and maybe not them as well. Maybe like we talked about caregivers as well. Anyone who's, you know, in this world, um, that you could share with them.

Craig Lindsay: Sometimes when I say this, after coming this far in my journey, it's easy to be glib and to say it's going to be okay.

It's going to get easier. I can't say that with any confidence. It's, I always come back to be kind to yourself. If you're struggling with a kidney issue, if you're struggling with any chronic disease, if you're struggling as a caregiver for someone living with any chronic disease, be [00:26:00] kind to yourself. You don't need to understand everything all at once.

And it's not letting oneself off the hook. It's saying, today I feel like I can get up and walk around the block. Once. And I'll do it. And if I can't do it, I'm kind to myself. What do I do? What do I do to get myself ready to take that next step to do a little more?

Candice Coghlan: Is there anything else that perhaps I didn't ask you about today that you'd like to

Craig Lindsay: share?

I think bringing this forward and having open conversations about difficult issues, fear, shame, anger, resentment, confusion. The more we talk about it, the more we make it visible, the more we make it acceptable and normal, um, the better off we're all going to be if we don't talk about this, if we don't have podcasts like this that normalize the discussion, we're failing the people we pretend

Candice Coghlan: to serve.

If people are listening to this and they want more information about the kidney foundation, where can they go? It's really

Craig Lindsay: pretty easy. [00:27:00] Kidney. ca takes you to the Kidney Foundation website and wherever you are in the country, um, kidney. ca will identify local resources. We're small but mighty teams across the provinces.

Um, you will be heard. You will be acknowledged. We will point you to either resources we have for really smart organizations like the Center for Living Organ Donation. There are answers out there. Kidney. ca. Amazing.

Candice Coghlan: I will put all of that in our description as well. So people can click right on there.

Thank you so much for taking your time today, Craig, and for sharing your personal journey, but also the incredible work that's going on at the kidney foundation and being a, an alum, I'll call myself of, of the kidney foundation. I'm always encouraged and just so grateful for all of the work that you guys do.

All right. Thank you so much Dr. Reichman for joining us. Dr. Reichman is the surgical director of the Pancreas and Eyelet Cell Program and Associate Professor of Surgery at U of T. Thank [00:28:00] you so much. Sure. Happy to be here. Awesome. So I'm wondering if you could, uh, tell our listeners a little bit about yourself and what led you to your field.

Dr. Trevor Reichman: Yeah, so I did all of my training actually in the us. I ended up, uh, as a resident in Chicago and, and always had in my mind, you know, what an amazing place Toronto was to train in for, for H for HPV surgery and also for transplant and, and kind of going through residency. I, I sort of fell in love with, with the idea of transplant and what it did for patients and ended up in Toronto doing, doing transplant.

And, um, recently, I guess about Four years ago came back and started to really work. With the pancreas transplant program in, in trying to, to just grow specifically the islet cell program. And, and so that's kind of what led me, led me to today. So

Candice Coghlan: that is [00:29:00] very cool. Can you speak a little bit about why someone would need a pancreas transplant and who would be eligible for that?

Dr. Trevor Reichman: So most of our patients are obviously patients that have diabetes. Most of them are type ones. We do have a small subset of of type two patients, and there's there's really two types of of diabetics that typically we see for transplant. One are patients that have developed significant complications, mainly in the way of Of end stage renal disease and and require a kidney transplant.

And in those cases, those patients are also transplanted with with a pancreas. We also have a very small subset of patients that have really what we consider really life altering diabetes. And in those cases, because of the just really severe impact on their quality of life. Those patients also will, will [00:30:00] get an isolated pancreas transplant.

Candice Coghlan: And then for people who might not know, what is an

Dr. Trevor Reichman: islet? Well, islets are the, the part of the pancreas that, that really regulates blood glucose or really regulates glucose homeostasis in, in a person's body. And there's sort of these little islands that exist, uh, throughout the pancreas. As a pancreas does two things.

One, it. It's obviously very important for digestion. So it makes a bunch of digestive enzymes. But within these, all of the, the cells that make all these digestive enzymes are these small clusters of glucose regulating cells. And one of those substances are, are, uh, hormones that is make is, is insulin.

