

Mayo Clinic Q and A. Dr. Bashar Aqel - YouTube Audio - 08 04...

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SPEAKERS

Dr. Halena Gazelka, Dr. Bashar Aqel, Narrator

- N** Narrator 00:01
Coming up on Mayo Clinic Q&A,
- D** Dr. Bashar Aqel 00:03
If you look up how many people are really waiting for a transplant currently, it's close to 110,000 patients who are desperately waiting for a life-saving transplant.
- N** Narrator 00:14
Today on Mayo Clinic Q&A, we'll look at the success of liver transplantation, including the new techniques being used and how continued research is saving lives.
- D** Dr. Bashar Aqel 00:24
The Mayo Clinic transplant program in the three sites has performed more than 1,600 solid organ transplants and clearly the largest transplant provider in the nation.

D Dr. Halena Gazelka 00:34
Welcome, everyone to Mayo Clinic Q&A. I'm Dr. Halena Gazelka. With a goal of shortening the time for solid organ transplants, Mayo Clinic is leading efforts to expand the donor pool by making more organs suitable for transplantation. A Mayo Clinic study previously found that livers from donors exposed to hepatitis C could safely be transplanted. Now that research is expanding to other solid organs. These studies have been the first of their kind in the United States, and joining us to discuss this today is the medical director of the Liver Transplant Center at Mayo Clinic in Arizona, Dr. Bashar Aqel. Thanks for being here today, Bashar.

D Dr. Bashar Aqel 01:13
Thank you. Thank you so much for inviting me, and I'm happy to help with the questions related to this topic.

D Dr. Halena Gazelka 01:19
Well, I am very excited to learn about this today, because I remember the mantra not so many years ago when I was being trained that you didn't transplant organs from individuals with hepatitis C. So, how amazing.

D Dr. Bashar Aqel 01:34
Yeah, it has been an amazing time. As you know, when we do have such a growing demand, we look into options to help our patients, and it seems to be that is an organ pool that is very usable and it has helped to save so many lives.

D Dr. Halena Gazelka 01:50
Well, we will get back to that. But, Bashar first could you explain to our listeners, why is there a shortage of organs to transplant, and why is there such a great demand?

D Dr. Bashar Aqel 01:59
A very good question. You know, I will say 2020, despite being the COVID-19 pandemic year, surprisingly it was a record year for solid organ transplant. 33 lives were saved using transplants from deceased donors during that year. Despite those record numbers, if you look up how many people are really waiting for transplant currently, it's close to 110,000 patients who are desperately waiting for a life-saving transplant. So, you can see the

disparity between the demand and the solid organ transplant availability, which is a really very critical challenge if you think about it. Why? Because now patients are waiting longer to get a transplant. This is really having a significant impact on the health system. You know, the cost of caring for a patient with end organ damage is really high. And of course, and the unfortunate thing, and we need to see that, I don't like to see any patient dying on the waitlist while they are just waiting for a life-saving transplant surgery. So, despite we are doing better, it's not enough. So, we need to look to other venues in order to improve access to transplant for all those who need it.

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Dr. Halena Gazelka 02:28

Bashar, may I ask is the reason that we have an expanding need for for organs to be transplanted, because individuals can live longer while waiting, sort of akin to how patients with cancers are living longer than they used to decades ago?

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Dr. Bashar Aqel 03:37

That's exactly the case. You know, we live longer, we tend to have more chronic diseases. Chronic diseases lead to end organ damage. That's one part of why we are needing more organ transplants. But also think about it. Transplant has evolved over the past several years. Many years ago, if somebody had a liver cancer, that transplant was not an option. Now we can see the liver transplant as a curative option for patients with liver cancer. And the same applies with other patients with end organ disease. Same way with kidney transplants with kidney disease. People used to stay on dialysis, and that was the only treatment option. Now we are becoming more aware that being on dialysis for many years is something that has an impact on our health. So, more patients are becoming a candidate for kidney transplants. So, the demand is higher as our population age, but also the indications for transplant has expanded because we discovered that transplant can deliver better results than the current standard therapy.

