

Sex, Drugs, & Anti-Rejection: the Complex World of Transplant Pharmacy Transcript

[00:00:00] **Brittany:** Welcome to Living Transplant.

[00:00:02] **Courtney:** The podcast that takes you behind the scenes of the transplant program at Toronto General Hospital,

[00:00:07] **Brittany:** and brings you open and honest conversations about the transplant experience.

[00:00:11] **Courtney:** My name is Courtney and I'm the communication specialist for the Centre for Living Organ Donation.

[00:00:16] **Brittany:** And my name is Brittany. I'm a bedside nurse in the Ajmera Transplant Centre.

[00:00:20] **Courtney:** Full disclosure: we are not physicians.

[00:00:22] **Brittany:** No. And we are not here to give you medical advice.

[00:00:26] **Courtney:** Think of us like your guides through the world of transplant, as we know it,

[00:00:29] **Brittany:** Whether transplant is your past present or future your passion, or your curiosity ,

[00:00:34] **Courtney:** Living Transplant will show you the world of transplant like you've never seen it before.

[00:00:40] **Brittany:** welcome back to living transplant. This week on our podcast, we have one of our transplant pharmacists to become, and y'all, she's amazing. She's fun. She's exciting. And she brings a very light and fresh perspective on transplant pharmacy.

[00:00:55] **Courtney:** And she makes pharmacy like interesting too. And easy to understand, not saying that I think pharmacy is boring, but it's not really something I ever would have thought of before you suggested her as a guest. So definitely learned a lot. This episode, very complicated, very, very complicated, but. she makes it interesting for sure.

[00:01:12] **Brittany:** This week or this week Courtney, or was it in, you know, it was in January, so quite a while ago, but I'm only catching myself up to speed with one of our reviews on Apple podcasts. Courtney, do you want to read it to us? Oh yeah, for sure. So this review is breaking. I got the Kleenex five stars. Of course, even as a living donor, I realized there's so much about transplant that I don't know, beautiful podcast that is both emotional and informative. Some episodes definitely have mean tears.

[00:01:41] So highly recommend keeping the Kleenex handy. Thanks for that. I am such a suck because I hear that and get full body chills right now. Behind the scenes, on the podcast, we have a volunteer. Her name is Maya and she's a nursing student at UIT.

[00:02:00] You'll hear her at the end of the episode, asking some of the questions just so you're not like who's this person. She is a, an amazing nursing student. That's helping us out. Yes. And care help has been. Awesome. Uh, and hopefully you'll hear more of her on the show in episodes to come.

[00:02:18] This episode, we talk about the complex world of anti rejection and immunosuppression and the effects that transplant drugs may have on someone's libido. Cause you know, I love talking about sexual health. And how it affects transplant. So I just had to slip those questions into that. Absolutely. Like I never would have thought about how. Transplant drugs really affect, your life from everything to sexual health. So what you can eat to infection, like all this, like all this stuff that I had never really thought of.

[00:02:48] So sit back, have a listen, enjoy. Make sure you take your meds. At the same time, every day, 12 hours apart nine and nine, eight and eight don't care. And take your meds and, uh, enjoy this show. Welcome to living transplant, Dipika.

[00:03:10] **Dipika:** Thank you for having me.

[00:03:12] **Brittany:** Of course. So what is your connection to transplant?

[00:03:16] **Dipika:** So I didn't join the transplant unit, having a preexisting relationship or connection to transplant per se.

[00:03:24] I started my career at UHN at the Toronto General Hospital, for a residency program. So I rotated all throughout the hospital. I did different rotations. I never did a transplant rotation. It was nothing that I was ever interested in or anything. It was nothing I ever learned about in school. So I, it was a very foreign area to me. When I graduated, when I finished my residency, I got a position working in cardiology. So patients who were undergoing PCI or, or stenting cardiac stenting. So it was as kind of a short stay unit. I was covering a maternity leave. And at that point, when I graduated school, getting a job at an institution like UHN in the hospital was super tough.

[00:04:17] And you took whatever position came your way. I wanted to get into this hospital. I didn't want to work anywhere else because I was so influenced by teachers and professors that I had at university. So UofT was very affiliated with UHN, and that's who I learned from.

[00:04:35] **Brittany:** Amazing.

[00:04:36] **Dipika:** So working in cardiology, the one-year maternity leave was coming up to an end.

[00:04:41] And I was approached by my now current practice leader, my clinical site leader, Jennifer Harrison, if I would be interested in transplant. And I'm telling you I was very apprehensive because it was an area that I didn't know much about. Well, and I had the opportunity to try it. And then after that, when you're elapsed, I was also told or offered

that I could go back to cardiology, if I, if a position came up or nephrology, which is what I really had an interest in. And I did not want to leave transplant. I fell in love with it.

[00:05:13] **Courtney:** what were some of the things that made you fall in love with it?

[00:05:16] **Dipika:** The impact that you can play as a pharmacist in the lives of these patients in helping improve outcomes. There is a big role with immune suppression, which is what we're going to talk about today. The survival of the graft is very dependent on patients taking their medication and taking their medications correctly. And as a pharmacist, do you have a direct role in helping shape that.

[00:05:47] **Courtney:** So I guess comparing it to your role in the cardiac program prior to transplant, would you say that the pharmacist has a bigger role in transplant than it does in the cardiac program?

[00:05:57] **Dipika:** Ah not a bigger role, a different role, a different role. Okay. It was a cardiac, short stay unit.

