Transplant Rounds
NEWSLETTER

Baylor St. Luke's Medical Center

Baylor College of Medicine

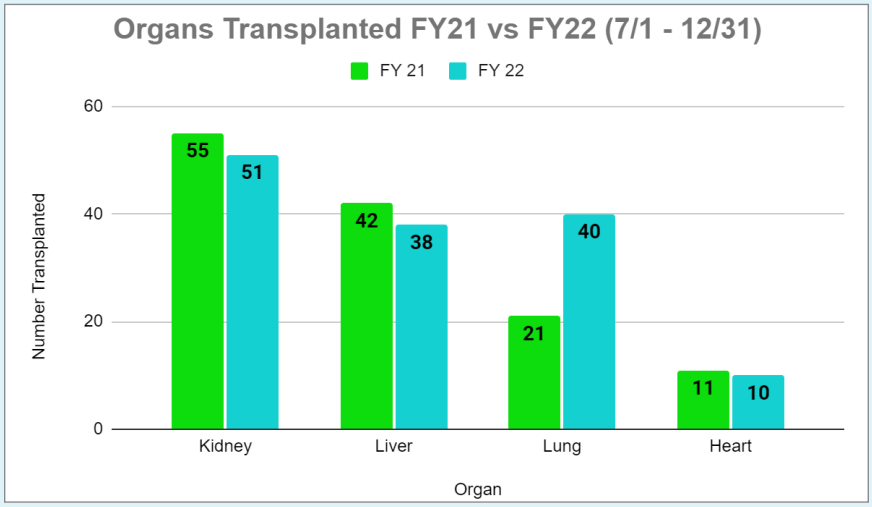
JAN-FEB 2022

In This Issue:

Transplant by the Numbers

SUSAN BOURGEOIS, MSN, RN, CCRN-K, CPHQ, CCTN, CENP

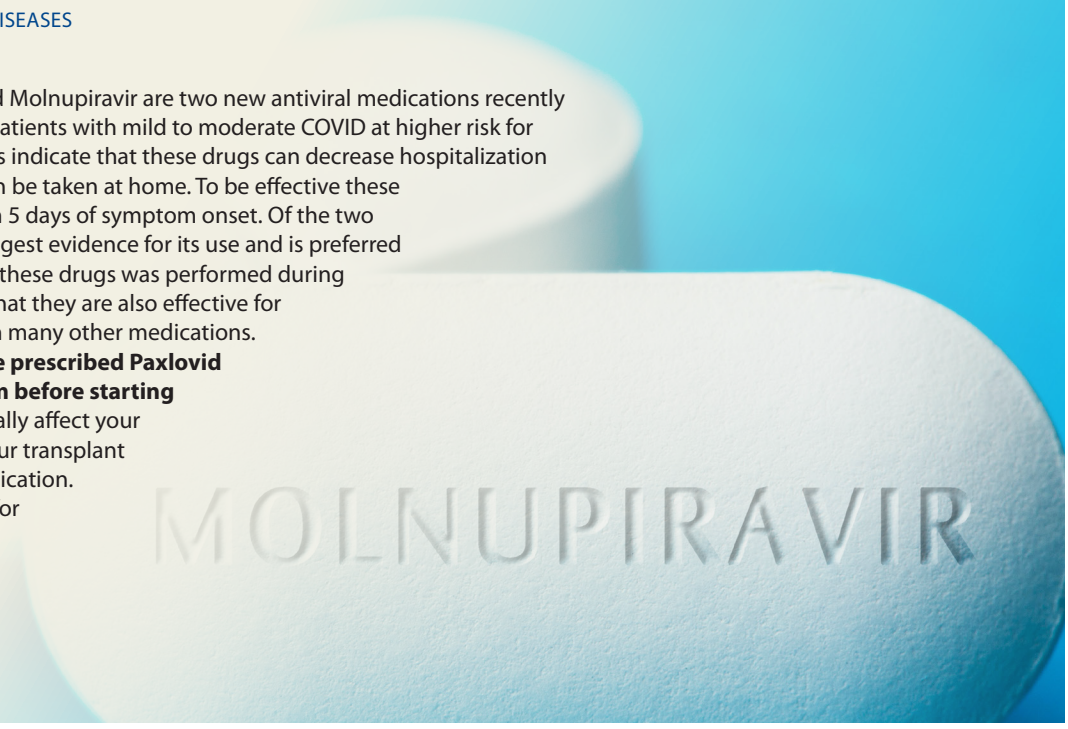
Director of Transplant Quality—Patient Safety Baylor St. Luke's Medical Center



