

[MUSIC PLAYING]

SWATHYA
GANESH:

So the topic Dr. [INAUDIBLE] asked me to present is The Living Donor Liver Transplant-- UPMC Experience in the last year. So this is a quick slide to show the current status of living donor liver transplant in the US. There are approximately, as you all know, 15 to 16,000 on liver transplant wait list and there is a huge discrepancy in the number of available organs to the patients on the wait list. So there is a need to shift the paradigm and start considering living donors for the patients on the wait list.

And we know, historically, that at least 15% to 20% patients are on the wait list [INAUDIBLE], and there are approximately 7,000 to 8,000 deceased donor liver transplant, but no more than 500 living donor living transplants. This is different in other countries compared to USA. As you can see, in the last three years, the number of living donors in USA is much lower in proportion compared to the other countries, especially the Asian countries.

So the living donor liver transplant is underutilized in US, and this is a slide [INAUDIBLE] living donation in the US. And in the year 2019, only 524 living donor liver transplants were performed, which is only 6% of the total number of transplants. And that is far less, compared to some of the other countries. And in 2020, approximately 700 living donors have been done for the liver, and still does not account for more than 10% of all the liver transplants. It's less than 10% of all the liver transplants.

So this is a slide which also says the same thing, that the scope of living donation in US, only 15 US centers have done more than 100 adult living donor liver transplant and the number of centers who have done more than or equal to 10 living donors, or only 12. And this gives you an idea of how the living donation is considered in US, and still we are far behind the game compared to many of the other countries.

And as far as the living donation at UPMC, I know I'm going to talk about just the volumes for a little bit, but what is new is the focus of the topic. Since 2010 to now, the volume of patients undergoing living donor liver transplant has gone up due to the teamwork and the concentric effort as a transplant program at UPMC working together to help wait-listed patients get living donation at the crucial time without losing their window of opportunity. So in 2019, there were 76 living donor liver transplants. And in 2020, the projected number is around 90. And this slide was done around September of this year.

And so this is another slide which shows that comparatively, compared to the other centers, the number of living donor liver transplant at UPMC is higher. However, we do wish and hope, based on what we have done at UPMC, the other centers can also grow their living donor program.

And I just wanted to talk a little bit about the outcomes for the donors and the recipients in the national data. So the donor risk, out of all the-- since we started doing living donation in US, there has been 7,459 living donor liver transplant, and there are six donor deaths, which puts the donor death risk at 0.08%. And out of the six, there are three outside of those six who received a liver transplant themselves. So the overall complication rate is 30%. A mild complication is projected to be around 20%, and major complication rate is around 10%.

However, at UPMC, there has not been any donor deaths. No cases of any liver failure. The overall complication rate is around 20%, and the major complication rate is around 8.8%. And mean length of stay is 5.8, which is better than many of the other institutions. And as far as the other donor outcomes, the re-operation rate is 6.2. And the early-- less than three months, early post-operative period-- it's 2.7%. And the late is around-- more than three months-- is around 3.5%. And these are all the information I obtain from the transplant surgery.

So the biliary leak and biloma all managed with percutaneous drainage plus or minus ERCP is around 1.2%. And the medical complications which we usually talk to our patients included-- and it's not limited to, but inclusive of-- UTI, pneumonia, infections, blood clots, wound infection, fever, and nerve injury. And as far as the donor safety, the recovery in the hospital is around 5 to seven days, and four to six weeks desk job, and 10 to 12 weeks physical job. And most of them, majority of them go back to normal lifestyle in around three months after donation.

So what's new at UPMC in the last year? So the new things which we have done is the ABO incompatible liver paired exchange, LDLT for extended period criteria, which Dr. Hughes will elaborate later on, and altruistic and anonymous donation and champion program. These are new and unique to UPMC.

So before I go into that, I just want to say, because of the growth of the living donor program at UPMC as a team work, the transplant rate has tripled in five years. Due to the increase in the volume, the rate has increased from 44 in 2015, 203 per 100 person years with the living donation-- with the growth of the program. And the wait list mortality, as you can see, has also reduced based on the 30 year data because of the growth of the living donor program. The wait list mortality went from 28% to 19.7% in the last few years. This is obviously, as we know, due to increased access of liver transplants due to living donation, and before their window period is lost.

And so, as far as the new things which we have done at UPMC in the last year, is that liver paired exchange. This is for people with the ABO incompatible liver transplant donor recipient pair, and the swap, so the liver paired exchange happened in different combinations. But we have done eight pairs thus far, and out of the total cases, the exchange is initiated by an altruistic donor in five of them. All of them involving ABO incompatible donor recipient pair, with the matched donors for each recipient. The non-directed donor altruist is usually-- the altruistic donor was the non-directed donor for five of them, and they were all blood type O in all the five cases.