[00:06:02] And I wouldn't see patients for as long of a time that I would, that I am seeing patients now in transplant. Once the patient would have their procedure and they would go home on this is the cardiology. Once they would have their stents vending done, they would go home on certain antiplatelet medications and you didn't have the same opportunity to see patients over and over again, which we do in transplant, which I actually love and the opportunity for being involved in certain medications and drug levels and screening for drug interactions and interactions with other non transplant medications is different or was not there.

[00:06:42] **Courtney:** Right, right. Okay. That makes sense. So you kind of get to see like how the, the drugs work and a longterm effect kind of perspective. Oh, that's really neat.

[00:06:52] **Brittany:** Cool. So how long have you worked for TGH then, Dipika?.

[00:06:57] **Dipika:** I started in 2004 and then moved over to transplant in 2006. Okay.

[00:07:04] **Courtney:** This might be a very silly question. But as someone who has a way different background than everyone here, what do you have to study to become a pharmacist?

[00:07:14] **Dipika:** Okay.

[00:07:15] **Courtney:** Is that, is that a stupid question?

[00:07:16] **Brittany:** It's actually really smart because I don't think I know that one.

[00:07:20] **Dipika:** Okay. So I'll tell you what I did. It might not be the same now. It's quite, it's quite different now. And even before, before what I did, people could go into pharmacy school after high school. Wow. So as an undergrad

[00:07:39] **Courtney:** That scares me -

[00:07:41] **Brittany:** Oh as an undergrad degree. Oh, okay. I see Courtney and I both thought the same thing. We're like, we're like what? Cause the nurses used to be able to do that. Like way back when you could go from high school right into the hospital, Courtney.

[00:07:59] **Courtney:** That's insane. That's scares me so much.

[00:08:02] **Brittany:** Yeah.

[00:08:02]

[00:08:09] **Dipika:** That kind of piqued my interest into pharmacology and how the body works and how drugs work on the body. And then after I did the biochemistry degree, I did and next year, kind of an honors year towards my master's in pharmacology physiology. Cause that's what I was really interested in. after that I had done some, I had done some pure and applied like. Lab research at the, at, in Ottawa, the Ottawa regional cancer center.

[00:08:38] And I realized very quickly that lab work was not for me. I, I couldn't do it. I'm not a researcher. I am not meticulous enough in that sense with plating cells on a dish and watching them grow in an incubator, I was very unhappy doing that. I knew I needed to work with people. So I wanted to take that kind of level of science and how the body works and how drugs work on the body into applying it with patients.

[00:09:09] And then pharmacy seemed to be in mind with that. Then after that, that year of research, which didn't make me a happy person, I applied to pharmacy school. And at that time, university of Toronto, Was the only program in Ontario before I left Ottawa and moved to Toronto to do pharmacy.

[00:09:30] So it wasn't until my last year of pharmacy school that we started to get lecturers from UHN, from cardiology, from nephrology, from infectious diseases that would come in and give us therapeutics lectures. Hmm. And then I was like, wow, this is great. And in order to get in or to the best way to gain knowledge or to get a job in or to become a hospital pharmacist as a profession was to do a one-year residency.

[00:10:04] **Brittany:** Let's get into transplant meds. Okay. Rejection and immunosuppression. What is it?

[00:10:17] **Dipika:** So as you know, The patients that we have have had either liver transplants, cancer, lung, pancreas, heart transplants, these new graphs have to stay healthy and viable in the recipient's body. And the only way that that could happen is if the patient, the recipient's body does not reject or attack or view this new organ, because they view this new organ as foreign, right? Our body's smart way of keeping things healthy and normal and, you know, suppressants decrease the body's ability to fight or attack the graph.

[00:11:01] **Brittany:** Are they on them for life?

[00:11:04] **Dipika:** Patients are on immune suppressants for life. The doses change, the combination of them may change and the target levels, as I said, the doses may change respecting the target levels or how high of a dose we need or high, or how much of a concentration in the blood is required to maintain organ function at any given state.

[00:11:28] **Courtney:** Yeah, that makes sense. From a non-medical whatever - I don't need to preface every question that way. But so why isn't the body always just aware that the organ is foreign? Like, why do the, why does the dosage change over time? Cause obviously, I, I mean, obviously I assume it goes down but why does it go, go down? Does the body partially recognize it? Like how does that work?

[00:11:50] **Dipika:** The body kind of gives up fighting so hard over time. Usually patients are, so we put patients maybe on three immunosuppressants at most to start off with. So Courtney you've probably seen this on the floor. So either cyclosporine or tacrolimus as -

[00:12:10] **Brittany:** Courtney, Courtney's a comms specialist.

[00:12:12] **Courtney:** Yes, I'm in communications. I'm not on the floor.

[00:12:14] **Dipika:** Oh, I thought maybe you had visited or-

[00:12:17] **Courtney:** I have, but I, yeah, I, I don't know any of the things you just said

[00:12:25] **Dipika:** all the time. So cyclosporine or tacrolimus. A steroid, so they'll start off with an, a high dose of an intravenous medication of a steroid and then get transitioned to an oral form called prednisone. And then a third - kind of anti-reject a third and rejection medication called either mycophenolate or azathioprine. So majority of patients start off with a cocktail of medications and then as time goes on, for example, in the liver transplant program over time, patients just may end up on one out of those three, like tacrolimus or cyclosporine.. And they may not be on myfortic or CellCept anymore. And their prednisone maybe weaned off as well. Same with kidney transplant patients. Very- lots of kidney transplant patients in the long run are maybe off prednisone depending on how good the matches between the, the recipient and the donor organ.

