A simple but state-of-the-art tool could give doctors and nurses hours of advance notice – rather than minutes – of potential complications after a stroke, and it might be useful in quickly intervening after traumatic brain injuries and concussions as well, a UT Southwestern study suggests.

That tool is the pupillometer, a user-friendly device equipped with infrared technology and a high-speed camera. A caregiver merely holds the device in front of a patient’s eye and presses a button to assess an array of objective pupillary variables, including size, constriction velocity, latency, and dilation velocity, which are normalized and standardized via computerized algorithms to calculate the Neurological Pupil Index (NPI) in a matter of seconds.

Doctors already know that NPI data can provide an early warning about insufficient blood flow to a patient’s brain (cerebral ischemia), as well as brain swelling and other severe issues that can develop in the days after a hemorrhagic stroke.

Now, we’re learning from the UT Southwestern study, co-authored by Hunt Batjer, M.D., Chair of UTSW’s Department of Neurological Surgery, that NPI measurements can be a harbinger of neurological things to come much sooner than previously realized.

Continued page 2
The Eyes Have It
(Continued from page 1)

Pupillometry research

Data from the study of 56 patients (see sidebar) showed that the pupils changed in seven of the 12 patients who developed cerebral ischemia after such a stroke. Pupil changes were detectable up to eight hours earlier than traditional methods of assessment – an early warning that could, UT Southwestern research says, grant doctors hours instead of minutes to intervene and reduce the risk of long-term brain deficits and cognitive loss.

“The aim of our study was to investigate the role of automated pupillometry in the setting of subarachnoid hemorrhage as a potential adjunct to transtemporal Doppler,” Dr. Batjer says. “What we found, essentially, is that the eye is indeed a good, clear window to the brain and that NPI changes are strongly associated with the advent of delayed cerebral ischemia – and that, importantly, those changes could be an early herald of clinical deterioration.”

Today, UT Southwestern houses the world’s largest database for pupillometer research in acute brain injury. UT Southwestern’s neuroscience intensive care unit uses the device on every patient after brain surgery and every patient with stroke, hemorrhage, or severe concussion/injury. Ongoing research will determine whether pupillometry might provide early warning for doctors to provide lifesaving interventions after concussions and other traumatic brain injuries.

The future of pupillometry

“Pupillometry research has vast potential to impact patient care,” says Dr. Batjer, also the senior neurosurgeon at UT Southwestern’s Peter O’Donnell Jr. Brain Institute. “While currently used only in hospitals and in the days and weeks after an injury, pupillometry could become part of the sideline concussion exam and offer measurable data to make safer, quicker decisions about return to play that would reduce long-term concussion symptoms after sports injuries.”

How does pupillometry work?

The Neurological Pupil Index (NPI) is based on several measurements, including pupil size and how fast the pupil responds to light stimulus. Patients receive an NPI score on a scale of 0 to 5, with 3 to 5 considered a normal reading. Research suggests that an NPI below 3 could be a red flag that a patient might be experiencing a neurological complication.

Particularly with neurological conditions such as concussion and aneurysm, early diagnosis and intervention are critical in reducing long-term damage, Dr. Batjer notes. Pupillometry can potentially help reduce the risk of severe brain injury and even death.

“Data from our pupillometry research reinforces the fact that doctors should consider the whole patient and not just the affected area of the body,” Dr. Batjer says. “A patient’s personal characteristics and seemingly unrelated physical reactions should be considered in neurological examinations, particularly in the days and weeks after an injury.”

For more information or to refer a patient to UT Southwestern’s O’Donnell Brain Institute, call 214-645-8300.

‘A piece to the puzzle’

In a UT Southwestern study of 56 patients diagnosed with aneurysmal subarachnoid hemorrhage (SAH) and admitted to the neuro-ICU an NPI decrease was strongly associated with delayed cerebral ischemia (DCI). Researchers found that pupillometer changes can occur hours prior to the clinical neurological decline, which could provide the treatment team with enough warning to institute preemptive therapeutic measures before the development of irreversible neurological damage, especially in the context of elevated transtemporal Doppler readings and in patients who have significant clinical and radiological risk factors for DCI. The study’s authors noted that pupillometry is not meant to replace a good clinical, radiological, and enographic examination but instead to complement it – and to add a piece to the puzzle of the larger picture.