The second recipient in these cases were chosen from the wait list. They were matched based on the weight, BMI, MELD, graft size, and anatomy. Both the pairs underwent liver transplantation within a week from each other.

So this is the cartoon which shows how the swap, or the liver paired exchange work. And usually it could be a two pair or three pair, and what we have done here is usually a two pair, where the recipient donor A was an incompatible, donates to recipient B. And then the donor B, who was compatible with the recipient C, donates to recipient C. So we have done A and B, but not necessarily we haven't done a three-way swap. But this is the concept of how the liver paired exchange has worked.

Out of the eight, three of them were direct swaps between the A to B, and then donor A to recipient B. But however, the other five were initiated by an altruistic donor. And that's five of them, which is also unique and new to UPMC and other transplant centers.

And the other thing which also we have done is that anonymous donors. So these anonymous donors, we include the people who not only are anonymous and altruistic, but also the donors who actually come forward for the recipients whom they have not known the recipient from before. So we classify them under anonymous donors as well. They are unrelated, and they also do not know the recipient by name or face.

And we started a community awareness campaign and a support program to overcome the barriers in identifying potential living donors for wait-listed recipients. And this educational campaign was launched in October of 2018, which included E blasts, utilizing the social media, including Twitter and Facebook, and webinars through advocacy groups including UNOS, Donate Life America. And this is to create awareness and educate the general public. And because of this, there has been an increased number of registrations for people who would want to donate for recipients on the wait list, even though they do not know them by name or face before.

And the number of anonymous living donor liver transplants at UPMC-- when I say anonymous, it's also altruistic, and also includes the people who are unrelated to the recipient in any way. So the number of anonymous living donation at UPMC has increased substantially from 2012 to 2019. And since-- this is the number of liver donor registrations who have come through our donor database in 2018, 19, and 20. And this is from the [AUDIO OUT] until September.

So since October of 2018 up to September of 2020, 8,076 potential donors registered. Average 2,700 were qualified based on screening of the database, which is 34%. And 118, which is 4.2%, qualified for full donor evaluation. And 40 of them, which is only 1.5%, but still, are either donated already or approved to donate at this point in time.

So this is the educational campaign we had for people who are altruistic, anonymous, or unrelated donors, who do not know the recipient by name or face. We also have a living donor champion program. This is to impact the people who are on the wait list already, and focusing on directed donors. This program consists of a series of structural exercises including Champion Toolkit, workshops, online website, information sessions and support group. This is carried on by our transplant team, including the transplant coordinators the physicians, the champion ambassador, and also the public education efforts. And we also have printed material and the Champion website.

And this is a multi-pronged approach in helping recipients find donors utilizing a Champion who could be anyone in the patient support system. And the Champion works with our team in identifying and advocating for the recipient to find a donor. So this has worked very well for the people who have already been listed, and we help them to find a donor through a Champion. This is for the targeted effort for the people who are listed, and also for the directed donors. And the previous educational campaign was for anonymous and altruistic donors.

And this is the slide on the living door Champion, just to give how we have evolved from 2017 in engaging with the community, with the Champion events, social media, Champion support system, and also the Champion website, which is visited by several people and increasing exponentially each day. So this just gives an idea of how this Champion program has been working for our patients.

And I just have one or two slides on the outcomes of the recipient. And this is based on the review of all the deceased donor and the living donor liver transplant, which has been done in our institution between 2009 to 2019. And the survival outcomes were superior in LDLT recipients, and the three-year is 86% versus 80%, p-value of 0.03. And they all had-- the patients who underwent living donor liver transplant-- they all had shorter length of stay, reduced intraoperative infusion, and less likelihood of receiving hemodialysis in the early post-op period.

And also, the most striking thing about this, is that the cost and the resource utilization data between LDLT and deceased donor liver transplant, the hospital costs-- total inpatient and outpatient, both pre and post-- they are significantly lower in people who underwent living donor liver transplant, which is at least 30%. So obviously, the overall complication rate, the operative complications were similar. But however-- so the LDLT recipients had 5% survival advantage over the deceased donor liver transplant.

This is just a quick slide on the characteristics of living donor and the deceased donor liver recipients. The key difference between the two groups include that the higher MELD in the deceased donor group is expected, and the patients who underwent deceased donor liver transplant had significant underlying HCC. And also, the LDLT recipients were younger and less likely to be obese.

And so this is the last slide, just to say that living donor liver transplants comprised 54% of all the UPMC transplants compared to the national average of 5%. And the transplant rate increased from 44 to 103 in 2019 because of the increase in the living donor liver transplants. And I think anyone with the survival advantage and the benefit should be taught and talked about living donation. And I think, as a system, and also as a program, we all believe that LDLT is not the last resort, but however we should talk about this first, and it's a better result. Thank you, everyone.