[00:13:27] **Brittany:** Huh.

[00:13:28] **Dipika:** So, and then lung transplant patients tend to be on the most highest dose and most immune suppression as compared to other organ groups.

[00:13:42] **Brittany:** That was going to be one of the questions is which organ takes the most anti-rejection meds. Why is that?

[00:13:49] **Dipika:** So the longest, the most delicate- I call it the most delicate organ. It's open to the air. There it's most prone to infection. It's the biggest kind of surface area organ. A lot of times these patients are more sick coming into hospital and it's almost like they're more, we have to handle this organ as more fragile, if that makes,

[00:14:16] **Brittany:** that makes perfect sense.

[00:14:17] **Courtney:** Absolutely.

[00:14:18] **Dipika:** They're on a cocktail, usually three anti-rejection medications for a longer period of time, if not for forever.

[00:14:28] **Brittany:** Okay. Okay. I have a question. How does being on immunosuppressants affect the ability to fight off infections?

[00:14:37] **Dipika:** So your ability to fight off infections is greatly stunted. The, the anti-rejection medications or immune suppressants that we have today.

[00:14:49] Aren't kind of how I explain it to patients as they're it, these drugs aren't smart enough to just immune suppress the parts of you that are looking at the scoring graph. Yeah. So you're, you're totally immunosuppressed. So the ability to fight off infections or what we call the most common as opportunistic infections is impaired.

[00:15:11] So we have to provide these patients with, or prescribed to them and to infection medications as well. So medications to prevent oral thrush or fungus overgrowth in the mouth.

[00:15:26] **Brittany:** Nystatin.

[00:15:27] **Dipika:** Nystatin. You got it. And an anti-viral medication to fight off viruses in the herpes family of viruses.

[00:15:35] So. acyclovir or -

[00:15:38] **Brittany:** Why is that, why is that only for lungs? Why are, why are lung patients only on acyclovir? Why not?

[00:15:45] **Dipika:** You have other patients on it.

[00:15:47] **Brittany:** Like lungs are always on, this is more of like a nursing question, but lungs are always on acyclovir and Septra every other day. Why is it that lungs are not sorry? Why is it that lungs are on acyclovir and Septra, like standing. Or what's the other one? Azithromycin and as opposed to a liver or a KP?

[00:16:13] **Dipika:** So our protocol and it could, these could be one-offs for whatever reason. Maybe they're also getting it, getting treatment for another infection, but our protocol for PCP or for an infection of the lungs called pneumocystis carinii pneumonia, or PJP pneumocystis jiroveci pneumonia infection. I didn't want to get so, Whoa,

[00:16:38] **Courtney:** These show notes are going to be crazy.

[00:16:41] **Dipika:** Um, septra which you mentioned, and we dose it at Monday, Wednesday, Friday, or three times a weekly for our liver transplant patients after their liver enzymes have stabilized. For lung transplant patients, if they have cystic fibrosis, we use a higher dose, but still Monday to Friday. Heart transplant patients use the septra or this prevention antibiotic once a day-

[00:17:10] **Brittany:** do they transplant patients with HIV?

[00:17:13] **Dipika:** Yes.

[00:17:14] **Brittany:** And what organ would they get if they were a recipient?

[00:17:18] **Dipika:** No. So for example, I have HIV and I need a kidney transplant. No problem. Okay. And then the role of the pharmacist is managing those medications that the patient is on for HIV. Yeah. And managing those medications that the patients patient think for their new kidney and make sure that we're monitoring drug levels really well, that we're not causing undue toxicity.

[00:17:47] **Brittany:** Hmm.

[00:17:48] **Courtney:** Okay. Okay. Going way back in our conversation. No, no, no. That, wasn't sorry that wasn't a dig at you Brit, but just like, this was a little while ago. But you had talked about the, the rejection, the anti-rejection medication, not being smart enough to just attack kind of the rejection around the graph

[00:18:07] **Dipika:** - or to suppress the body's immunity. It doesn't just look at the graph, it suppresses the body's immunity from head to toe.

[00:18:14] **Courtney:** Yeah. So is that, is that a possibility like that it could ever get that smart?

[00:18:20] **Dipika:** I think that would be amazing. That would be a great feature of transplant medicine. Okay. If

[00:18:25] **Brittany:** it could just like recognize if the drug could go, you just had a liver transplant let's say, and the drug could recognize, okay.

[00:18:33] Go and attack the liver. Don't attack. Anything

[00:18:35] **Dipika:** else? Don't attack the liver.

[00:18:37] **Brittany:** Oh, yes.

[00:18:39] **Dipika:** The, the drug could say to the body. Yeah. Your immunity to make sure that you're surveying for infections that we don't want you to get, but let's just not attack. Let, let your immunity not attacking your liver.

[00:18:57] That's something that you hear people to have taught, talked about something like tolerance. That's the future. That's something that Dr. Levy is very interested in. Yeah.

[00:19:07] **Courtney:** I just remember him saying that, , the future of transplant is like, , no anti-rejection meds, but I guess , It would be very different if they were able to just perform the like one function that we, that we use -

[00:19:22] **Dipika:** -you want your body to just be blind to the graph. Yeah. That's like the perfect, yeah. Perfect scenario. And why people want immune suppressions, not only for the risk of infection that you, you, would like to lower the doses of immune suppression or get off immune suppression. It's - immunosuppressive drugs have side effects.

[00:19:48] **Courtney:** I was just going to ask what a beautiful segue, what are the side effects of immunosuppressants?