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Dr. Halena Gazelka 04:45

That's a great explanation. Thank you. Can you tell me some of the reasons why an organ might typically not be considered a candidate to be transplanted?

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Dr. Bashar Aqel 04:56

Yes, absolutely. Now just kind of like an introduction, in order for the transplant community in order to meet the increasing demand for organ transplants, we have been exploring venues and including live donor transplantation. You know, a lot of us have heard about

somebody donating their kidney to their loved one or donating part of their liver to a loved one. And this is great. And we would like to continue doing this, and Mayo Clinic has been really leading the pathway for living donor organ transplants, but still, this is not enough. And with that in mind, we start to look at other options. We are looking at the donor pool currently, and we will try to understand why certain organs were declined. And if you look at the general categories, why organs are declined, usually come under some a group of patients or some group of donors where people were very concerned about the outcome of using those organs. This includes organs from donors with increased age, donors with certain types of infection that the recipients will get the infection and whether we will be able to treat the infection after transplant successfully. And donors know, for example, in the kidney transplant literature, people were shy using kidneys from donors with an acute kidney injury. Or if you are using donors from patients with an elevated body mass index or obesity because they thought that this may not do as well. And so, those are the general really categories that made us at least limit our use of the organs from donors falling under those groups.

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Dr. Halena Gazelka 06:53

Interesting. When you mentioned the donations to others, I happened to think of some articles that I've seen recently where they talked about sort of chain donations where someone would give a kidney and someone else would give a kidney until the person who was the original person was able to get a kidney, it was pretty long chains like 16 people or something is amazing.

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Dr. Bashar Aqel 07:16

Oh, that's correct. I mean, this is really one. This is why the transplant is all about innovation. When you have a limited pool, you try your best to utilize that pool to achieve the best outcomes. And the chain donation is exactly a perfect example. Because think about if I want to donate a kidney to my loved one, I'm not a match. But there's somebody else in New York who really wants to donate their kidney to a loved one, and also, they are not a match, but we can match the kidney that I donate to the other donor, then that can start a chain reaction that allows all those organs to be transplanted in a timely manner and save so many lives.

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Dr. Halena Gazelka 07:58

Bashar, speaking of matching, I'm hoping you can clarify something for both myself and our listeners. When we talk about organs being a match for a recipient, is it just blood type you're looking at, or there's tissue typing, and does it matter by the type of organ?



Dr. Bashar Aqel 08:17

Correct. Excellent question. It really differs, and it is really determined according to the organ. Based on my experience and expertise in the field of liver transplants, I can tell you the liver transplant is one of the organs that is less immunogenic. Meaning for the match in the setting of a liver transplant, we are looking at the match with the blood type and blood type only. Of course, that changes when we're talking about kidney transplant where we need higher level of match, and the same way applies to a heart transplant or a lung transplant. So, it varies according to the organ, but in addition to the blood type, some other levels of matching may be required in other solid organ transplantation.



Dr. Halena Gazelka 09:01

We started this out by talking about the suitability of organs from donors who might have been exposed to hepatitis C. What is hepatitis C?



Dr. Bashar Aqel 09:13

Hepatitis C, most people have heard about it, you hear a lot of ads on TV, but Hepatitis C simply is this virus. This virus that usually we call it a blood borne pathogen, it's a virus that we will get infected with when we are exposed to contaminated blood products. And the other common risk factor for this, we see chronic Hepatitis C in people who really experiment with drug use, whether it is IV drug use, or inhalational or recreational drug use. So, what happens, this is a virus that causes chronic infection, causes chronic damage to the liver, and over years this chronic Hepatitis C can progress to liver cirrhosis and liver failure. Interesting enough, you know, up to 10 years ago, the leading cause we were doing liver transplant was chronic Hepatitis C. With the breakthrough in medicine and the availability of a new group of drugs called direct acting antiviral agents, those drugs, when became available, they helped us achieve some impressive cure rates of Hepatitis C, in excess of 95%.