Transplant Hot Topics: Oral Antiviral for Treatment of COVID-19

TYLER LAMBING, MD
ASSISTANT PROFESSOR INFECTIOUS DISEASES

Paxlovid (nirmatrelvir/ritonavir) and Molnupiravir are two new antiviral medications recently authorized for emergency use for patients with mild to moderate COVID at higher risk for progression of disease. Early studies indicate that these drugs can decrease hospitalization and mortality. They are pills and can be taken at home. To be effective these medications must be started within 5 days of symptom onset. Of the two medications, Paxlovid has the strongest evidence for its use and is preferred over Molnupiravir. The research for these drugs was performed during the Delta surge but it is theorized that they are also effective for Omicron. Paxlovid can interact with many other medications. **It is very important that if you are prescribed Paxlovid that you call your transplant team before starting the medication**, as it can dramatically affect your immunosuppression. Please call your transplant team if you are prescribed this medication. These drugs are not replacements for vaccination which continues to be the most effective way to prevent progression to severe disease.



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Quality Corner: UPDATED SRTR DATA REPORTS

SUSAN BOURGEOIS, MSN, RN, CCRN-K, CPHQ, CCTN, CENP
DIRECTOR OF TRANSPLANT QUALITY—PATIENT SAFETY, BAYLOR ST. LUKE'S MEDICAL CENTER (BSLMC)

The Scientific Registry of Transplant Recipients (SRTR) provides reports describing patient and graft survival for each transplant center in the United States. These reports are released publicly twice each year, most recently in January 2022. Each center is expected to attain specific thresholds for one-year survival, and those "expected" thresholds are determined by the SRTR, using a sophisticated risk stratification model. The reports review one-year survival of patients and grafts transplanted during a 2 ½ year period.

Centers must submit detailed patient information to the United Network for Organ Sharing (UNOS) at specific intervals throughout the patient's lifetime during and following the transplant process. Data accuracy and submission rates are monitored, and submissions are routinely audited. UNOS provides pre and post transplant data to the SRTR so the center's "expected" survival can be calculated, based on weighted risk-adjustment elements (co-morbidities and characteristics known to impact outcomes). If a center's actual number of patient deaths exactly match the SRTR predicted number of patient deaths, the center's Hazard Ratio would be 1. If a center has fewer patient deaths than predicted, the center's Hazard Ratio would be less than 1.

The table below shows the January 2022 published graft and patient survival data provided by the SRTR.

The Baylor St. Luke's Medical Center (BSLMC) transplant programs for heart, lung, liver, and kidney achieved outcomes that were all better than expected for both graft and patient survival! To view the full reports, go to **http://www.srtr.org**.

January 2022 - Adult 1 Year Survival (7/1/2018 - 12/31/2020*)

	Graft Survival			Patient Survival		
	Observed	Expected	Hazard Ratio	Observed	Expected	Hazard Ratio
Heart	1	2.9	0.61	1	2.72	0.64
Lung	6	7.56	0.84	6	6.93	0.9
Liver	7	10	0.75	7	7.78	0.92
Kidney	7	9.65	0.77	3	5	0.71

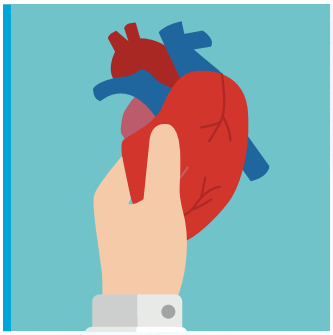
*contains SRTR-defined COVID exclusions

Patient Spotlight: KANDICE BLYTHE

Even with visitor restrictions due to COVID19, Kandice Blythe, a transplant patient at Baylor St. Luke's Medical Center (BSLMC), took comfort in knowing her support system was nearby. Camping out in the parking lot and sending videos every hour, Kandice's family showed their love in a unique way.