[00:19:57] **Dipika:** There are many. This is again big part of my job to help monitor and identify or predict side effects that may happen. To a patient to be able to manage them or to avoid them. For instance, both cyclosporine and tacrolimus, we monitor levels in these, for both of these drugs and levels in the patient's blood. So one side effect we want to monitor for and look out for is tremor. So unsteadiness of the hands. Yep. Increased blood sugar. So where we want to get doses down low. Tacrolimus has a higher incidence or risk of it versus cyclosporine. We know that steroids or prednisone can also increase blood sugar that cyclosporin and tacrolimus can also increase blood pressures or always monitoring blood pressure, or have to put patients preemptively on antihypertensive medications. Or we have to put patients on insulin after transplant because their blood sugar is high, going back to increase the blood sugar. These medications can cause increase in lipids. Some patients have to go on anti-cholesterol medications.

[00:21:09] **Courtney:** Okay. So if someone has a terrible reaction to one of the drugs, say they have, like, I don't know. I don't even know what example. I can't give an example, but like, are there alternatives to each drug that you can like swap them out and see -

[00:21:22] **Dipika:** we'll swap them out for you. Of late, or I shouldn't say of late, but patients who experienced perhaps like a seizure on a certain medication, we'd have to switch them from say, one to the other, so tacrolimus to cyclosporine.

[00:21:38] **Courtney:** Why are patients put on steroids after transplant?

[00:21:41] **Dipika:** For antirejection. Steroids have very broad level, a broad mechanism of action in that, or they're targeting different parts of the immune pathway, decreased inflammation.

[00:21:54] **Courtney:** Okay. I feel like steroids are always one of those things that they seem, they seem very random, the the things that I've like seen people take them for - where it's like, what, why,

[00:22:05] **Dipika:** they're not without side effects.

[00:22:07] **Courtney:** Yeah. What does, what does rejection look like? Like what starts to happen when your body goes into rejection?

[00:22:12] **Dipika:** So it depends on the organ. Okay. So think of, okay. Kidney, if you're, can you stop working? Urine output goes down, creatine and goes up. Oh, okay. I see that on a biopsy. Okay. Lung: pulmonary function, tests or patients have stories of breath, difficulty breathing. Okay. Liver: bloodwork liver enzymes go up or are they might severe cases start to get jaundiced.

[00:22:39] **Courtney:** Oh okay. So you basically just go back- whatever function that organ was performing. The function goes down. And are there a lot of warning signs or does it, is it kind of like you start showing like immediate signs of organ failure?

[00:22:57] **Dipika:** I think it depends on the extent. I know what you mean. I think it depends on the extent of this month and end patients- that's, that's a reason that we do such

frequent blood work on these patients, even as outpatients to, to look at markers of rejection. So maybe even before physical symptoms manifest like liver enzymes would go up or bilirubin

[00:23:22] **Courtney:** yeah, I guess I was thinking of, of liver. Cause I feel like once you're in like liver failure and it's very obvious externally, like it's usually, you're pretty far gone.

[00:23:31] **Brittany:** Yeah. Yeah. This is one of the roles as a transplant coordinator is to monitor those levels.

[00:23:36] **Dipika:** You got it.

[00:23:37] **Brittany:** Do immunosuppressant medications make you more susceptible to sun damage?

[00:23:42] **Dipika:** Sure. So the, we tell all patients to wear a broad spectrum, like covering both UVA, UVB so SPF coverage of 30, or at least 30 or higher.

[00:23:56] So some of these medications that we put patients on post-transplant can make your skin more sensitive to the sun. And also it affects the way in which. Your body surveys uh, like sun damage. Okay, great. Well, I think in there, the statistic is actually really bad that a transplantation is almost a hundred times more at risk of getting a skin cancer and some on the non-immune suppression.

[00:24:32] **Brittany:** Wow. That's that's that's pretty, yeah, big.

[00:24:37] **Dipika:** They even they're they're -they, they seize transplant dermatology on frequent on a frequent basis. And they're to stay out of the sun, wear sunscreen, wear light long sleeve clothing.

[00:24:51] **Brittany:** I didn't know that they were a hundred times more susceptible to sun damage. Yeah.

[00:24:56] **Courtney:** That's wild. It is wild.

[00:25:04] **Brittany:** What's the most important part about taking into your rejection meds?

[00:25:09] **Dipika:** To me, it's not forgetting them and being consistent.

[00:25:13] **Brittany:** Yeah. I feel like not as many patients understand that I'm not sure what it is, but-

[00:25:20] **Dipika:** -it's hard. It is very hard to be on a big cocktail of medications for the rest of your life. With, knowing or perceiving the side effects or experiencing the side effects. Yeah. In the long-term having, you know, to stop what you're doing in the day to make sure that you're taking your medications at the appropriate times.

[00:25:46] And we really try to make it as easy as possible. So we try and group together, many of their medications for first thing in the morning, so they can all be taken together. They're immunosuppressants. And then again, the majority or the crux of their medications

for bedtime dosing. So we try and make the majority of their medications morning and night.

[00:26:12] **Brittany:** That's right. Yeah.

[00:26:15] **Dipika:** Hmm. So do recognize that it's hard.

[00:26:18] **Brittany:** It's hard.

[00:26:19] **Courtney:** Yeah. Yeah, for sure. And I think Dipika I work with a lot of living donors. Like I, I kind of joke that I get to hear all the good stories that come at it, or the happy stories that come out of transplant and in my role, when I first started, I feel like I would often forget that transplant is a treatment, not a cure.