Dr. Halena Gazelka 10:37

Wow.



Dr. Bashar Aqel 10:39

Anybody who dealt with liver disease knew that 10 years ago, this really was something we never dreamed off, because we were treating our patients for Hepatitis C with injectable therapy, almost with a therapy close to a chemotherapy. We treat them for one

year, and barely we were able to cure 10% of those patients. Fast forward with those new drugs. It's a pill form, well tolerated, it's almost like taking an antibiotic. You take it once a day, you take it for eight weeks, or 12 weeks, so only two months and three months. And really, the cure rate in excess of 95%, and some of the studies up to 99%. So, with that in mind, that has helped us to eradicate Hepatitis C to the degree now we have several months during the year where we have no patient on the list with chronic Hepatitis C.

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Dr. Halena Gazelka 11:31

Isn't that amazing? How wonderful. We always talk about the incredible things that have happened in the time of COVID. But there's a lot of other great medical work going on too. That's amazing.

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Dr. Bashar Aqel 11:42

Absolutely.

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Dr. Halena Gazelka 11:44

So, tell our listeners a little bit about the work that you have done on organ transplantation and Hepatitis C.

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Dr. Bashar Aqel 11:53

Okay, well, and that's a good introduction, really, for the reason why we are having that discussion today. Now, as you recall we just discussed that Hepatitis C now is easily treated, and it's almost eradicated. So, if I see any patient today with Hepatitis C, I put them on treatment. I have a very high level of confidence that I will cure them for Hepatitis C. Unfortunately, and I know we are dealing with the COVID-19 pandemic, but we should not forget that we are dealing with another pandemic, which is the opioid epidemic. And the opioid epidemic is simply where we have the younger generation where they were losing their lives. So many of the young people losing their lives because of drug overdose. And this population tends to have risk factors that put them at increased risk for Hepatitis C, which simply means that we have a lot of young people, unfortunately, losing their life because of the opioid epidemic, and unfortunately, are carrying the Hepatitis C virus that they have been exposed to just recently, without any significant damage to any of those organs.



Dr. Halena Gazelka 13:11

Okay. Also haven't been treated for hepatitis C, obviously,



Dr. Bashar Aqel 13:15

Exactly. We have not seen them to be treated, and they lose their lives, and their families are going through very tough times because of their loss, they still want to have to have their loved ones become organ donors. Now, in the past, we used to allocate organs from somebody with Hepatitis C to anybody with Hepatitis C on the transplant list. As I said previously, we barely have any, and sometimes we don't have anybody on the list with hepatitis C. Because of that a lot of good quality organs were just thrown away and we're not used when we were just seeing more and more patients on the list, not making it, and losing their life before they get the life-saving transplant that they need. So, that really triggered some thoughts. How can we expand the donor pool safely and without affecting the outcome of transplant for the patients who need it? The availability of the treatment for Hepatitis C allowed us to be very effective in utilizing those organs. The reason why I'm saying that because we thought about it, if we can have this organ and locate it to somebody who needs it on the transplant list, we have an effective treatment that's well tolerated. We can treat them after transplant. And with this, we will have a win-win situation. We use an organ that would have otherwise been thrown away. We allocated somebody who was in dire need for transplant, we treated them, and we achieved a cure, and achieved a very good outcome for those patients. And that's really what triggered our research in the utilization of organs from donors with Hepatitis C.



Dr. Halena Gazelka 15:03


that really is amazing. Because when I hear about something like that, as a physician, and as a scientist, I think, wow, that took a lot of guts to think about doing that, and then to implement it. And I know that there's a lot that goes into prep for that and to figuring out and calculating whether that really could be successful. But that really is amazing.




Dr. Bashar Aqel 15:25

And, you know, I will say we had all that discussion ahead of starting any of that. And I will share with you that our protocol before it was implemented, we went through the ethics committee, because remember, there's a lot of patients hear that we are giving them Hepatitis C, and immediately comes a thought why you're giving me an infection that used to cause people to have liver cancer and cirrhosis. And we wanted to make sure we are doing it correctly. We went through the ethics committee. We went through the

institutional review board for research. We made sure that we talked to our patients about the process. We made sure that everybody had the consent form. We put all the guarantees in place so that once the Hepatitis C is there, that the treatment will be initiated promptly, without any delay. And that's the reason we have been successful so far.