Read about it here: **https://www.click2houston.com/news/local/2020/05/15/family-camps-out-in-parking-lot-to-show-support-to-houston-mom-in-hospital/**

RESEARCH



Research News: EVAHEART

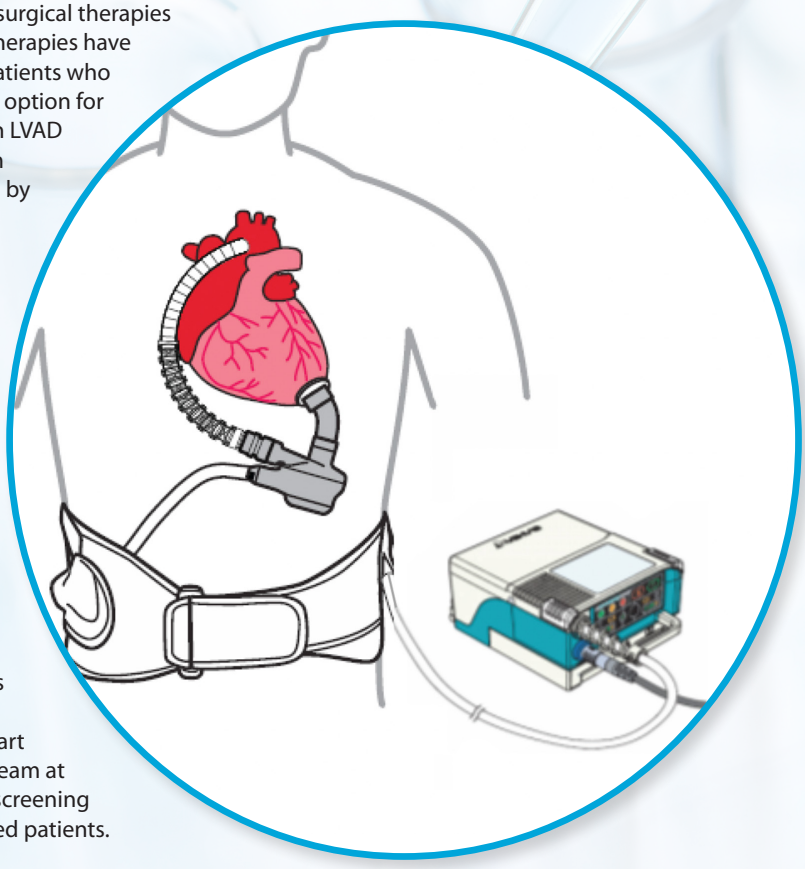
ALEXIS SHAFII, MD
Surgical Director, Heart Transplantation, Baylor St. Luke's Medical Center (BSLMC)

Associate Professor of Surgery, Division of Cardiothoracic Transplant and Circulatory Support
Michael E. DeBakey Department of Surgery, Baylor College of Medicine

Professional Staff Member, Texas Heart Institute

Baylor St. Luke's Medical Center (BSLMC) is one of a few select centers in the nation chosen to participate in the COMPETENCE trial with the EVAHEART 2 left ventricular assist device (LVAD) system.

Patients with advanced heart failure can be considered for surgical therapies including LVADs and heart transplantation when medical therapies have been exhausted. LVADs can be a lifesaving treatment for patients who are too ill to wait for a compatible donor heart as well as an option for many patients who are not suitable for heart transplant. An LVAD functions to artificially pump blood throughout the body in patients with a failing heart muscle. Implanted in the chest by open-heart surgery, the heart pump is electrically powered by rechargeable batteries. Patients can live for many years supported with a LVAD and can achieve many aspects of normalcy in their day-to-day activities.