[00:26:34] And I feel like this conversation is like such good. Proof of that is like your, your life changes. Obviously you're not an organ failure anymore, but like, there are certain things that you have to be mindful of for the rest of your life. And you have to like take care of your transplant, which I think is.

[00:26:50] Sometimes it's, it's hard to remember that, especially the way things are portrayed that, you know, someone's life, they're not just up and running around and all, all better after transplant. Like it is it's huge lifestyle change.

[00:27:04] **Dipika:** Yeah, for sure. Huge. I mean, as a pharmacist, so we spend a lot of our day, our time, our efforts, our heart goals to educating these patients and helping them. With mechanisms to take their medications, remember their medications to adhere to their medication.

[00:27:28] **Brittany:** Is there, are there supports in place that help people to adjust to that lifestyle change or what are some things you as pharmacists recommend?

[00:27:42] **Dipika:** So, one thing that I feel that we do to help patients adjust to their new medication regimen is something that we implement once they are stable from. So this is during their transplant admission. So right when they're stable after, or, and they're able to swallow oral dosage forms, we enroll patients in a program called the self-medication program and they spend time with the pharmacist like myself or one of my colleagues.

[00:28:15] And we spend time sitting with the patient and teaching them about their new medications. After we teach the patient about this medication, they get, we give it to them physically, and we give them the opportunity to practice while in hospital, under our roof, under the supervision of the nurse. So at this point, while they're in hospital, the nurse can identify.

[00:28:40] With the patient. If they're having any difficulties, the maybe difficulty calculating the dose or taking it at the appropriate time, we want to identify this humor sooner than later. Sometimes we will identify issues in hospital and we will have to think of other ways to help the patient get the correct dose in at the correct time.

[00:29:04] One strategy we use is blister package. It works for some people that would be, we'll get all their medications in kind of like a, like a bubble pack. We have a great time seat on the 12th floor in our transplant clinic. And they have the ski men's machine book. You guys have ever seen it, no tour. And it is like a huge robot computer that makes the poster packs for patients.

[00:29:32] Doses change based upon drug levels that we're targeting. So that's another reason why sometimes we don't put those medications in the blister pack for a patient because they, the doses change so frequently or they'll get a call from their coordinator or a transplant physician that they have to increase or decrease a certain dose. So it's difficult to pack everything in a blister pack.

[00:29:57] **Courtney:** This feels a little random, but I know there are certain foods that people have to avoid, which medications are the ones that interact poorly with like grapefruit juice or like, you know, you're not supposed to eat like sushi and stuff like that.

[00:30:07] Like what are, what are the medications?

[00:30:10] **Dipika:** So ask patients to avoid grapefruit and grapefruit juice and pommelo if you've heard of that.

[00:30:17] **Courtney:** Actually -Brittany Little anecdote but it past transplant recipient that we spoke to said that she remembered Brittany, because she was going on and on about how much she loves pommelos.

[00:30:29] And it was like a new fruit that she had tried and she loved it. And then the girl, when she left hospital, like went to go look it up and she's like, Oh crap. That's

[00:30:40] thanks for nothing.

[00:30:46] **Dipika:** And not have it. So grapefruits and grapefruit juice and pomelo or there's other oranges Seville oranges or marmalade,

[00:30:55] **Brittany:** but

[00:30:56] **Courtney:** oranges are okay. Okay.

[00:30:59] **Dipika:** Yeah. What is it? So it's a component of grapefruits. So grapefruit juice interacts or interferes with this. Are one of the enzymes in our bodies called six three eight four.

[00:31:12] So it's kind of like the engine that metabolizes or processes drugs, the engine that metabolizes or processes drugs could get inhibited or overwhelmed by grapefruits or grapefruit juice. So therefore drug levels increase. Then you got more of this drug being metabolized. So the drug stands around in the blood or in the body for a longer period of time, immediately at a level or concentration higher than we want thereby causing damage or toxicity.

[00:31:42] **Brittany:** Well, that's got

[00:31:43] **Courtney:** it. So, and then what about sushi? Is that just cause it's

[00:31:46] **Dipika:** like, well, it says be immunosuppressed like eating. Yeah.

[00:31:51] **Courtney:** Okay, so, okay.

[00:31:52] **Brittany:** Dipika do some of these transplant medications affect someone's sexual activity or libido or ability to perform?

[00:32:06] **Courtney:** I don't know why you said it like that.

[00:32:09] **Brittany:** Okay. I'll say it again. Do some of these. Sorry. Okay. do some of these transplant meds affect someone's sexual activity or sexual libido?

[00:32:21] **Dipika:** So, you know, being chronically ill can have effect on your libido or your ability to perform these medications per se I think cyclosporine would be the one that would be most at risk for decreasing someone's libido. Erectile dysfunction. I don't think is a very common side effect of the medications per se, but maybe of the disease condition itself. I know that after I read, I've read data about liver transplant, patients who are on the waiting list or who have kind of liver disease. They've got a lot of hormone imbalances or a lot of hormone synthesis that goes down.

[00:33:01] So their libido is down. Their drive is down and then after transplant, they actually notice an improvement, so it's not all bad.

[00:33:09] **Courtney:** That's great. And yeah, wherever we can, Brittany tries to slip in the sexual health questions just because I feel like it is as she's pointed out many times, like it's something that's not really talked about. Is that something that you discuss with your patients?

[00:33:22] **Dipika:** It doesn't come up very much. Maybe it's a comfort level with the patients. Maybe they discuss it more with their coordinators when they're more stable and they're feeling better and their incisions are healed. You know, birth control is something that does come up.