 Dr. Halena Gazelka 16:21
So, tell us what you've seen.

 Dr. Bashar Aqel 16:24
Well, I would just kind of like to divide that the organs coming from adonor into two groups. We have the liver, which is usually the reservoir. As I mentioned before, Hepatitis C is a chronic virus that infects the liver. So, the liver tends to have the highest amount of the virus in our body. And then so, there's the liver transplant, and there's non-living organ transplant coming from a donor with hepatitis C. So, starting with the liver, I will say the one thing about Mayo Transplant Center, we think of ourselves as one transplant center that's present in three sites. I'm sure that a lot of the people who are attending this podcast know that Mayo Clinic transplant program in the three sites has performed more than 1,600 solid organ transplants and clearly the largest transplant provider in the nation. With that in mind, when we put our force together, we are able to get research done, done timely, and do it well. So, starting with the liver, we got together all three sites. We put this protocol together. We make sure we have all the safety measures in place. And we started approaching our patients on the list, whether they will be willing to accept a liver from Hepatitis C or not. Surprisingly, within three months, we have impressive results. The patients got transplanted in an amazingly short wait time. They got the great quality livers. And they were treated, and they were cured from Hepatitis C. Five patients into the process we said really, this is looking impressive, we should just expand that. And we reached out to our institutional review board, and we make it a standard practice across the institution. So, with that in mind, we were able to help more and more patients. And fast forward up to more than 50 liver transplants have been done under protocol. Patients were transplanted at a record time, and with a median wait time of less than 100 days, compared to the fact that people waiting for a liver president can be waiting between one to three years. The quality of the livers I received was impressive. We treated everybody after transplant. Everybody was cured. We took that to the second level. I reached out to some of the patients, kind of like in a survey, just to survey and asking them, you know, with all that in mind, when you have done it once again. Everybody said absolutely, yes. Because the treatment was easy, did not interact with any of their medications, was well tolerated, and achieved a cure that we are looking for. So, that was

a great success story for our work in the setting of liver transplants using Hepatitis C organs. And it was really recognized and was published in one of the prestigious journals for hepatology. It's called Journal of Hepatology in 2021. It was a collaborative work across the three sites. We helped so many patients, and the outcomes have been impressive.

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Dr. Halena Gazelka 19:33

That's amazing, because what it occurred to me to wonder was, you know, we think of someone after they've had a liver transplant just being immune compromised because they have to be on medications too, so their body will tolerate, I guess a foreign liver that isn't there originally. And so, I wondered if that would affect the treatment for Hepatitis C, but apparently not.

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Dr. Bashar Aqel 19:57

Yeah, it does not and that's only you know, that's one of the reasons why we decided to pursue that protocol. Because we know the treatment for Hepatitis C does work after transplant. It does not interact with the anti-rejection medication, and it is as effective whether your immune system is compromised or not. So, those were the requirements for us to consider this, and clearly it is the case.

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Dr. Halena Gazelka 20:21

Wow, that's amazing. What did you find out about other organs?

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Dr. Bashar Aqel 20:25

Good question. In other organs, the success story was exactly the same. And we were able to expand that to kidney transplant, heart transplant, and lung transplant. Within the past few years, we have been able to do close to 150 kidney transplants, 25 heart and lung transplants using organs from donors with Hepatitis C. Once again, we have in place a treatment protocol. We treat them immediately after transplant. Treatment was well tolerated, and everybody was cured from the infection. So, more than 200 lives saved with organ transplant from donors with Hepatitis C, and everybody has achieved the outcome that we are looking for.

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Dr. Halena Gazelka 21:10

That's amazing. It also sort of speaks to the fact that it's good to go to a center that does

things that has a lot of experience performing certain techniques such as transplants.