Unique to the design of the new EVAHEART heart assist device is its ability to preserve the heart's intrinsic pulsatility. Loss of arterial pulsatility with conventional continuous flow LVADs has been attributed to complications including gastrointestinal bleeding, right heart failure and accelerated heart valve degeneration. An additional feature of the EVAHEART device is a tip-less inflow cannula that is engineered to prevent issues related to cannula misalignment and reduce risks of pump thrombosis and stroke.

BSLMC is currently one of the leading enrollers in the investigational trial with encouraging results. Access to this new technology allows our heart failure program at BSLMC Hospital to continue to offer the latest advancements in heart failure therapies to patients. A dedicated clinical research team at the Baylor College of Medicine is leading efforts in patient screening for trial eligibility as well as the detailed follow-up of enrolled patients.

Hepatorenal Syndrome: A TALE OF COLLATERAL DAMAGE

AHMED AWAN, MD, FACP
Assistant Professor of Nephrology, Baylor College of Medicine

Individuals with cirrhosis are at a high risk for developing Acute Kidney Injury (AKI), with a reported incidence of 20% among hospitalized patients with cirrhosis. Besides the other inherent risk factors for AKI in patients with cirrhosis (shown in Table 1), patients with cirrhosis and ascites can develop a severe type of AKI – Hepatorenal Syndrome (HRS) – that is associated with a considerable mortality. Usually considered in the differential diagnosis of any patient with a rising serum creatinine (at least 0.3 mg/dL above baseline), the pathophysiology of HRS mostly involves hemodynamic factors, with portal hypertension triggering a cascade of events leading to splanchnic vasodilatation, and eventually culminating in renal vasoconstriction. Of note, these patients are also at risk for developing cirrhotic cardiomyopathy and adrenal insufficiency, leading to hepato-cardiorenal and hepato-adrenal syndromes – comorbidities that can significantly affect the management of patients with HRS and should always be considered.

Table 1 – Risk Factors for AKI in patients with Cirrhosis
Blood loss due to GI bleeding
Gastrointestinal fluid losses due to lactulose use
Urinary fluid losses due to diuretic use
Antibiotics to treat or prevent SBP
Large Volume Paracentesis, especially if done without concomitant albumin use

When the hepatorenal physiology leads to a rather slow and steady decline in kidney function, it can lead to HRS-CKD (chronic kidney disease) –The old terminology of HRS-1 and HRS-2 is no longer used. HRS is a diagnosis of exclusion requiring elimination of volume depletion, nephrotoxic agents and active glomerulonephritis (shown in Table 2). Although traditional teaching is to volume expand all patients with albumin for 48 hours to rule out other pre-renal etiologies, this may not be necessary if volume depletion can be ruled out using Point of Care Ultrasound (POCUS). A low Fractional excretion of sodium (FeNa) of less than 1% is a very sensitive but non-specific indicator of HRS as patients with hepatorenal physiology can continue to have a very low FeNa even after developing Acute Tubular Necrosis (ATN). HRS may also overlap with other etiologies of AKI in patients with cirrhosis, including ATN.

Table 2 – AKI in Cirrhosis – When is it HRS?
Diagnosis of exclusion in patients with cirrhosis and ascites
Diagnosis of AKI according to International Club of Ascites AKI criteria
No response after 2 consecutive days of diuretic withdrawal and plasma volume expansion with albumin (1 g per kg of body weight, 100g max)
Absence of shock
No current or recent use of nephrotoxic drugs
No macroscopic signs of structural kidney injury defined as: • Absence of proteinuria (>500 mg/day) • Absence of hematuria (>50 RBCs/hpf) • Normal findings on renal ultrasonography

Outpatient management of HRS requires close monitoring of patients' blood pressure, volume status and frequent review of medications to eliminate any nephrotoxic medications that might precipitate a decline in kidney function. Majority of patients with progressively worsening liver disease eventually develop hypotension. Anti-hypertensive medications (especially ACE-inhibitor/ARBs) should be stopped if the patients' mean arterial pressure (MAP) starts to drop. A higher MAP leads to better renal blood flow in patients with cirrhosis and ascites (as shown in Figure 1) - Renal blood flow (RBF) keeps improving in such patients if renal perfusion pressure (RPP) improves from 65 mmHg to 90 mmHg (as opposed to normal physiological circumstances, where the RBF reaches a plateau at RPP of 65 mmHg). Midodrine is commonly used to target higher MAPs in patients with cirrhosis and ascites after stopping anti-hypertensive medications. Adrenal insufficiency should be ruled out as a cause of hypotension.