Candice Coghlan: Can you speak about, um, your islet transplant program and why somebody would have an islet transplant versus a full pancreas?

So,

Dr. Trevor Reichman: um, islet cell transplant. So in order to get islets, basically [00:31:00] it involves taking a donor pancreas. And, uh, essentially mashing it up and, and through basically a series of, of purifications, we isolate those clusters of cells from within the pancreas and, and, and basically generate a pretty pure population of, of those, those clusters of cells.

The difference is basically the, to actually transplant those cells. It's much less of a procedure. So a whole organ pancreas transplant requires, you know, a general anesthetic and a big incision and, uh, you know, the recovery from, from really a major operation and all the, all the complications that go along with, uh, uh, you know, having a pancreas transplant.

Um, for islets, it's, it's basically a minimally invasive procedure that's done in, in interventional radiology. So the interventional radiologist basically put a catheter into the [00:32:00] portal vein of the liver. And once that's done, we infuse the islets basically into the patient. And the islets basically make a new home in the liver.

They engraft and start to function that way. And the catheter is removed. That's it. It's a, it's a really compared to, to a pancreas transplant. It's much, much less, uh, invasive. And why the liver? So that's, that's, uh, interesting. It, it, it just seems to be the place that works the best at this point. We, we just haven't found a better place to put them.

Okay. There's, there's been. Every site in the body has has been tried. I think at this point, and that's really the site that seems to work the best. Their eyelids themselves are very sensitive to a lack of oxygen. Okay. And when we, as part of the process of isolating them, we're destroying [00:33:00] their blood supply.

So they have to reestablish a blood supply fairly quickly. And if you place them, it seems any place else other than the liver, they're unable to establish a blood supply fast enough and they tend to die away.

Craig Lindsay: Wow.

Candice Coghlan: And Craig has an interesting question here.

Craig Lindsay: I was curious if one. Donated pancreas can produce enough violet cells for multiple recipients.

Dr. Trevor Reichman: No, actually one, one pancreas in many cases can't produce enough islets for a single recipient, which is, is definitely the downside to the procedure. So any of these, any patients that, um, if the goal of the patient is, is to really be cured and be insulin independent, islets.

From, from different donors in order to, to become insulin independent.

Candice Coghlan: So I guess thinking about [00:34:00] organ allocation and, and, you know, how many organs we have, um, in Canada available, if you're thinking about transplants, why, what would be the benefits of doing an islet transplant from multiple pancreases versus having a single pancreas that matched a person outside of the, the surgery,

Dr. Trevor Reichman: maybe.

Yeah. Yeah. So the, the good thing is, is most of the pancreases that we think are good for islets are bad for solid organ transplant. Okay. Interesting. We're kind of, by doing both, we're kind of maximizing our donor pool.

Candice Coghlan: Right. Wow. And why is that? Why are the islet, um, cells just not good for, or the ones that are good for islet transplants are not good for, uh, for organ?

Craig Lindsay: Yeah.

Dr. Trevor Reichman: So it, it just has to do with the background of the pancreas. So many of the pancreases that are good for islet isolation are, are from older, uh, donors [00:35:00] that tend to be, um, a little bit overweight. So there's some fat. infiltration into the pancreas, which allows it to break apart easier. Whereas pancreases that are what we would consider really good for, for solid organ transplants tend to be, um, uh, not really fibrotic in the sense of, uh, being damaged, but the normal pancreas, it's harder to get the islets out

Candice Coghlan: of it.

So this may be a loaded question and one that you aren't able to answer, but if you had the option, um, what would be the better choice? A full healthy pancreas or islet transplant or islet stem cells for, for someone?

Dr. Trevor Reichman: I think it depends on what your goal is. I think at this state, at least, um, you know, in Toronto, uh, where we, where we've had a lot of experience with both for somebody that wants to be cured of diabetes and be completely insulin free and [00:36:00] have the best chance of, of long term insulin independence, a solid pancreas is still going to be the best way.

You know, it's, it's more buy in obviously in the beginning, but the long term outcomes, you look down the road are, are, are definitely better. With a whole pancreas compared to aloe, at least aloe islets.

Candice Coghlan: And, uh, Craig and I, as, as recipients, we have to take anti rejection medication and, you know, that's always top of mind.