[00:33:37] We do talk about patients and having to use birth control because these medications are not all safe to use. If you're trying to get pregnant or they're not safe or growing fetus.

[00:33:51] **Brittany:** Do some of these meds affect birth control? Wouldn't Septra like affect that. Azithromycin??

[00:33:57] **Dipika:** Yeah. So being on antibiotics, whether you're a transplant patient or not, you know, kind of fact hormone replacement.

[00:34:04] **Brittany:** Yeah.

[00:34:05] **Courtney:** We, we get a lot of questions about getting pregnant after transplant. So how, how does that work? And does it differ for like different organs? I guess like can-how long after transplant can you get pregnant?

[00:34:20] **Dipika:** So I just think the patient has to be stable. They should be stable in terms of their graft function and immunosuppressive levels.

[00:34:28] And usually what happens. Is that if a patient is on mycophenolate or so either Myfortic or CellCept that switched to something else and perhaps coordinators of the transplant physicians start to lower doses of other immunosuppressants down, but it's a, and these patients are referred to kind of like high-risk pregnancy group over at Mount Sinai to work with them, with their immune suppressants and their dosing.

[00:34:54] And. But is it possible. It's possible. Yeah. Yeah. So great.

[00:35:00] **Courtney:** Yeah. That is great. Yeah. That's awesome.

[00:35:03] **Brittany:** Are these medications expensive? Yeah. Yeah. I bet.

[00:35:09] **Dipika:** They're expensive. That's another thing you spend a lot of time on as pharmacists is making sure patients have drug coverage. So we're super lucky here in Ontario, all patients have access to the Trillium drug program.

[00:35:28] So as long as your taxes are up to date and a financial assessment like can be made based on a household income, every Ontarian is eligible. So if you don't fantastic. Yeah. If you don't have a private drug plan, You can qualify for the Trillium drug program and they will assess how much money that you should pay out of pocket until you reach a certain deductible amount.

[00:35:58] And a lot of patients have been sick for a really long time, and they are perhaps on disability or Ontario drug benefit allowance. So medications are covered under that. We have as a part of our transplant pharmacy team and medication universe and that specialist. And she helps a lot with helping secure coverage for patients.

[00:36:24] And I shouldn't say she there's a team to helping secure medication coverage for patients or enrolling them into perhaps patient assistance programs. For certain drugs that may not be covered.

[00:36:36] **Brittany:** So I guess this would answer the next question then not having coverage, wouldn't stop you from getting a transplant?

[00:36:43] **Dipika:** I think that if it's identified at the time when the patient is being listed for transplant, that that's something that she gets, you know, get the main goals into Trillium sooner than later, or, you know, start the ball rolling. But there have been times where we have had to transplant patients emergency as an emergency, like a fulminant liver, liver.

[00:37:08] Yeah. There is no time to plan. So all that legwork happens during our transplant admission, which is not ideal, which is really not ideal because you want that, you know why you want that admission to be spent on or resources to be spent on it, but patient healing and recovering right at the time. So, you know, and it's, it's not a time to be getting information from a patient who's perhaps not doing so well, like to try and have to do their taxes or find paperwork or getting family members involved.

[00:37:40] So the best aim, the best case scenario is that once you know, you're in need of an organ or the workup process start to get all that hammered out.

[00:37:51] **Brittany:** I never thought of that. Yeah. I never knew that you would. I mean, obviously file your taxes, but I never knew that that, I mean, the reality is that not everyone does, but I didn't think that that would necessarily come into play when needing to get a transplant.

[00:38:12] **Dipika:** Yes. If you didn't,

[00:38:13] **Brittany:** if you didn't have any type of yeah.

[00:38:16] **Dipika:** And, you know, a lot of maybe this is, hopefully someone will hear this person that's getting listed for transplant. A lot of patients will come in and say, Oh no, no, I have SunLife. I have green shield. I have blue cross. Don't worry. I have coverage. But.

[00:38:35] That doesn't necessarily mean that every drug under the sun is going to be a part of your, perhaps your drug plans, a file or we call it the, their formulary. So that could be a drug that is not covered for whatever reason, or maybe your drug plan has transplant as an exclusion. You don't know that. Or maybe, I mean, I don't want to be so fatalistic negative, but look at the pandemic era that we're living in.

[00:39:09] Maybe you lose your job. Right. So I really don't think that applying to Trillium or having Trillium as a backup plan, even if you do have private coverage is about as bad idea. Yeah. For sure. In your pocket. Absolutely. You may never have to use Trillium. Yeah.

[00:39:31] **Courtney:** Yeah. Anything to anything to help. Cause obviously expenses are a big, big barrier.

[00:39:36] How much roughly around like per, per month, would a round of immunosuppressants cost?

[00:39:42] **Dipika:** You know what? I don't know the exact number. Okay. I don't know the exact number to tell you.

[00:39:48] Cyclosporin is given free from our, from transplant centers, from our dispensing pharmacy to colonists could be depending on a patient's dose, could be maybe a thousand dollars for a month, or if of that medication prednisone is pennies. It's not expensive. Yeah. I can tell. Yeah, again, it's like one year or the medication to prevent against viral, certain viral infection.

[00:40:20] That's expensive. Mycophenolate or myfortic that's costly again, maybe hundreds of dollars a month, maybe five, \$600 a month, depending on a patient's dose. Because then again, like the dosing range is so it's so variable. Mm, yeah. Thousand dollars a month. Oh my gosh. But most of our patients have drug coverage.