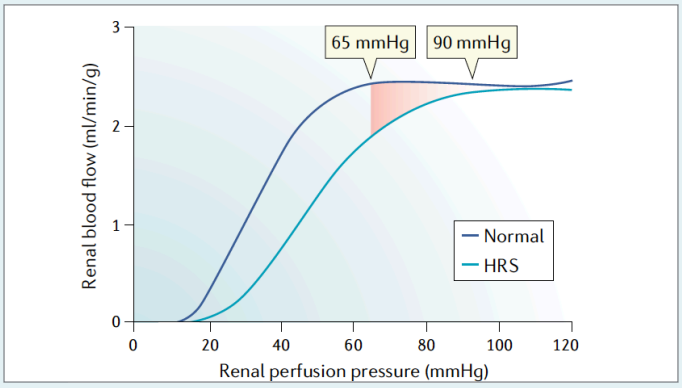


Figure 1 – Derangement in Renal Autoregulation in patients with HRS (adapted with permission from Juan Carlos et al. Nature Review on HRS)

Hepatorenal Syndrome: A TALE OF COLLATERAL DAMAGE *continued*

AHMED AWAN, MD, FACP, Assistant Professor of Nephrology, Baylor College of Medicine

Beta-blockers (e.g., propranolol etc.) are frequently used to reduce the risk of GI bleeding in patients with esophageal varices. However, they increase the risk of mortality if continued after an episode of spontaneous bacterial peritonitis (SBP). Diuretics (e.g., Furosemide and Aldactone) need to be stopped if serum creatinine is rising in the setting of intravascular volume depletion. Some patients can become diuretic resistant or diuretic intolerant, and eventually need serial paracentesis to remove ascites at frequent intervals. Transjugular Intrahepatic Portosystemic Shunts (TIPS) can reduce the need for paracentesis, improve kidney function and prolong transplant free survival in carefully selected patient population. Liver transplant remains the treatment of choice for patients with hepatorenal syndrome. However, the chances of renal recovery are dependent on the duration of kidney disease – patients with kidney disease of a longer duration with reduced glomerular filtration rates (Table 3) have less chances of recovery of kidney function and are also considered for simultaneous kidney transplant.

Table 3 – Criteria for Simultaneous Liver-Kidney Transplant
AKI Criteria – Sustained Acute Kidney Injury
1/ On dialysis at least once every 7 days for the last 6 weeks
And/or
2/ Measured or calculated CrCl or GFR < 25 ml/min at least once every 7 days for last 6 weeks
CKD Criteria – CKD with a measured or calculated GFR of < 60 ml/min for greater than 90 consecutive days
1/ On dialysis as an ESRD patient
and/or
2/ Most recent CrCl or GFR < 30 ml/min

Not all patients with HRS need to be admitted to hospital for management. Patients with less severe disease can be managed outpatient by modifying diuretics, adjusting anti-hypertensive regimen and adding midodrine if needed to target a higher MAP. However, very close follow-up is required in clinic to monitor disease progression. If outpatient management fails, patient can be admitted for inpatient treatment with albumin (which has cardio-modulatory and anti-inflammatory benefits besides initial volume expansion), midodrine+octreotide or norepinephrine. Terlipressin was denied FDA approval in September 2020 despite promising results in CONFIRM trial and more data has been requested. However, norepinephrine was shown to be non-inferior to Terlipressin in a meta-analysis from Brazil, with similar rates of reversal of HRS and 30-day mortality. Norepinephrine is also superior to midodrine+octreotide in reversing HRS but usually requires ICU admission, limiting its use. Of note, once volume depletion is ruled out, diuretics can be used judiciously with ongoing HRS treatment if needed for volume management.