Researchers found that pupillometer changes are strongly associated with the advent of delayed cerebral ischemia – and that, importantly, those changes could be an early herald of clinical deterioration.

The history: About three years earlier, she had a transcatheter aortic valve replacement (TAVR) at another institution. So for her to have this dramatic progression of symptoms was a little unusual.

The first steps: Given her history, our structural heart team decided first to get an echocardiogram. It revealed what seemed to be a lot of calcium, or at least echogenicity, around the aortic valve.

The next steps: Based on the echo findings, we decided to investigate further with a CT scan. And once we got that, we actually found something we weren’t expecting. In fact, at first we didn’t actually believe what we saw.

Her heart was falling only a few years after a valve replacement, but it wasn’t clear why.

By Dharam Kumbhani, M.D.
Associate Professor of Internal Medicine-Cardiology

Sometimes being a doctor requires a bit of detective work.

Particularly in emergency situations, patients can’t really articulate what’s wrong and what’s happening to their bodies. So it’s our job to search for clues, use every medical sleuthing tool at our disposal, and solve the mystery – Sherlock Holmes in scrubs.

Every day at UT Southwestern, talented teams of physicians and medical professionals work together to unravel these mysteries. Here’s one where the structural heart team faced a real challenge. See if you can solve it.

The case: A 72-year-old Caucasian female presented to the emergency room at William P. Clements Jr. University Hospital with symptoms of heart failure and chest tightness that had been going on for several weeks. The patient had symptoms consistent with severe aortic stenosis and heart failure, and her condition was deteriorating quickly.

The history: About three years earlier, she had a transcatheter aortic valve replacement (TAVR) at another institution. So for her to have this dramatic progression of symptoms was a little unusual.

The first steps: Given her history, our structural heart team decided first to get an echocardiogram. It revealed what seemed to be a lot of calcium, or at least echogenicity, around the aortic valve.

The next steps: Based on the echo findings, we decided to investigate further with a CT scan. And once we got that, we actually found something we weren’t expecting. In fact, at first we didn’t actually believe what we saw.

Mystery solved

The CT scan shows her native aortic valve with a lot of calcification. But examine the valve closely and you’ll see it’s actually below the plane of the aortic valve, which means that valve is actually the transcather valve. The implant looked as if it had embolized in the LVOT (left ventricular outflow tract). We took her to the cath lab and confirmed this on angiography. The TAVR valve was completely embolized, just hanging free in the LVOT.

Examine the scan above to form your diagnosis.

The interesting thing was that it was clearly in the right spot immediately after implant, based on our review of the outside hospital’s imaging and records. Thus, it had migrated at some point after that, likely over the past six to 12 months because that’s when her symptoms got worse. After speaking with multiple colleagues across the country, it was clear this was one of the first times any of us had seen or heard of this happening, so it’s not surprising we struggled with the best way to treat her.

Our patient was not a candidate for open surgery, so we took a transcather approach and implanted another valve inside this valve, landing it such that it treated her aortic stenosis but also trapping and stabilizing the embolized valve so it couldn’t migrate any farther. Thankfully, she did really well with the procedure. This was a very challenging case from a diagnostic standpoint, as well as a management standpoint. But thanks to the wealth of expertise we have in our structural team, the mystery was solved and our patient had a successful outcome.

To make a referral to a UT Southwestern cardiologist, call 214-645-8300.
New living-donor liver transplantation program saves time – and lives

Each year in the U.S., more than 2,000 patients die while on the waiting list for a liver transplant because of the critical shortage of deceased-donor livers. Now, however, UT Southwestern offers an option that allows patients to bypass the waitlist process by effectively expanding the donor pool living donor liver transplantation.

“Living-donor transplantation helps address the critical need for more livers to transplant and is just what it sounds like – a living person can give part of his or her liver to another,” says Steven Hanish, M.D., Surgical Director of the Liver Transplantation Program at UT Southwestern.

“That process happens in the first few weeks after surgery.”