[00:40:43] I really don't know many or actually any patient who pays

[00:40:48] **Brittany:** out of pocket out of pocket yet. Meds are expensive, really expensive. And I can see it as being, I mean, if we weren't in Ontario, I could, or better yet Canada, I could see this being a serious barrier to you ever getting a transplant.

[00:41:02] **Dipika:** Oh a hundred percent. Like, I don't know how people in the us with all their different, whether they have private plans.

[00:41:11] **Brittany:** I, I don't even know

[00:41:13] **Dipika:** how they have drugs. Obamacare's gone. I don't get it. No. What their state of drug coverage is today

[00:41:19] **Brittany:** or better yet, if they're even covered for a transplant, yeah. It's just something that, as I feel like in Ontario, not that we really take it for granted, but it's just not something that we always have to think about on the surface level is that the cost? But I, in Ontario, we automatically, if you hold an OHIP card, it's not the first thing you think of. Yes. Lucky. So lucky.

[00:41:45] What do you think that future of transplant and pharmacy will look like?

[00:41:48] **Dipika:** You know pharmacy has changed so much over the years.

[00:41:52] I think we're lucky as pharmacists today with so many more opportunities for us, for teaching education, being part of The proactive team versus just being, you know, strictly dispensing medications. We talked about, maybe new development of new drugs that have less side effects or that could, mitigate the need for monitoring so much monitoring that we do or mitigate half of the side effects that we're seeing.

[00:42:23] But I really do see a continuing role for a pharmacist on a transplant team, working together with patients, prescribers coordinators, the nurses.

[00:42:34] **Brittany:** Yeah. The pharmacy role is extremely important. Like, vital. There would be no transplant if there was no sorry, I just want to say there'd be no transplant if there was no nurse, but there would be no transplant if there was, I know, I know.

[00:42:49] I'm sorry. There would be no transplant if there was no pharmacist. That is essential, which is why I really wanted to sit down with you. I'm like, how are we missing this massive part of transplant? Because we need to know the importance of these drugs and the role that they play and in a, in a very candid way, but not in a scary way.

[00:43:14] **Dipika:** Hey, you know, we were talking about this, like we want to inform, but not overwhelm. Yeah,

[00:43:22] **Brittany:** exactly.

[00:43:22] **Dipika:** Educate. Yeah. Entertain. Yes,

[00:43:27] **Brittany:** exactly. Educate but entertain at the same time and do too. That's what we're trying to do. Maya has a question. Maya says, do pharmacists assess the patient in the same way that doctors and nurses do?

[00:43:39] Like, do they see their charts?

[00:43:41] **Dipika:** Oh, 100%. We're constantly accessing the patient's chart. We're looking at blood levels. We're looking at The markers of the, their graft function. So creatine, liver enzymes, we're looking at all sorts of different blood work, like your potassium sodium make museum. These are all things that we're monitoring on a daily basis.

[00:44:07] Since we have to supplement, we are looking at Yeah. If you've heard of INR looking to see what if a patient went on blood thinner, we are looking at blood culture as laboratory cultures all the time to see the patient has an infection to make sure that an antibiotic that we're going to recommend or make sure the best antibiotic or antiviral medication for the patient.

[00:44:31] Dose adjusting, looking at drug interactions. Yeah. We're we're we're in that char all the time.

[00:44:37] **Brittany:** Yeah. I'm okay. Maya- unmute, unmute.

[00:44:39] **Mya:** So what if a patient has a drug related question? Can they call the pharmacist themselves, or do they have to call their physician for their questions?

[00:44:47] **Dipika:** So usually what happens is that the patients kind of filter, or our transplant patients filter everything through their transplant coordinator. Oh, okay. So that's kind of a relationship they have with their coordinator. Like, Hey, I wanna take this, my cardiologist has suggested or would like to prescribe this certain medication for me.

[00:45:13] Is it safe with my transplant medications? The coordinator usually then brings that forward to pharmacy. A lot of times, because we are so lucky to have a specific transplant pharmacy on our 12th floor. A lot of patients when they are refilling their medications or filling know new medications, they will ask at that point to the pharmacist.

[00:45:36] Oh, okay. At the pharmacy. So it goes both ways, but mostly these questions, inquiries go through the coordinator because the coordinator also wants to update their file. They are on this medication. So everybody is on board that this patient taking. This new X medication prescribed by Dr. Y cardiologists from Sunbury, if that right, right.

[00:45:59] **Courtney:** Okay. Okay.

[00:46:02] **Brittany:** Well, this was a very informative chat. I learned a lot.

[00:46:09] **Courtney:** I did too, like so much and a lot, never even thought about.

[00:46:13] **Brittany:** Pharmacy is just so complex. It's so, so complex. And I've worked in transplant for, I don't know, five or six years or something like that. And I still don't completely understand it. Even when the meds are changing, I'm like, I don't get.

[00:46:27] **Dipika:** Well, feel free to ask any time, you know, I mean, I've worked with you over the years and I liked the way that you work with members of the team, how you are

with patients. I think it's all about kind of collaborating and sharing and communicating because I think you're more, you get more buy-in and engagement from a patient.

[00:46:52] If they understand why they're taking medication, what's it doing for me? Why do I need to take this medication? How is it helping me versus just blindly?

[00:47:05] **Brittany:** Taking a med

[00:47:07] **Dipika:** or that you're being prescribed and not understanding.

[00:47:10] **Brittany:** No, I completely agree.