Treatment of HRS requires collaboration between hepatologists and nephrologists to adequately manage this multi-faceted disease. At Baylor St. Luke's Medical Center, we have a dedicated team of nephrologists (both inpatient and outpatient) that manages these patients diligently with the liver team. Close follow-up of these patients in clinic allows us to keep these patients out of hospital as well as timely start kidney transplant evaluation as soon as patients meet the criteria. Our goal is to provide the highest standard of care and support to patients with HRS, so we can minimize the collateral damage caused by this relentless disease.

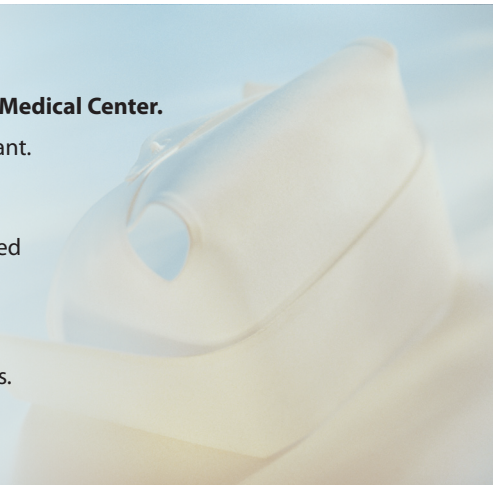
Staff Spotlight: DEBRA HOSEY, RN

I'm Debra Hosey and I am a Kidney Transplant Wait List Coordinator at Baylor St. Luke's Medical Center.

Our waitlist team is charged with keeping our patients up to date and ready for their transplant. We closely collaborate with our medical and surgical directors to review and update testing. This can be challenging as our patients utilize multiple facilities for their care.

My transplant journey began at Hermann Hospital in 1979. I started as a floor nurse and moved to coordinator. In 1986, I joined the transplant team at St. Luke's hospital to start the kidney transplant program. My greatest reward has been seeing our recipients get a second chance at a good quality of life.

I am fortunate to work with such an amazing group of talented & experienced team members.



NUTRITION TIPS

Good nutrition is extremely important throughout the transplant process and post-transplant to promote health and healing.

JESSICA LEE MS, RD/LD, CNSC
Transplant Dietitian, Baylor St Luke's Medical Center

POTASSIUM

- **Some transplant medications can cause your body to retain or lose potassium.**
- **Potassium plays a role in muscle contractility. This includes your heart.**
- **If your potassium is too high you may need to limit some of the foods below in your diet. If it is too low, increase these high potassium foods in your diet:**
- **Sources of potassium include: dairy products (such as milk and yogurt), avocado, sports drinks, bananas, tomatoes, potatoes, oranges, and legumes.**

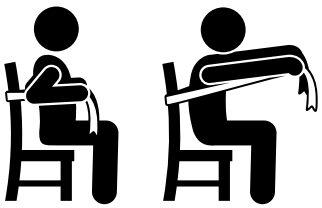
EXERCISE TIPS

Exercise is an important part of the road to recovery, both pre-and post-transplant.

GIL SPITZ, MS, CSCS
Exercise Physiologist, Liver Transplant Program
Baylor St. Luke's Medical Center

Many patients are either uncomfortable with, or not physically ready for exercises which challenge their balance. Most exercises can be modified for a seated position, building strength, confidence, and allowing patients to progress safely. Some of my favorite seated exercises are leg presses, back rows and chest presses.

Seated Leg Press



Seated Chest Press

CHAIR EXERCISES

Band Leg Press:

Holding band with both hands, centered across the foot, extend leg until straight. Slowly return to starting position (repeat X10).

Seated Row & Chest Press:

Loop band around doorknob, wall hook, or other convenient anchor. Holding band with both hands, pull arms back towards mid-abdomen, and slowly return to starting position (repeat X10). This same exercise can be modified into a chest exercise by turning around and pushing arms away from chest.

Upcoming Events

Transplant Round Up

MARCH 25, 2022

Transplant Grand Rounds

MONTHLY

https://CommonSpirit-VirtualCareAnywhere.zoom.us/meeting/register/tJAtceCspjM-jHtHiVJpUinsN3M1m8EpZfdss