With these islet stem cell transplants, are they also needing to take, um, immunosuppressants? Yes,

Dr. Trevor Reichman: currently they do. It's, it's basically the same, same protocol as, um, as any other transplant at this point.

Candice Coghlan: Okay. Interesting. So the transplant, um, either a pancreas transplant or the islet stem cells, how are patients lives changed after they have these transplants?

Dr. Trevor Reichman: Um, so for the patients that are are insulin independent, [00:37:00] the most immediate impact is the change in their quality of life. It's um, you know, it's almost they can't believe it. Go home. You know, it's hard to convince them. They don't even need to check their blood sugars anymore. It's uh, and it's and it's immediate, which is the amazing thing.

I mean, they they leave the operating room. You know, off of insulin and they go home. Most of our patients not, not even checking their blood sugars. So, you know, from a, a quality of life, especially somebody who's lived with diabetes for 20, 30, 40 years, it's, it's just unimaginable

Candice Coghlan: for them. And Craig, uh, how was that, um, impacting and in your life?

I think,

Craig Lindsay: Dr. Reichman, you make such a point, uh, my wife and son and I struggled. I would have terrible hypoglycemic episodes through the middle of the night. We, we knew all the local paramedics by first name, so many visits in the middle of the night for hypoglycemia and more to the point [00:38:00] when the pancreas starts working post transplant, when you're Nurse coordinator says throw out your glucometer.

It's liberating, but it's terrifying. I don't think my wife slept through the night for the first few weeks. It's like, is Craig going to seize in the middle of the night? It's truly transformational. I think you've really hit the nail on the head.

Candice Coghlan: I heard a little bit about, um, I think the word was how sensitive the pancreas was.

Um, they said that that was their nice way of calling the pancreas a non difficult organ. Um, and, uh, the, the researcher spoke about, um, warm perfusion on pancreas preservation and islet viability. I'm wondering if you can describe to us a little bit about what that is and what that entails.

Dr. Trevor Reichman: Yeah, so we, we started, um, you know, in Toronto, there's been a lot of interest in, in developing, uh, different ways of, of organ preservation and, and one of the, one of the big ones that has come out of

Toronto, of course, has been, [00:39:00] uh, normal thermic or ex vivo perfusion, basically be keeping a organ.

at the normal physiologic temperature outside of the body and allowing it to function and eventually repair itself. So about four years ago, we started to try to see if we could expand this technology to pancreases. Because if you look at at organ utilization across, you know, across the world. Pancreas is, is probably the least utilized organ because of just people being worried that number one, the pancreases aren't going to work or they're going to be, have too much, um, difficulties post implantation from, from pancreatitis or whatnot.

So we started to perfuse pancreases. It took quite a lot of time to because the organ is so, so difficult to do. It took some time, but we were, we were able to, to set up a [00:40:00] model system and then now have been able to, to do that in, in humans. We haven't transplanted any of them yet, but we've been able to basically show that, um, You know, we can, we can take a discarded pancreas, you know, once that's not suitable for, for any kind of transplant and, and actually perfuse it and it does okay.

And, and it seems to function and, and, uh, we've been able to go on and, and isolate islets from those. And the islets actually, if, if anything are as good, if not maybe better than, than the ones are, uh, isolated from, from just a pancreas that's stored the normal way in the cold. So. Yeah. So hopefully we're hoping to, to try to move that, move that into the clinics, hopefully

Candice Coghlan: soon.

When we talk about, you know, timelines and soon, um, often we think, uh, you know, a lot of healthcare takes a really, really long time to, to actually get in action. But when we're seeing this ex vivo [00:41:00] machine and how quickly things have progressed, it's, it's amazing, you know, how likely is it to see this being used with pancreases in humans, like in reality.

Yeah,

Dr. Trevor Reichman: we hope in the next couple of years, especially with islets, I think, uh, as the field is moving more and more towards towards doing that. And, and, um, you know, we hope to really do it in the next year or two. Um, that's kind of the great thing about Toronto general and, and UHN and it's, uh, really supportive of innovation and, and really seeing it move forward.

So we hope it's going to be a reality pretty soon. That's

Candice Coghlan: amazing. I'm wondering about that ex vivo machine. Um, could that benefit all organs in preservation of them?