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Dr. Bashar Aqel 21:24

I agree completely. And I know that a lot of patients when they come to our center, across the board, whether it's in Rochester, Minnesota or Jacksonville, Florida or in Arizona because, you may know that, but Mayo Clinic transplant programs share the same protocols. I mean, the same way we treat a patient with Hepatitis C in Arizona, it's the same way that we were treating in Rochester, Minnesota or in Jacksonville, Florida. So, the patients were always shocked to hear well, what's this talk about Hepatitis C organs? And once we explained that to them, everybody wants to be on board. And we have helped so many patients using that organ pool.

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Dr. Halena Gazelka 22:02

Bashar, I am curious, because we've been talking about this quite a bit, about inequities, particularly in health care, of course, since we work in health care. Are there health disparities related to individuals being able to receive organ transplants? And what do we do to work on that?

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Dr. Bashar Aqel 22:21

Yeah, you know, it's a fact that it has been published. There are clearly some health disparities in access to transplant, mainly depending on ethnicity. And so, we have seen that there's some lower rate of transplant in black patients as well as in patients of Hispanic origin. So, if those disparities are present, and the Mayo Clinic in general are working to address those issues, by our outreach to those populations. Make sure every patient gets the fair share in assessment for transplant evaluation, and make sure that those variables are not part of the reason why a patient is really offered a transplant or denied a life-saving organ transplantation.

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Dr. Halena Gazelka 23:13

And I'm wondering if you have found this expansion of telemedicine that we've seen during the COVID pandemic to be helpful in reaching patients?

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Dr. Bashar Aqel 23:22

Absolutely, yes. So, this is really what, you know, there's so much negative about the COVID-19 pandemic. One of the positives about the COVID-19 pandemic, it allowed us to

understand the power of telehealth, and telehealth is really powerful in a way that when it's used appropriately, it will work for the best for our patients. It allowed us to have access to remote areas and to patient population where otherwise were not able to make it to the transplant center in a timely manner. Even I'll take that a step further because it allows us to reach to even certain providers and educate them about the appropriate timing for transplantation and when to send the patient for transplant. And, you know, Mayo Clinic has also led the way in this with innovation. To the degree we are able now to do a virtual transplant evaluation for a patient who is really living remotely, and we only bring them here when they are ready for transplant. So, think about it, this would have never happened two or three years ago.

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Dr. Halena Gazelka 24:26

That's amazing, because there's a lot of testing that goes into evaluating whether someone could have an organ transplant.

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Dr. Bashar Aqel 24:32

Absolutely. And you know, we try to do a lot of the tests locally, but you think about it with the telehealth and the power of the electronic medical record, and the ability to share. A lot of testing can be uploaded and reviewed by us, and by our expert radiologists. And then that allows us to do 90% of the transplant evaluation while the patient is remote. That have given access to transplant to a lot of patients who otherwise would not have been able to make that trip and get that done.

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Dr. Halena Gazelka 25:04

Bashar, this sounds like absolutely amazing work. What is next? What do you see coming next in the field of solid organ transplantation?

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Dr. Bashar Aqel 25:13

Very good question. And I will just start with first, just an introduction about treating Hepatitis C after transplant.

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Dr. Halena Gazelka 25:20

Yes.