[00:47:12] **Dipika:** Yeah. And to me that is something that I'm very passionate about, making sure a patient understands why that's sometimes that's why I shy away from blister packs, because then it's just a patient swallowing, a bunch of things all together.

[00:47:26] Sometimes we have no choice, but if they understood each pill and why they needed to take. Three anti rejection and three anti infections, or why they need to take something now for their heart or their, their blood pressure or their cholesterol or their blood sugar. It all makes sense.

[00:47:44] **Brittany:** When I first started nursing for a couple of years ago, I was shocked at the amount of people that didn't understand and what meds they were taking or what blood pressure pill they were on.

[00:47:54] You know, those patients that they whip out their wallet and they're like, Oh, I have a list right here. And then they're like, Oh, and then listen. You're like, thank you. And at least they have a list like in their back pocket, but people don't understand what drugs they're taking.

[00:48:08] And it blows my mind. I'm like, I take vitamin D and I want to know how does that work in my body, but that's just me. But most people don't understand how these drugs work. Why they're taking them the doses and granted, it's a lot of medications to understand. It is like, it really is.

[00:48:26] And some people, you know, there's a lot of barriers for them to understand them in general, but which is why I wanted to have you on the show. Like I'm like somebody needs to speak and explain to these listeners how important they are.

[00:48:41] **Dipika:** You know, we all, we find a lot of times that patients are on such a list of medications and they're on some medications to treat side effects of another medication, but maybe they didn't need to be on medication, the first medication in the first place.

[00:48:55] So a lot of times we will conduct, you know, thorough reviews and to see, or maybe a medication got started a long time ago for a certain condition and it never got reassessed and they don't have that condition anymore. It got treated or it resolved.

[00:49:10] **Courtney:** So. Brittany and I would like to guess what your, what your Zodiac sign is.

[00:49:16] I just wanted to make sure that Brittany has seen that text and that she wasn't expecting me to ask some smart pharmacy question. Britt, with your guess?

[00:49:27] **Brittany:** I guess Aries. Oh, interesting.

[00:49:29] **Courtney:** Okay. I guess Gemini.

[00:49:31] **Dipika:** Okay. Mya, Mya?.

[00:49:34] **Mya:** Ooh. I don't know. I wasn't ready for this.

[00:49:39] No, I'm going to take a wild guess and say Virgo.

[00:49:43] **Dipika:** Okay. Excellent. I ask the question back. Yeah. , can you give a justification as to why you picked Virgo Aries, and Gemini?

[00:49:53] **Mya:** I have none. I just guessed. I wasn't prepared.

[00:49:57] **Courtney:** I picked, okay. I picked Gemini because I feel like you're more of an air sign. Air signs like to talk a bit like a lot about like ideas and kind of like explain things and simplify things and break them down. Like, you're very good at that. I feel like also what you're talking about, like working as, as a team, I know a lot of areas that are like really good at working or sorry, Geminis that are really good at like working as, as team as part of a team as well. Yeah, I think it was just the way you were kind of like talking about things and then your, your dedication to kind of like collaboration for patient care.

[00:50:30] **Brittany:** Hey, Courtney's answers way better than mine. But I was just going off of intuition and like feeling I'm like, I feel like her birthday's coming

[00:50:41] **Dipika:** you made a slip. You're like, Oh, You realize you did make a slip? I did. Yeah. Yeah. Yeah. That's funny.

[00:50:54] **Brittany:** Interesting. I was like, I feel like her birthday's coming up and like some time in April. Oh, well, there you go. When is it? When is it? When is it? When is it the sixth? April 6th. My dad's birthday is the fourth and I was like, something reminds me of my dad.

[00:51:15] Yeah. I was like, I'm like, something's telling me April, honestly, we need to start doing this Courtney every episode. Like we've been doing it for the last, like three interviews and we're like, at the end, we're like, Oh, it just comes up.

[00:51:32] **Courtney:** Yeah, yeah,

[00:51:33] **Brittany:** yeah, yeah.

[00:51:34] **Courtney:** You're, you're good at it too.

[00:51:36] **Brittany:** So glad that you're an Aries

[00:51:41]

[00:51:41] Well thank you so much for being a part of this. Thank you so so much.

[00:51:46] **Mya:** Pharm was my favorite class in nursing school,

[00:51:48] **Brittany:** yeah, I

[00:51:49] **Dipika:** really, I really enjoyed it.

[00:51:51] No, what you're doing is great.

[00:51:52] Oh, thank you, electric. And I meant, I meant it.

[00:52:00] **Brittany:** we try. We really,

[00:52:02] **Dipika:** the Courtney's cheap. You're blushing a bit.

[00:52:05] **Brittany:** Courtney and I are both very passionate about sharing the stories of people's transplant experience and also educating people on the world of transplant and.

[00:52:16] Just informing the rest of Toronto, the work that we do,

[00:52:20] **Courtney:** and transplant has the best stories. I think the best stories and the most fascinating and resilient people, both patients and staff.

[00:52:27] Thank you so

[00:52:28] **Brittany:** much. You are so much amazing

[00:52:32] Thanks for listening to this episode of Living Transplant. If you have questions or suggestions for future episodes, email us at livingorgandonation@uhn.ca

[00:52:42] **Brit:** Don't forget to subscribe, rate, and review living transplant on iTunes, Spotify, or wherever you listen to podcasts

[00:52:48] **Courtney:** and follow us @givelifeUHN on Facebook, Twitter, and Instagram.

[00:52:52] **Brit:** See you next time.