Dr. Trevor Reichman: We think so. We think so, especially if we can. I mean, now for for most of the organs, it's really just [00:42:00] it's thought of as a as a preservation and maybe a way to test organs.

I think especially for the pancreas, we're really interested in and can we make them better. And can we either repair them or can we create you know better islets or, and I think, you know, doing it normal thermic. The way we, we've been doing it is, is really going to be the only way to do that. So yeah, potentially that can be extended to, to any of the organs that we have.

We have the systems to, or devices to do them on. And thinking

Candice Coghlan: about that, uh, innovation that you talk about. Would you speak about your research with the vertex trial and how that has been impacting people living with type two diabetes?

Dr. Trevor Reichman: Yeah. So the, the vertex trial is basically the premise there is, is that they have developed a product of, of islet cells that are basically derived from stem cells.

So a lot of the issues that [00:43:00] we talked about with regards to islet cell transplants and numbers and needing multiple donors because the, the, these islets are derived from stem cells. We have really an unlimited number of them. So the trial basically involves infusion of, of stem cells that are differentiated completely into islets.

And using a similar way that we do, um, Islet cell transplants, we infuse these. stem cell derived islets. And to date, uh, six patients have been dosed. And the first patient who, uh, was dosed, it's, it's been, uh, well over a year. It's been insulin independent now for a fairly long time. And it's continued to be, and there's been three additional patients that are really trending in the same direction.

So it's, uh, it's a huge milestone. Uh, forward for, for islet cell transplants [00:44:00] and for, for type treatment of type one diabetic, you know, it's still, it's still requires, um, immunosuppression the same way that, uh, an irregular islet cell transplant would from a deceased donor. But, uh, we've never seen efficacy like this before with, with just regular islet

Candice Coghlan: cells.

That's incredible. And I had a podcast episode with Dr. Clara Chan, where she was talking about stem cells and, and eye transplants and, um, you know, growing, um, those stem cells. And so I guess my question would be, would, if you were able to successfully do this with, with islet cells, would the sky be the limit kind of thinking of how many you could produce in, in, uh, production of, of these cells, I guess?

Dr. Trevor Reichman: Yeah, it's as far as we know, it would, it would eliminate the need at least for deceased donors for islets. Wow. But, you know, the I think and we all hope it's only the [00:45:00] beginning in that, you know, in time, we'll figure out a way to to to actually do these transplants without immunosuppression and and, you know, hopefully through vertex, actually, in the next month or two, we'll be opening a trial in Toronto with a device that, um Is immunoprotective.

So it'll be a basically an implant that's placed that will be, uh, immunoprotective of the islet. So this will be a, a non, no immunosuppression will be required.

Candice Coghlan: That's game over, right?

Dr. Trevor Reichman: It's going to open the door. Yeah, no, I mean, the, the, the limit to, to really treating type one diabetics with Trent, you know, any sort of cellular Therapy is, is really the immunosuppression piece.

And if we can figure out a way to, to get away with doing it without it, it will, there'll be unlimited men and patients that, that potentially could benefit from it with very little risk. So,

Candice Coghlan: so my other [00:46:00] question for that then too, is, you know, when we talk about transplants, we all often talk about the best timing, not doing it too early, not doing it too late, getting the best, you know, life out of this transplant.

If you're talking about, um, Transplants with with the stem cell islets, if someone was born with type 1 diabetes, would this be, you know, something that could be thought of as as a. Treatment or, you know, it's hard for me to say the word cure, um, at an early age, so they wouldn't have to live with diabetes.

Dr. Trevor Reichman: That's still a hard call. I think with, uh, especially given the immunosuppression part, I think it would be hard to just to start somebody very young on on and have them live. basically immunosuppressed all of that time. I think if people had debilitating regardless of their age, then for sure, I think at this point would be hard to justify.

Craig Lindsay: Mm hmm.

Candice Coghlan: And [00:47:00] I think for a lot of us that word tolerance is like hanging around and you know, we're, we're very curious to see the future of, of tolerance for, for us and, and what that would look like. Yeah, I

Dr. Trevor Reichman: know that I think that the interesting thing about. Is that, you know, it, they, they are, it, it's different than, than say a heart or a kidney.