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Dr. Bashar Aqel 25:21

I mentioned the treatment for Hepatitis C. It in pill form. We take it once a day, usually for 12 weeks, and the cure rates are excellent. Now that 12-week treatment duration, we felt it is wrong, and in the field of research, you always see what other people are doing. We became aware of a group of transplant physician in Toronto, where they have this innovative approach of giving the treatment for hepatitis C, immediately before the transplant, hoping that this will neutralize any virus that comes with the organ and maybe allow us to shorten the treatment duration. We looked at the data, it was really convincing, and we decided to adopt a similar protocol. So, that really was the basis for an innovative research that we initiated approximately one year ago, I met a group of researchers here at Mayo Clinic, and we decided to use the Hepatitis C treatment combined with a medication that lowers the cholesterol level. Everybody will ask why you are using this medicine. And the reason behind the use of that medicine that this medicine, in particular, which is really, we use it regularly. We found several years ago that to prevent the Hepatitis C virus from getting into our cells, and if you think about organ transplants, if we're putting new organs in with hepatitis C, if we can prevent the virus from getting into the cells, and get the treatment intact with antiviral therapy, maybe that will give us the best odds of preventing the hepatitis C infection altogether. So, we went ahead with this protocol. And we used the combination of therapy, just one the day of the transplant, and for only seven days. So, seven days compared to 12 weeks, so one week compared to 12 weeks. We started that protocol one year ago, and our research now will be presented at multiple national and international meetings, as the results were impressive. We have so far 31 patients were treated under the protocol. And remember, those patients were transplanted from organs with Hepatitis C, but there were not livers, so those are hearts, lungs, and kidneys. We treated them the day of the transplant and for only one week. And so far, we have prevented the infection in 100% of those patients. So, the recipients never got Hepatitis C. So, this has been an innovative approach to treat patients who received those organs. And a lot of those patients were cured from Hepatitis C even before they left the hospital after their transplant.

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Dr. Halena Gazelka 28:04

That is truly phenomenal. Seven days is shorter than many courses of antibiotics that we give patients

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Dr. Bashar Aqel 28:13

And you know, if you think about it, cost-effectiveness analyses have been excellent. We eliminated the risk of having Hepatitis C virus in the system that could affect our body, even if it is for a limited period of time. And most likely, we would be able to convince a lot

of other groups. This is the way to treat patients who received those organs, and hopefully will enhance the use of those organs more and more so that more patients will receive the life-saving transplant that they need.

D Dr. Halena Gazelka 28:47

Wow, that is just amazing. I actually really love learning about this from you Bashar, because I have spent much of my career working on the opioid epidemic and a solution for that. And that's a whole topic for another day. But to see that there is meaning for these families when they lose a loved one, which is so heartbreaking, because they're often young people in the prime of their life. But this is wonderful to hear.

D Dr. Bashar Aqel 29:16

Yeah, no doubt, no doubt. I mean behind every story with transplant they always say that behind every transplant there is a story of a family going through the struggle of losing their loved ones but yet they want to have a meaning by having the organs of their loved ones allocated to somebody who needs them so that they can help others. So, it gives me goosebumps to think about that, but it's sad that we need to lose so many lives. But I feel there's a meaning for that loss once at least their organs are used to save somebody else's life.

D Dr. Halena Gazelka 29:52

Yeah, what generosity of spirit to be able to think of those in need when someone is suffering such tremendous grief within their own family. That really is neat.

D Dr. Bashar Aqel 30:03

I agree.

D Dr. Halena Gazelka 30:05

Anything else you'd like to share today, Bashar, with our listeners?

D Dr. Bashar Aqel 30:09

I think we have a lot of work to do. And I mean, Mayo Clinic, the transplant program continues to pursue innovation to help more and more patients. This is one way we can

help patients. We are working on a pre-emptive Hep C treatment in those who receive a liver transplant. That work in progress, and hopefully will be the discussion for a different time. But there's a lot of promising work. We will continue to work hard. We know there are a lot of people who need transplant, and we will not stop short until all the people on the transplant list get the life-saving surgery of a transplant that they need.

D Dr. Halena Gazelka 30:52
Well, wonderful. Please come back and tell us when you learn more.

D Dr. Bashar Aqel 30:56
Absolutely.

D Dr. Halena Gazelka 30:57
Thanks so much for being here, Bashar.

D Dr. Bashar Aqel 30:59
Thank you so much.

D Dr. Halena Gazelka 31:01
It has been our absolute privilege today to have the medical director of the liver transplant program at Mayo Clinic in Arizona, Dr. Bashar Aqel, here to talk to us about solid organ transplants when the donors have been exposed to Hepatitis C. What a fascinating and meaningful topic. I hope that you learned something. I know that I did, and we wish each of you a very wonderful day.

N Narrator 31:24
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