Dr. Hanish, a renowned expert in living-donor liver surgeries, was recruited to UT Southwestern in 2018 in part to help establish UTSW’s living-donor program, which he leads along with Medical Director of Living-Donor Liver Transplantation Arjmand Mufti, M.D.

“Not every program has a living-donor component,” notes Dr. Hanish, “and of those who do, the vast majority don’t perform many procedures in a given year. UT Southwestern stands ready to be very active in this area of medicine.”

One reason for the lack of programs across the country is that living-donor liver transplant surgery is complex and requires advanced expertise – the kind found at UT Southwestern. A living donor liver procedure takes between six and eight hours and involves carefully separating the liver so that it remains functioning in both the recipient and the donor.

How the process works

Potential recipients of living donor livers must secure a donor for their transplant. Donors do not have to be related to the recipient. Once a potential donor is found, a patient or his/her referring physician contacts UT Southwestern to arrange for a donor evaluation. The donor’s evaluation is separate from the recipient’s and includes both physical and psychological components.

If all evaluations come back favorable for both the recipient and the donor, a transplant surgery is scheduled with the UT Southwestern living donor transplant team.

“A patient who is on the liver transplant waiting list is eligible to receive a liver from a live donor,” Dr. Mufti notes, adding that healthy donors must:

- Have a compatible blood type with the recipient
- Be between the ages of 18 and 60
- Be in good physical and mental health
- Have a BMI of less than 35

“We are extremely focused on protecting the health, safety, and interests of both recipients and donors,” Dr. Mufti says.

Advantages and benefits

Living donor liver transplantation has been shown to have better outcomes than deceased-donor liver transplantation, partly because recipients do not have to stay on the waitlist while their health declines, hoping for an available liver, Dr. Hanish says.

“Living liver donation recipients also have the advantage of knowing beforehand that the donated liver they are receiving is healthy and compatible with their system,” he adds. “And surgery can be scheduled at the optimal time for the recipient and the donor.”

These advantages have to be weighed against the risks associated with the surgery for both the living donor and the recipient, due to the complex nature of the procedure, Dr. Hanish notes.

A strong program

The availability of living-donor liver transplantation is the latest mark of distinction for UT Southwestern’s entire liver disease and liver transplant program. Over the past year, the program registered a 67% increase in transplants (to 95), added new surgical leadership, and maintained a record of excellent outcomes.

Additionally, the program decreased the length of stay after transplant from eight days to only five – one of the lowest in the country – and saw its waitlist additions more than double.

“Our program transplants patients with higher MELD scores than other programs, yet our expertise enables us to maintain outcomes above the national average,” says Jorge Marrero, M.D., Medical Director of Liver Transplantation and Chief of Clinical Hepatology. “This results in more patients being evaluated and added to our waitlist.”

In addition to its high-volume, high-quality characteristics, the UT Southwestern liver program is known for its research components, particularly now in the area of expanding the donor pool. UT Southwestern is the only site in North Texas – and one of just 13 nationally – participating in the Organ Care System (OCS) Liver PROTECT Trial, which is testing a portable machine developed by TransMedics that improves liver assessment and enhances the organ itself before it’s ever transplanted. UT Southwestern is the third-biggest enroller in the trial.

“A leading-edge program in living-donor liver transplantation is entirely consistent with our distinguished record in liver care and our status as one of the nation’s leading academic medical centers,” says Parsia Vagefi, M.D., a liver transplant and hepatobiliary surgery specialist and Chief of the Division of Surgical Transplantation. “We’re certainly proud of our past but even more excited for our future.”

If you have a patient who could benefit from a living-donor liver transplant, or know of a potential donor, call UT Southwestern’s 24-hour intake line at 877-392-1528. Calls are answered by a registered nurse.

Left to right: Steven Hanish, M.D., Surgical Director, Liver Transplantation; Parsia Vagefi, M.D., Chief of Surgical Transplantation; Jorge Marrero, M.D., Medical Director, Liver Transplantation; Arjmand Mufti, M.D., Medical Director, Living Donor Liver Transplantation.