It's, it's, you know, you're talking about something that's, that's quite small. Um, and, and is amenable to, you know, being implanted into devices and, and placed and, and it's not, uh, it's, uh, it's, it really is, is a possibility I think especially for, for diabetes and, and treatment of diabetes with, with, you know, eyelets.

Candice Coghlan: Incredible. And yeah, we don't like to say the word cure often because there's so many connotations around it. But, you know, this type of treatment makes us feel like we're that much closer to, you know, potentially curing diabetes, or at least [00:48:00] having a large amount of people living without diabetes after a treatment.

And, and Craig thinking about, um, yourself personally, and then also the work that the Kidney Foundation does, you know, what would that, how would that impact? That world that, that you're living in.

Craig Lindsay: Well, certainly if fewer people were struggling to manage diabetes, we would slowly turn the top off. People who show up crash starting into dialysis.

I sometimes it's a balancing act, helping people living with it now and preventing people from having to live with it in the future. And I think about the velocity of change with research, and I can't imagine Dr. Reichman, can you reflect? Back to the start of your career, did you think you would be talking in terms of, you know, massively changing.

The diabetes landscape, does this surprise you in any way?

Dr. Trevor Reichman: Yeah, no, it's, it's, um, it's unbelievable. When I was a medical student, I didn't even think you could [00:49:00] transplant pancreases. And as a resident, we saw them and, and, you know, they, the, the outcomes were bad and it was terrible. And now we're, we're, we're talking about taking a tiny part of the pancreas and transplanting it.

And, you know, it's, it's, it's working. Better than anything we've ever seen before. And so

Candice Coghlan: thinking about all of the, the work that you do, um, Whether it's at, uh, you know, in the past or what you're looking forward to, um, is there anything that, uh, we didn't talk about that you think would be interesting for our listeners about, um, pancreas transplants or islet transplants, stem cells?

You

Dr. Trevor Reichman: know, with the development of our islet cell program, um, there is, we've been able to actually take a lot of what we've learned about. Isolate isolation and islet cell transplant and actually apply them to different diseases. We started doing [00:50:00] this a few years ago, uh, in Toronto and, and, um, patients that live with chronic pancreatitis and have basically debilitating pain.

From from pancreatitis, we've been able to actually remove the pancreas from those patients, which, of course, fixes their pancreatitis. But in doing that, you make them brittle diabetics and pancreatitis. We combine that with an islet cell isolation and actually an auto transplant and in those patients, almost all of them, we render pain free in time, but a large subset of them, we can prevent them from from becoming brittle diabetics after more recently, we've, we've started to expand that to a group of patients also that have what are thought to be pre malignant pain.

Diseases of the pancreas. And obviously there's a lot of interest in pancreas cancer and pancreas cancer [00:51:00] prevention. And, um, um, we see many patients that require fairly significant removal of their pancreas due to pre malignant lesions, or sometimes their entire pancreas. And of course, in doing that, you, you, we make them diabetic.

Um, so we're sort of preventing one disease. And giving them another and what we've started to do, we've, we've started to do this procedure on patients that, that have those high risk or high risk lesions with the idea of, of obviously preventing, hopefully preventing them from getting pancreas cancer, but then also hopefully sparing them a life of, of being diabetic

Candice Coghlan: after.

One thing that I'll, I'll end with, and Craig, if you have any questions for Dr. Rigman as well, you know, we talked a little bit about what it was like to be able to see patients, um, come back and, uh, you know, these ultimate life changes that are happening. What is, what is your goal [00:52:00] for, for patients when you think about having.

Either a pancreas transplant or an islet stem cell. What is your hope for, for their future?

Dr. Trevor Reichman: You just hope that they can get back to, to whatever they love doing before they had. You know, they were debilitated by, by whatever disease they've had. And obviously for, for diabetics, it's, you know, see them be able to get back to work, get back to just having a normal life and enjoying life.

Candice Coghlan: Well, thank you so much for your time, Dr. Reichman. We're so grateful for all of your hard work and dedication in this incredible series of, of, uh, changes that you've made for people, um, living with diabetes and, uh, all of the amazing innovation coming out of, uh, QHN and your team. So thank you so much for all of you, all you do.

And thank you for being here to explain it to us as well.

Dr. Trevor Reichman: Thanks for having me.

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