Average Post-Transplant Length of Stay (Days)

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Waitlist Additions

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Bariatric surgery is one of the most transformative procedures a patient can go through. The stakes are high and the road is long, involving both physical and psychological components. That’s why UT Southwestern surrounds patients with an expert team of surgeons, dieticians, psychologists, and subspecialty leaders to provide the best medical care and support throughout the weight loss journey. That multidisciplinary, extended support is what makes each patient’s journey unique.

UT Southwestern is an accredited Bariatric Surgery Center by the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program. The bariatric team performs 200 to 250 surgeries per year, with 98% of those procedures conducted laparoscopically, according to Dr. Hennessy.

Legacy of firsts

In March 2019, UT Southwestern performed its first robotic bariatric surgery – a gastric sleeve procedure done by Section Chief and Director of Bariatric Surgery Benjamin Schneider, M.D. The patient benefited from a minimally invasive operation that afforded the surgeon better visualization and more precise handling for tissues. Also, Dr. Schneider performed the team’s first bariatric operation at Texas Health Presbyterian Hospital Dallas as part of UT Southwestern’s integrated health care network with THR called Southwestern Health Resources. The network enables each organization to complement its services with the resources of the other to better serve patients in the region and allows patients access to UT Southwestern faculty and procedures beyond the boundaries of the Southwestern Medical District.

Robotic surgery is just the latest bariatric surgery milestone at UT Southwestern, where specialists have performed more than 4,000 operations and trained more than 100 board-certified surgeons. The Medical Center’s long list of highlights includes:

- First to perform gastric banding with single-incision laparoscopic surgery (SILS) in North Texas (2008)
- First to perform laparoscopic adjustable gastric banding (Lap-Band) in North Texas (2001)
- First to perform the laparoscopic Roux-en-Y gastric bypass in North Texas (1999)

Today, UT Southwestern offers a full range of surgical procedures along with support services for pre- and postoperative patients. Procedures include:

- Laparoscopic Sleeve Gastrectomy
- Laparoscopic Roux-en-y Gastric Bypass
- Laparoscopic Adjustable Gastric Banding (Lap-Band)
- Revisional Bariatric Surgery

Growing acceptance

It’s all part of a growing acceptance and interest in bariatric surgery, Dr. Hennessy says. “The American Diabetes Association recently added bariatric surgery to its Standards of Medical Care for Type 2 diabetes,” she says, solidifying weight-loss surgery as a non-esthetic, effective treatment for the nation’s obesity epidemic.

“The results of bariatric surgery are amazing from a medical standpoint,” she adds. “Many of these patients have a complete or near-complete resolution of their related health problems – Type 2 diabetes, sleep apnea, cardiovascular disease – and their life expectancy is extended thanks to the surgery.”

| Clinical Trials
| Trials now recruiting for lung, prostate, other cancers
| [Trial identifier: NCT03317771]
| Summary: This randomized phase II/III trial studies how well giving maintenance chemotherapy with or without local consolidation therapy works in treating patients with stage IV (non-small cell lung cancer (NSCLC)). Giving maintenance chemotherapy and local consolidation therapy together might work better than maintenance chemotherapy alone in treating patients with stage IV NSCLC.

Patient Eligibility: A patient might be eligible for this trial if he/she is at least 18 years old and has, among other criteria:

- A pathologically proven diagnosis of NSCLC, with metastatic disease (stage IV disease) present prior to registration; this includes patients newly diagnosed with metastatic disease or those initially diagnosed and treated for stage I-III NSCLC who ultimately develop metastases.
- Received first-line induction chemotherapy (four cycles) and achieved stable disease or a partial response.
- Measurable disease at baseline and three or fewer discrete, extracranial metastatic disease sites that are technically amenable to SBRT.

| Clinical Trials: Study of Cabozantinib in Combination With Atezolizumab in Subjects With Locally Advanced or Metastatic Solid Tumors [Trial identifier: NCT03170960]
| Summary: This is a multicenter, phase 1b, open-label study to assess safety, tolerability, preliminary efficacy, and pharmacokinetics of cabozantinib taken in combination with atezolizumab in subjects with multiple tumor types, including advanced urothelial carcinoma (UC), renal cell carcinoma, castration-resistant prostate cancer, non-small cell lung cancer (NSCLC), triple-negative breast cancer, ovarian cancer, endometrial cancer, hepatocellular cancer, gastric cancer and gastroesophageal junction cancer, colorectal cancer, head and neck cancer, and differentiated thyroid cancer.

Patient Eligibility: A patient might be eligible for this trial if he/she is at least 18 years old and has, among other criteria:

- A cytologically and histologically confirmed solid tumor that is inoperable, locally advanced, metastatic, or recurrent.
- Measurable disease per RECIST 1.1 as determined by the investigator.
- Tumor tissue material available (archival or recent tumor biopsy).
- Recovery to baseline or less than or equal to Grade 1 CTCAE v4 from toxicities related to any prior treatments, unless AEs are clinically nonsignificant and/or stable on supportive therapy.

| POTENT-C: A Phase II Randomized Controlled Trial of Stereotactic Ablative Radiotherapy With or Without Neurovascular Sparing for Erectile Function Preservation in Localized Prostate Cancer [Trial identifier: NCT03525262]
| Summary: This is a phase II randomized, multi-institution, open-label trial in patients with localized prostate cancer that are candidate for prostatectomy.

Patient Eligibility: Male patients age 18 to 120 might be eligible for this trial if they have, among other criteria:

- Appropriate staging studies identifying them as American Joint Committee on Cancer 7th edition clinical stage T1 (a, b, or c) or T2 (a, b, or c) or adenocarcinoma of the prostate gland; the patient should not have direct evidence of regional or distant metastases after appropriate staging studies, histologic confirmation of cancer will be required by biopsy performed within 12 months of registration. T-staging might be assessed by multi-parametric imaging alone if digital rectal examination was deferred.
- A Gleason summary score of less than or equal to 7.
- A baseline AUA symptom score of less than or equal to 19.
- An EPIC sexual domain composite score of 60-100.
- Serum PSA less than or equal to 20 ng/mL within 90 days of registration.

| POTENT-A: A Phase II Randomized Controlled Trial of Stereotactic Ablative Radiotherapy Plus or Without Neovascular Sparing for Erectile Function Preservation in Localized Prostate Cancer [Trial identifier: NCT03525262]
| Summary: This is a phase II randomized, multi-institution, open-label trial in patients with localized prostate cancer that are candidate for prostatectomy.

Patient Eligibility: Male patients age 18 to 120 might be eligible for this trial if they have, among other criteria:

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Clinical Research Manager: Tammy Lightfoot, RN 214-648-8217 tammy.lightfoot@utsouthwestern.edu

Clinical Research Manager: Sarmistha Sen, M.S., M.S.H.A. 214-645-1477 sarmistha.sen@utsouthwestern.edu

Sara Hennessy, M.D., FACS

Benjamin Schneider, M.D.

“Some bariatric surgeons see patients and let them go after one post-surgery visit. That has to be frustrating for patients as well as their primary care physicians, who end up handling much of the follow-up treatment,” says Sara Hennessy, M.D., FACS, a bariatric surgeon and Director of the Surgical ICU at William P. Clements Jr. University Hospital. “At UT Southwestern, the onus is on us to take care of the patients post-surgery. We have a collaborative team that sees patients at three, six, and nine months and every year afterward. We provide comprehensive care throughout.”

At UT Southwestern, patients access to UT Southwestern faculty and its services with the resources of the other to enable each organization to complement its services with the resources of the other to better serve patients in the region and allows patients access to UT Southwestern faculty and procedures beyond the boundaries of the Southwestern Medical District.

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To refer a patient to the Bariatric Surgery program at UT Southwestern, call 214-645-8300.
UT Southwestern physicians offer consultations and treatment in approximately 80 specialties. Recognizing that navigating through the many programs and resources at UT Southwestern can be challenging, the University established Patient and Physician Referral Services to assist external physicians and their staff with securing patient appointments. Offices may call one centralized phone number to schedule a consultation in any clinic or to fax patient records related to a referral. The UT Southwestern referral coordinator will work closely with the appropriate physician or clinic to coordinate the patient’s appointment, as well as contact the patient and referring physician’s office with the appointment details.